Universidade do Minho
Instituto de Educação

Vitor Hugo Pereira de Oliveira

The interplay of daily activities and healthy child development: The influence of inequality, family culture and gender

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The interplay of daily activities and healthy child development: The influence of inequality, family culture and gender

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Professora Paula Cristina Martins

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The interplay of daily activities and healthy child development:

The influence of inequality, family culture and gender

Abstract

From morning to evening, children navigate through multiple activities embedded in the social and cultural ecology of everyday life. However, an in-depth, comprehensive approach to children´s everyday lives is lacking as previous research has overlooked both the multidimensionality and qualitative dimensions of time use during middle childhood. The present study aimed to explore how variations in positive developmental outcomes result from children´s daily participation profiles, considering the influence of multilevel ecological factors (individual, social, and cultural). Building on a short-term longitudinal, child-centered, multistage, cross-sequential mixed-methods design, and integrating both variable and person-centered approaches to data, we provide a comprehensive examination of children's time use using quantitative and qualitative indicators. The methodological plan included five stages of data collection for approximately 28 months, in which quantitative and qualitative studies were conducted in schools in Northern and Central Portugal. Quantitative assessments were based on self-report questionnaires for children, parents, and teachers for a sample of 3rd to 6th graders (n = 352) in the principal study and for a sample of 3rd and 4th graders (n = 110) in the post-lockdown pandemic study. Qualitative assessments relied on focus group interviews and a Q-study with a purposive sample of 3rd and 4th graders (n = 38). Overall, the findings suggest that children´s everyday lives are characterized by multidimensional, heterogeneous, and qualitatively different participation profiles in which children are exposed to distinct sets of developmental affordances and constraints with implications for their well-being and growth. Additionally, several ecological factors significantly shape children´s participation profiles, specifically, child characteristics, socioeconomic status, family functioning and culture, and the quality of activity settings in schools and communities. By placing children at the center of the discussion, the findings of the study have the potential to inform decision-makers, services, schools, practitioners, and families and provide evidence-based guidance in designing interventions aimed at addressing inequalities and creating opportunities for children to thrive. A constructive, meaningful time use is a positive developmental asset for children in which the quality of daily activities supersedes quantity and the child-environment goodness-of-fit is central. It can be fostered by asset-building families and communities aiming at improving children´s everyday lives and supporting health and thriving during childhood.

***Keywords*:** child health; middle childhood; positive development; time use; well-being

A interação das atividades quotidianas e o desenvolvimento saudável da criança: A influência da desigualdade, cultura familiar e género

Resumo

Ao longo do dia, as crianças participam em múltiplas atividades ancoradas na ecologia social e cultural da vida quotidiana. No entanto, é necessária uma abordagem mais compreensiva do uso do tempo já que a literatura tem negligenciado tanto a multidimensionalidade quanto os aspetos qualitativos do quotidiano das crianças em idade escolar. O presente estudo teve como objetivo explorar como variações no desenvolvimento positivo das crianças resultam dos seus perfis de participação quotidiana, considerando a influência de fatores ecológicos multinível (individuais, sociais e culturais). Baseado num desenho longitudinal de curta duração, centrado na criança, com métodos mistos em estágios múltiplos, e integrando abordagens centradas na variável e na pessoa, é provida uma análise abrangente do uso do tempo das crianças usando indicadores quantitativos e qualitativos. O plano metodológico incluiu cinco fases de recolha de dados durante cerca de 28 meses, nas quais foram realizados estudos quantitativos e qualitativos em escolas do Norte e Centro de Portugal. As avaliações quantitativas basearam-se em questionários para crianças, pais e professores de uma amostra de alunos do 3.º ao 6.º ano de escolaridade (n = 352) no estudo principal, e uma amostra de alunos do 3.º e 4.º ano (n = 110) no estudo do pós-confinamento pandémico. As avaliações qualitativas basearam-se em grupos focais e um estudo-Q com uma amostra de alunos do 3.º e 4.º ano (n = 38). Os resultados sugerem que o quotidiano das crianças é caracterizado por perfis de participação multidimensionais, heterógenos, e qualitativamente diferentes, nos quais as crianças são expostas a diferentes conjuntos de recursos e restrições desenvolvimentais com implicações para o seu bem-estar e crescimento. Adicionalmente, diversos fatores ecológicos moldam os perfis de participação das crianças, especificamente, as características da criança, o estatuto socioeconómico, o funcionamento e cultura familiar, e a qualidade dos contextos das atividades nas escolas e comunidades. Ao colocar a criança no centro da discussão, estes resultados têm o potencial de informar decisores, serviços, escolas, profissionais e famílias, e prover orientação baseada em evidências, no desenho de intervenções que visem combater as desigualdades e criar oportunidades para as crianças se desenvolverem de forma positiva. Um uso do tempo construtivo e significativo é um recurso desenvolvimental positivo que pode ser promovido por famílias e comunidades que pretendam melhorar o quotidiano das crianças e prover suporte ao seu desenvolvimento saudável.

Palavras-chave: bem-estar; desenvolvimento positivo; infância; saúde infantil; uso do tempo

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List of abbreviations and acronyms

ASP Afterschool Program

DA Daily Activity(ies)

EA Enrichment Activities

ECAs Extracurricular Activities

EFA Exploratory Factor Analysis

OA Organized Activity(ies)

PD Positive Development

PYD Positive Youth Development

UN United Nations

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Chapter 1: Introduction

Everyday Life as a Developmental Phenomenon in Middle Childhood

Study Context and Literature Review

Time use is a cause and consequence of child development (Lam & McHale, 2015a). From morning to evening, children navigate through multiple activities embedded in their everyday lives' social and cultural ecology (Weisner et al., 2005). These daily activities fundamentally shape children´s developmental pathways by providing them with opportunities to acquire cognitive and emotional skills, integrate adaptive behaviors, and achieve and maintain well-being (Ben-Arieh & Ofir, 2002; Bronfenbrenner & Morris, 1998). Conversely, everyday life can be a source of disengaging experiences in poor-quality settings in which children have limited resources and opportunities to be happy, healthy, and competent (Larson & Verma, 1999; Weisner, 2010). Moreover, time is not extendable, but it is malleable. Thus, children´s everyday life experiences are a way of assessing their well-being and constitute a description of the developmental opportunities provided by their families, schools, and communities, expressed by both quantitative and qualitative dimensions (Ben-Arieh & Ofir, 2002; Lam & McHale, 2015a; Larson, 2001; Larson & Verma, 1999). Participation in learning, playing, exploring, and socializing activities improves children´s strength, health, and growth, embodying the social and cultural variability in development. Therefore, children´s experiences during their daily activities should be optimized to support better outcomes in the present and future (Bartko, 2006). Examining children´s participation profiles is an opportunity to identify avenues for intervention in positive development at several levels of the child´s ecology (Eccles, 1999; Huston & Ripke, 2006a; Simkins et al., 2006). However, are all children living a good life characterized by stimulating, enriching experiences and positive relationships? Are these activities developed in quality environments that constitute a pathway toward thriving? How can children´s daily lives be improved to support healthy and positive development?

Time is a fundamental but finite resource for individuals; it is allocated to varying functions that express social and cultural expectations. It is the result of the resources, values, and choices of children and their families, schools, and communities. Variability in time use thus reflects as much about a person´s characteristics as her role and status in society (Shanahan & Flaherty, 2001). By being developed in different ecological settings (home, school, community), frequently involving siblings, peers, and adults, daily activities are the building blocks of what happens in the course of children´s everyday life (Tudge & Hogan, 2005; Tudge et al., 2006). Daily activities are the central elements that constitute children´s use of time and the essential routine tasks that children perform and engage in

daily. Thus, time use can be construed as a developmental phenomenon that shapes different childhoods. Examining children´s involvement in daily activities is a way of highlighting their participation as individuals and as a social group, facilitating not only the examination of differences between social groups, but also cultural differences between societies (Rees & Dinisman, 2015). In addition, the scientific interest in the description of children´s everyday lives and childhoods reflects the improvement of their social status, constituting an echo of the enforcement of children´s rights (Ben-Arieh & Ofir, 2002; Ben-Arieh et al., 2014). Consequently, developmental research has gradually shifted its focus to variations in children's daily activities and practices, viewing them as agentic producers of their own development (Bartko, 2006).

Larson and Verma´s (1999) seminal work on children´s time use showed remarkable differences in daily activity patterns across different societies. In general, their findings support the idea that participation in structured activities is linked to positive development, and that unstructured after-school leisure is associated with problem behaviors. In addition, they identified new lines of inquiry that encompass the need to describe time use across different populations, the ecological factors shaping it, and the influence of time spent in specific settings on developmental outcomes. More recently, a study based on data from the *Children's Worlds Survey* (Rees, 2017) added to the extant research by conducting a comparative analysis between developing and developed countries in terms of children´s time use. The author found significant variations in overall patterns of time use across countries and evidence for a considerable amount of time dedicated to educational activities outside school, in line with previous research (e.g., Rees & Dinisman, 2015). For example, less deprived children participated more intensely in daily activities (i.e., television, sports, and extra classes) and girls were more likely to do housework, homework, and reading, and less likely to use a computer or participate in organized leisure compared to boys. It is noteworthy that children from higher income countries spent more time in activities such as playing sports, screen time, and listening to music, and the lack of evidence for a trade-off between physical activity and screen-based activities was clear. Despite these findings, more research is needed to cover a wider range of daily activities (Rees, 2017). Additionally, in another study (Sauerwein & Rees, 2020), the authors argued that patterns of daily activities may be partially country-specific and thus nontransferable to other cultures. They also suggest that the daily participation of children and the developmental results differ more as a function of their socioeconomic background (i.e., inequality) than between societies.

Participation in daily activities encapsulates the concerns and expectations of parents, teachers, professionals, researchers, and policymakers regarding the fit between children´s everyday lives, well-

being, and growth and learning. These concerns and expectations are related to the concept that the way children spend their time may benefit or hinder their well-being and developmental outcomes during childhood, and that it is essential for their future achievement and success (Hofferth & Curtin, 2005; Wight et al., 2009). Notwithstanding the multiple efforts put in place by families and communities aimed at promoting children´s growth and learning, observable in the profusion of activities provided to them, an informative, holistic, multidimensional approach to time use in middle childhood and its effects on well-being and growth are still lacking. Despite ongoing debates and concerns, children´s everyday lives and time use have seldom been studied, and the existing literature has focused on extracurricular participation, which accounts for a small proportion of children´s daily lives (Ben-Arieh & Ofir, 2002; Hofferth & Curtin, 2005). Additionally, adults and societal institutions have a strong influence on the way children spend their time; however, children´s perspectives about their everyday lives are not heard, and their input could be highly relevant since they are the primary recipients of such efforts.

In the context of the challenges of work/family life balance, full-time schooling, and living in a digital, information-based society, the everyday lives of children are continuously transformed and shaped by societal changes and expectations (Frønes, 2009; Orben, 2021). As a result of family, school, and community investments in human capital production, many children are often faced with a variety of academic-oriented after-school leisure activities arranged within complicated schedules (Frønes, 2009). It results in the concept attributed to contemporary children as "cultural omnivores"(Wheeler & Green, 2018). Parents, policymakers, and researchers have become concerned with children spending too much or not having enough free time to satisfy their developmental needs, a dichotomy related to the notion that children are either over- or under-scheduled (Frønes, 2009; Raley, 2014).

Moreover, children´s time use and social participation are greatly determined by the quotidian life arrangements of their families (Bartko, 2006). Families have to manage available resources, shape routines to synch different individual needs, make their time use fit meaningful values and goals, and promote stability during a busy daily life (Weisner, 1998; 2002). Parents can be seen as managers that regulate children´s lives, deciding the settings and interactions with people that children experience as a function of their beliefs, values, social status, and resources (Hudson & Ripke, 2006b). Parents shape participation by modeling the child´s behavior, socializing and motivating towards specific activities, and guaranteeing access (Simpkins et al., 2006). For example, in the work by Lareau (2003), middle-class parents have been described as highly involved in the organization of their children´s daily lives,

whereas less affluent parents provide children with alternative time use arrangements, characterized by low participation in structured activities and more free time. Additionally, in a study examining the extent to which after-school activities are a central feature of middle-class parenting culture, Wheeler and Green (2018) reported that parents tend to treat their children as development projects. However, because an organized activity market for children has emerged, the authors suggest that families may suffer from overscheduling. The results indicated that children showed intense daily participation, which demanded considerable family resources. In addition, after-school activities play a central role in families' lives, a recent phenomenon related to contemporary parenting culture. Money, time, energy, and logistics limit parents´ ability to promote participation; however, mothers´ employment rates, the investment/cultivation and accountability culture of parents, and the expectation of positive outcomes for children have been found to facilitate more intense participation. Despite these often-contradictory concerns, hopes, and choices, it is a common belief supported by evidence that the overall constructive, productive involvement in stimulating, engaging activities is beneficial for children´s well-being, particularly, at-home high quality family interactions coupled with out of home structured, supportive, and creative activities (Bartko, 2006; VanderVen, 2008).

The diverse contexts in which children spend their time can be construed as learning environments or experiential niches, associated with a diversity of social and cultural inputs and, thus, with a distinct set of socialization experiences (Larson & Verma, 1999). Consequently, different activities and settings may provide unique socialization experiences that promote competencies, which are also exhibited in other contexts (Bartko, 2006; Posner & Vandell, 1999). Thus, we expect that the activities included in the present research have developmental significance and contribute to child well-being. Conversely, because of their context and nature or overall patterns, some activities may contribute to children´s maladjustment and ill-being, and the identification of such effects is also needed. Research on time use has described children´s everyday lives in different ecological settings; however, participation is a complex, multidimensional construct that encompasses different aspects, such as the frequency and duration of participation, the intensity of exposure, the breadth of participation, and child engagement, with substantial variability between them (Bonhert et al., 2010; Hofferth & Curtin, 2005; Roth et al., 2010). Existing research has documented the wide range of daily activities that children spend their time on: school- and academic-oriented activities, sleep, screen time, organized/extracurricular activities, time with parents, playing and hobbies, socializing, household chores, physical activity, among other activities that reflect children´s lifeworlds (Larson & Verma, 1999; Ben-Arieh & Ofir, 2002). However, the amount of time spent on a given activity is only a proxy for

the quantity of developmental experiences provided in the activity setting, as other dimensions of participation must be explored concerning their developmental effects (Bohnert et al., 2010; Larson & Verma, 1999).

Following the need to cover a wider range of daily activities, the present research encompasses both structured and less-structured activities. Structured activities, also termed organized activities, are adult-supervised, goal-directed, and rule-based in addition to being frequently group-oriented and developed in organized settings (e.g., after-school programs). Less-structured activities are usually developed in more informal settings, child-initiated and led, less organized, and have fewer objectives or formal rules (e.g., playing, using electronic devices, and exploring the Internet, hobbies, and outdoor activities). Participating in structured versus unstructured and active versus passive leisure activities has been perceived as more beneficial to children; however, various daily activities, which may differ in their contexts and contents, may also provide opportunities for learning, growing, and positive health outcomes, but that knowledge is still incomplete (Hofferth & Curtin, 2005). In the following section, a synthesis of the central domains and categories of daily activities of interest is presented. A deeper analysis of the corpus of research on the topic was further developed in the scoping review in Study 1 (Chapter 3 Results).

Play Time. Playing encompasses informal, child-initiated and led, intrinsically motivated, less-structured leisure, with the goal of having fun, relaxing, exploring, and learning. Play activities reflect children´s characteristics, interests, motivations, and developmental status. Such activities (e.g., games, toys, building models, puzzles, drawing, pretend play, social play, locomotor activities, playing an instrument, reading for fun) are spent either alone or with social partners (i.e., parents, siblings, peers) and constitute one of the central, common elements defining childhood (Larson & Verma, 1999; Bergen & Fromberg, 2008).

Play is an activity that is observed in several settings, such as school, home, neighborhood, parks, and outdoor spaces; children have the ability to engage in playing activities in almost any setting. Play is expected to enhance executive function and contribute to brain structure and the development of safe, stable relationships (Yogman et al., 2018; Hillman et al., 2014). For example, Barker and colleagues (2014) reported that a higher time spent in less-structured activities (e.g., free play, reading) was linked to better self-directed executive functioning as opposed to time spent in structured activities (e.g., tutoring, homework), that predicted poorer outcomes. Playing has also been linked to better learning outcomes, social competence, and lower levels of stress (Bergen & Fromberg, 2008; Fisher, 1992, Yogman et al., 2018). Conversely, playing time has also been linked to internalizing

symptomatology, but further studies are needed to comprehend this association (Teixeira, 2009). Additionally, there are rising concerns that free play has been substituted by sedentary leisure pursuits or adult-directed highly structured activities with possible negative impacts on child well-being and development (Teixeira, 2009; Yogman et al., 2018).

Family Time. Family time encompasses dyadic and social time with parents, siblings, or other relatives, whether at home (e.g., family meals, playing, talking, doing an activity together) or in community settings (e.g., sports event, shopping, walking in the park). Family is a primary context for development, as relationships, routines, experiences, and resources help shape children´s growth and socialization. Nevertheless, despite family functioning being a focal point of theory and research, less attention has been given to the quotidian aspects of family life through the analysis of its routines and the time children and their parents spend in joint activities (Crosnoe & Trinitapoli, 2008; Spagnola & Fiese, 2007). These daily interactions are expected to help children navigate the worlds they inhabit, develop their identities, integrate values and normative behaviors, improve communication skills, and perform their developmental tasks, more or less successfully.

It has been found that higher levels of parent–child interactions, shared family activities, and supervised social activities in and outside the home are associated with better health, achievement, and psychosocial adjustment throughout childhood (Crosnoe & Trinitapoli, 2008; McHale et al., 2001; Raley, 2014). Furthermore, after-school parental care has been positively associated with fewer behavioral problems (Park & Zhan, 2017), and dyadic and social time with fathers has been linked to higher levels of self-worth and social competence (Lam et al., 2012). Conversely, other research investigating the intensity of parent–child dyadic time has shown mixed results, highlighting the importance of incorporating the quantity and quality aspects of family time and possible confounding factors (Fomby & Musick, 2018).

In addition, families develop different shared patterns of activities together. These patterns are transformed during childhood into late adolescence, particularly due to schooling, changing social relationships, and children´s increasing autonomy and experiences outside the home environment (Crosnoe & Trinitapoli, 2008; Huston & Ripke, 2006b; Larson et al., 1996). Thus, it is expected that different configurations of family time will impact and be related to the overall time use of children. The amount and quality of time children spend with their parents have been known to vary as a function of age, gender, and socioeconomic status (SES), but the knowledge of the effects of other ecological factors such as the home environment and family culture remains incomplete (Fomby & Musick, 2018).

Screen Time. Media use is almost universal in postindustrial societies (Larson & Verma, 1999). Children´s involvement with media devices encompasses watching television, using a computer, tablet, or smartphone, and gaming consoles. The time spent on these devices may have different goals and contents, and usually include social media interactions, studying and learning, gaming, watching videos, movies or cartoons, searching for information, or socializing with peers and family (Hofferth & Curtin, 2005). Despite the overall high levels of screen time experienced by children in developed societies, it varies as a function of age, gender, and socioeconomic status (Bohnert & Gracia, 2020). However, increased screen time (TV and computer) has been associated with aggressive behavior (Kelishadi et al., 2014), poorer health outcomes (Berntsson & Ringsberg, 2014; Tsiros et al., 2017), depressive symptoms (Kremer et al., 2014), poorer socio-emotional well-being (Bohnert & Gracia, 2020), and increased stress (Brown et al., 2011).

Conversely, a systematic review (Tang et al., 2021) of longitudinal studies on the relationship between screen time and mental health, has reported negligible to small effects. Since this relationship is complex, there might be bidirectional associations between screen time and depressive symptoms. On the one hand, screen time is expected to influence child behavior and achievement through the displacement of other activities with developmental relevance, but also through content effects (Auhuber et al., 2019; Huesmann & Taylor, 2006). On the other hand, Orben (2021) argues that there is no unitary numerical value linking media use and child outcomes because the impacts of screen time change as a function of the type, amount, balance, individuals, population, and utility of screen-based activities.

Physical Activity. Being physically active implies spending time doing moderate to vigorous exercises and activities, whether through active play at home or at school (e.g., riding a bike, dancing, playing with a ball, running during recess), walking in the outdoors, or participating in organized sports (e.g.., school sports, gym/club, federated sports). Sports are considered a structured/organized activity, but because of their specific content, contexts, and effects, they are here included in the broader physical activity domain. Physical activity during childhood has a positive impact on cognitive and health outcomes that continue into adolescence and adulthood (Biddle et al., 2019). Participation in sports and physical activities has benefits for positive youth development (Linver et al., 2009), being linked to psychosocial maturity, social competence, higher achievement, and better physical and mental health (Badura et al., 2015; Berntsson & Ringsberg, 2014; Fletcher et al., 2003; Tsiros et al., 2017; Yu et al., 2013). Furthermore, the effects of physical activity are expected to change as a function of its intensity and duration of participation, age, gender, and socioeconomic status, but also the quality of the

environment in which it is developed (Covay & Carbonaro, 2010; Molinuevo et al., 2010; Teixeira, 2009; Yu et al., 2013).

Organized Activities. Schools and communities provide a wide range of opportunities for children´s participation in organized activities after class hours, contributing to the broadening of children´s social worlds during middle childhood (Mahoney et al., 2005). This broadening process poses several challenges as children adjust to new socially demanding environments (Eccles, 1999). They encompass a wide range of school-based and out-of-school extracurricular activities (ECAs), enrichment activities (EAs), and after-school programs (ASPs), which are adult-sponsored and fall outside the school curriculum (Bohnert et al., 2010). They are also a consequence of family and community expectations regarding children´s healthy and positive development, because structured, stimulating leisure time may affect how children grow and learn (Hofferth & Curtin, 2003; Raley, 2014; Wight et al., 2009). Participation in organized activities varies according to age, gender, and SES (Mahoney, 2005; Pulkkinen, 2014), and reflects family needs regarding the organization of daily routines and after-school childcare, with long-term implications for children´s profiles of participation and well-being (Eisman et al., 2017; Teixeira, 2009).

These activities are developed in groups of peers in different structured settings, scheduled, adult-led, goal-oriented, and have an emphasis on skill-building. As Gardner and colleagues (2008, 2012) postulate, the variety of experiences these activities offer to children differs as a function of different goals, social contexts, and organizational structures. For example, extracurricular and enrichment activities refer to individual- or group-based activities that provide opportunities to promote specialized skill-building, while after-school programs are multilayered, providing children with a diversity of activities in academic, social, and cultural domains, aiming at promoting children´s overall growth (also see Mahoney et al., 2010).

Research has linked ECAs participation with positive outcomes such as adaptive and prosocial behavior, social competence, school engagement, and achievement (Badura et al., 2016; Dumais, 2006; Metsäpelto & Pulkkinen, 2012; Molinuevo et al., 2010; Morrissey & Werner-Wilson, 2005; Simoncini & Caltabiono, 2019). In addition, learning new skills are central developmental tasks during middle childhood (Eccles, 1999). The time that children spend on academic (e.g., tutoring) and specialized enrichment activities (e.g., arts, languages, music) is, for example, expected to improve children´s cognitive achievement (Hofferth & Curtin, 2005). ECAs also play a protective role in well-being during childhood, with children showing higher life satisfaction, better self-rated health, and better self-esteem and life satisfaction (Badura et al., 2015; Oberle et al., 2019). Furthermore, participation in

ASPs has been associated with social competence, higher academic gains, and lower internalizing problems (Gardner et al., 2012; Mahoney, Lord, et al., 2005; Mahoney et al., 2007; Metsäpelto & Pulkkinen, 2012). In general, these links may be gender and age specific (Badura et al. 2015, 2016) and better outcomes are more pronounced among children with lower SES (Crosnoe et al., 2015; Dumais, 2006; Mahoney et al., 2007; Morris & Kalil, 2006; Yu et al., 2013). On the contrary, according to a review and methodological critique by Roth et al. (2010), the evidence for the benefits of greater participation in ASP is not clear and may instead be related to different aspects of participation (i.e., breadth, engagement) and methodological limitations of the literature (further discussed in Study 1, Chapter 3 Results).

Moreover, the mechanisms underlying these relationships have been studied in recent years, including the provision of opportunities to develop new physical, cognitive, and social skills, in a rules-based environment with social support, where children develop a positive identity and improve their autonomy through positive experiences (Barber et al., 2005; Mahoney et al., 2007). High-quality organized activities provide children with the opportunity to spend their leisure time in a safe, nurturing environment with positive experiences characterized by physical and psychological safety, emotional support, prosocial norms, support for efficacy and mattering, and opportunities for skill building (Eccles & Gootman, 2002; Mahoney, Larson, et al., 2005; Morris & Kalil, 2006). In addition, Yu and colleagues (2013) posit that organized activities are related to fewer behavioral problems because structured/well-monitored environments help build skills and self-regulation, and experiencing social engagement contributes to a lower likelihood of conduct problems. Furthermore, Kataoka and Vandell (2013) added to existing knowledge by examining the quality of after-school activities (feelings of emotional support from adult staff, positive relationships with peers, and opportunities for autonomy) and their association with student outcomes. Their focus was on longitudinal associations between cumulative after-school experiences and changes in adolescent functioning, reporting that the quality of after-school experiences significantly predicted developmental outcomes.

Sleep and Restful Activities. Care and self-maintenance activities include sleep and inactivity/rest, encompassing a large proportion of children´s time. Good quality sleep and consistent bedtimes are associated with better cognitive, behavioral, and mental health outcomes compared to disrupted sleep, which is associated with behavioral problems and lower social skills (Schlieber & Han, 2018; Weatherson et al., 2020). Lower levels of sleep have also been linked to obesity, and compared to screen time, physical activity, and homework, the magnitude of the association between sleep and mental health is the largest (Zhang et al., 2017). Yu et al. (2013) present the case for restful activity, as

insufficient sleep/rest or sleep problems are linked to adverse physical, cognitive, and behavioral outcomes. Sleep varies as a function of several factors such as age, activity participation, SES, and family functioning (Adam et al., 2007). For example, as children age, they tend to get less physical activity, get less sleep, and engage in fewer health behaviors that constitute a health challenge to tackle.

School and Academic-Oriented Activities. Attending school is a central activity that defines middle childhood. School and academic activities involve the exposure to structured and complex cognitive tasks, defined by adults, developed in specific settings, and occurring in a predictable schedule, in which children are expected to acquire new intellectual skills. It includes class hours, doing homework, or attending a study room/tutoring (Teixeira, 2009). After-school academic activities involve several social partners and settings and constitute a crucial element in the overall organization of the use of time by children. Homework and studying activities play different roles with regard to children´s outcomes, and are related to achievement and academic orientation, as well as stress and emotional problems (Larson & Verma, 1999; Brown et al., 2011). Mixed results have been found regarding the time spent on homework, which can be a source of better academic outcomes, but also family conflict, limitations in the free leisure time available, and other undesirable outcomes (see Teixeira, 2009). This domain of activities corresponds to a large proportion of children´s weekly time use, however, the present research focuses on homework and study activities, as well as free time at school (e.g., recess) and school-based participation in ECAs, rather than analyzing the intensity of class hours, which in Portugal is standard for children enrolled in schools.

Interacting Quantities and Qualities of Children´s Daily Activities

As described above, everyday life fundamentally shapes children's development as daily activities influence how children grow and learn. Examination of time distribution and participation across different activity contexts provides an outline of developmental experiences during childhood (Larson & Verma, 1999). Such examination must be ecologically valid: research must focus on real-world situations that incorporate the essential features of the ecology of everyday life (Wachs, 2015). However, a comprehensive approach to the time use of school-aged children is lacking, and a more in-depth, holistic portrayal of children´s everyday lives is required. Previous research has focused on the description of single, specific categories of daily participation, overlooking the concurrent interplay of effects of different daily activities and their multidimensional patterns of organization on the healthy and positive development of children. Additionally, the quality of children´s experiences and activities, as well as the individual, social, and cultural features embedded in the multilayered ecology of their

everyday life have been seldom studied. The next stage of research must focus on going beyond the frequency and intensity of participation and disentangling how the quantities and qualities of time use interact to promote child well-being and development. Furthermore, children should be at the center of research on issues related to their lives, and more attention should be paid to their daily participation in the specific cultural and social worlds they inhabit (Rogoff et al., 2018). The impact of each activity depends greatly on their preferences, meanings attributed, sociocultural expectations, and the level of engagement with those activities. Thus, including children´s own perspectives is essential to obtain a more robust knowledge of their everyday lives (Lam & McHale, 2015a).

Children´s daily activity participation is a complex phenomenon that needs better understanding and several research needs have been identified in the previous literature. First, it is necessary to look at the diversity/multiplicity of relevant daily activities and their concurrent contributions to child outcomes, covering a wide range of participation (Bohnert et al., 2010; Ferrar, Chang, et al., 2013; Ferrar, Olds, et al., 2013; Rees, 2017). It implies examining the weekly time spent in various activities, developed in diverse ecological settings, to avoid a segregated focus on specific activities that may lead to an incomplete knowledge of children´s time use (Ben-Arieh & Ofir, 2002). Additionally, despite the effects of individual categories of activities being established, there is a growing recognition of the need to study children´s daily activities as interconnected, complementing elements (Ferrar, Chang, et al., 2013; Hunt & McKay, 2015). These elements are organized around complex patterns (i.e., structure) and research must effectively portray this complexity, understanding the child as an organized whole rather than a summation of variables. Looking uniformly and linearly at daily activities as elements of children´s lives (activities as unidimensional input units) can be very uninformative. Daily activities have different types, amounts, contents, qualities, purposes, and combinations (balance between different activities), depending on the characteristics of participating individuals and the social and cultural groups to which they belong (Orben, 2021). Therefore, researchers should apply person-centered methods to analyze overall activity patterns of daily activities as multidimensional units (Ferrar et al., 2013; Hunt & McKay, 2015; Lam & McHale, 2015a).

Secondly, the focus on the quantification of time use has led researchers to overlook the developmental qualities of the settings where daily activities are developed (i.e., quality and process-level aspects) (Lam & McHale, 2015a). The quantification of participation is incomplete without describing the interactions, structure, meanings, motivations, goals, and emotions that are components of the involvement with an activity and vary across children, individually and as a group (Larson & Verma, 1999). Recent research has found evidence for the importance of including process measures

in time use models such as the psychological safety of the settings, the social climate and effectiveness of social interactions, as well as the opportunities for skill-building and growth provided (Kataoka & Vandell, 2013; Smith et al., 2014). Bohnert and colleagues (2010) provided an in-depth analysis of theoretical and methodological considerations when assessing participation dimensions, concluding that the potential of activity participation is not actualized, as research has found that effects are variable as a function of activity quality.

Better child outcomes are related to combinations of home and out-of-home leisure activities that complement each other, providing a variety of opportunities to develop skills and relationships, and improve health and well-being. Thus, the positive development of children can be better understood through a framework that includes the various dimensions of participation, particularly the examination of how the quantities and qualities of participation affect child outcomes (Larson, 2001; Larson & Verma, 1999). It results from the fact that associations between the intensity of participation and child outcomes are complex and non-linear (Bohnert et al., 2010; Simpkins, 2015; Zarrett et al., 2009). Activities may have different roles according to their specific features, the ecological settings where they occur, as well as the characteristics and background of the child. Quantity and variety matter, but the quality aspects of activities also play an essential role in promoting positive child outcomes. However, more information is needed regarding the processes by which family, school, and community environments operate (Huston & Ripke, 2006b). Processes are key elements comprising the interactions with significant others (e.g., mentoring, regulation, support, meaning-making), the settings where activities ensue (e.g., goals, resources, organized versus disorganized), and growth opportunities (e.g., engaging, challenging, increasingly complex) (Eccles & Gootman, 2002). In particular, the quality of relationships with parents and other adults present in activity settings consistently emerges as a key feature of any developmental setting. Here, the importance of clear behavioral expectations, warmth, support, connectedness, and good communication are associated with more positive developmental outcomes (Steinberg, 2001; Larson et al., 2004). Notwithstanding, there is still a lack of information on how the quality of activity settings help shape children´s everyday lives, their experiences, and ultimately, their positive outcomes (Huston & Ripke, 2006b).

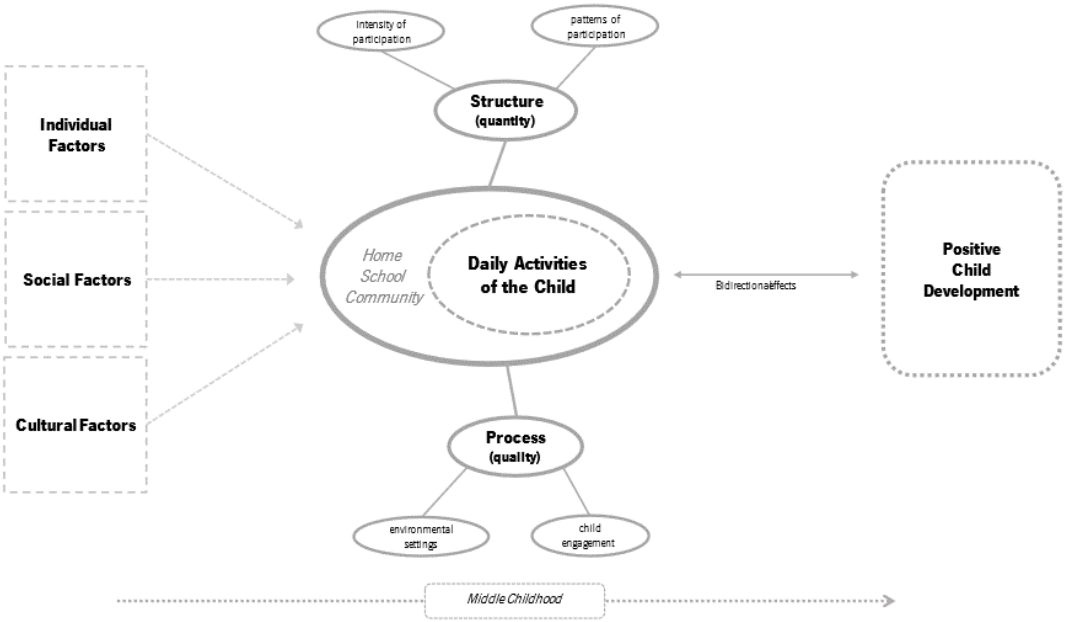
Thirdly, due to this in-depth contextualization of the nature of children's activities, there is a need to complement the knowledge of time use by examining its antecedents and consequences (Badura et al., 2015; Rees, 2017; Larson & Verma, 1999). For example, Bonhert and colleagues (2010) called for the examination of the individual, family, and contextual factors that predict a child´s involvement in activities. The evaluation of child-level factors such as gender, adjustment,

developmental status, or engagement, that contribute to understanding the antecedents of time use and its effects, is thus warranted as children´s characteristics are expected to self-select them into different activity profiles. In addition, leisure time is expected to be gendered; however, girls may have progressively moved into the leisure domains and lifestyles once considered to be limited to boys (Frønes, 2009). Moreover, lower SES children may be more exposed to environmental risk and less enriching opportunities in their homes, schools, and communities (Auhuber et al., 2019; Frønes, 2009; Morris & Kalil, 2006), warranting the examination of social address variables. Additionally, moving beyond the role of structural characteristics (e.g., socioeconomic status, family typology), it could be especially informative to investigate family functioning and cultural orientations (goals, values, choices, and everyday practices) in the organization of children´s everyday lives (see Lam & McHale, 2015a). Indeed, children´s time use choices may be a result of financial or contextual constraints, family organization, or parental beliefs and values about activity involvement and child development. Recently, several authors (Gracia et al., 2020; Lam & McHale, 2015a, 2015b; Ooi et al., 2020; Patočková et al., 2021) have called for further attention to family and parenting cultures as critical influences on children´s participation profiles and as core elements of time use that further enlighten the influences of social background.

Building on an innovative cross-sequential mixed methods design, the present study provides further knowledge on the developmental significance of children´s daily activities across middle childhood and its multilayered ecology. This research focuses on how different portfolios and patterns of daily activities, and their individual, social and cultural determinants, influence positive health and developmental outcomes for children (see Figure 1 Conceptual Map of the Study). Because it focuses on everyday life as a developmental phenomenon, it adds to developmental science and practice on how families, schools, and communities can sustain positive health outcomes. By placing children at the center of the discussion, it has the potential to inform decisionmakers, community services, schools, practitioners, and families and provide evidence-based guidance in designing interventions aimed at tackling inequalities and creating opportunities for children to thrive.

Figure 1

Conceptual Map of the Study



Theoretical Framework

The current research builds on several ontological, epistemological, and theoretical assumptions. In the behavioral and social sciences, the naturalist and realist approaches to scientific enquiry have been at the center of an intense, ongoing debate and a strong dichotomy has existed between the two stances. In the one hand, researchers consider reality a social construct characterized by multiple experienced realities, interpreted and constructed by individuals, and, therefore, susceptible to qualitative, subjective methods of analysis. On the other hand, researchers think of reality as a phenomenon shared by individuals that can be measured and objectively quantified (Newman & Benz, 1998; Mertens, 2014). In the first viewpoint, the more qualitative-oriented paradigm, the philosophy emphasizes the phenomenological basis of research and the intense description of the diverse meanings and contexts of reality for participants. The second viewpoint, the more quantitative-oriented paradigm, considers the importance of finding relationships and causes, thus valuing objective quantification, control of variables, and hypothesis testing (Kivunja & Kuyini, 2017). However, the scientific endeavor can be inductive and deductive, objective and subjective, building on a qualitative-quantitative continuum rather than a restricting and ultimately false dichotomy (Subedi, 2016).

Developmental science tries to give meaning to real world challenges impacting child development. It is a multidisciplinary field focused on the contents (what), contexts (where), processes (how), and goals (why) of development. To attain such objectives, developmental science addresses the

interplay of individual, social, and cultural factors that enhance or impede children´s growth, probing research problems from different angles, and capturing both the homogeneity and heterogeneity of developmental processes (Barbot et al., 2020). In addition, researchers must ask questions about both the commonalities in child development and the differences in developmental change across groups, contexts, cultures, and societies (Laursen & Hoff, 2006). Within the pragmatic paradigm, researchers value the plurality of scientific approaches, criticizing a mono-paradigmatic research orientation, arguing that the methodologies should be the most appropriate for studying the complex phenomena at hand (Kivunja & Kuyini, 2017; Subedi, 2016). Weisner and colleagues (2005, p.43) raise an important question regarding this issue: "How can one conceptualize development as such a journey on a pathway consisting of activities in some specific cultural-ecological context, and imagine that we could use only one method to find out about it?". In addition, the complex study of how to promote and support opportunities for children that contribute to successful developmental pathways requires interdisciplinarity and the integration of multiple methods (Lam & McHale, 2015a).

As described, most of the previous literature has focused on quantitative methodologies, but very few have used qualitative approaches (Faust & Kuperminc, 2020; Horgan et al., 2018; Howe, 2016; Lehto & Eskelinen, 2020), and mixed methods research on the matter is practically non-existent (see Quarmby et al., 2011 as an example). Therefore, a flexible, pragmatic stance in the qualitative-quantitative continuum will be pursued in the present research. It means that our approach will be based on a mixed-methods design that derives from both the qualitative- and quantitative-oriented methodologies, within what is described as the third paradigm (Creswell & Plano Clark, 2011). When combined, these methods complement each other and allow for a more robust analysis of a complex problem (Fetters et al., 2013; Subedi, 2016). It involves multiple sources and types of data assessing both the magnitude of constructs and the meaning of those constructs, systematically integrating and triangulating data to enhance its robustness (Creswell et al., 2011). Our approach also involves a central concern over axiology, valuing the ethical scrutiny of methodology, as well as the purposes and outputs of research. It means taking into consideration the ethical principles and values that guide the researcher, the protection of participants´ rights, and the focus on the beneficial outcomes of the research for the wider society (Kivunja & Kuyini, 2017).

Furthermore, the child studies field is characterized by the conceptualization of children as active subjects and relevant participants in research about their own lives, viewing children as competent informants in what concerns their everyday experiences, meanings, and cultures (Alderson & Morrow, 2011; Bruzzese & Fisher, 2003; Sarmento & Gouvea, 2008; Christensen & Prout, 2002;

Mason & Danby, 2011). It is, therefore, a point of intersection between different disciplines and theories that aim at understanding children as they are in the here-and-now and how they transform and are affected by their life contexts (Frønes, 2009). This conceptualization also calls for using different approaches and the inclusion of both quantitative and qualitative methods, with children at its center. Following the child-centeredness of the present research and its epistemological assumptions, the present work is additionally informed by the UN Convention on the Rights of Children (1989). Specifically, we highlight Articles 29 and 31; the former states that education must address the development of the child's personality, talents, and mental and physical abilities to their fullest potential, including preparing the child for a responsible life in a free society. The latter recognizes the right of the child to rest and leisure, to engage in play and recreational activities, and to participate freely in cultural life, encouraging the provision of appropriate and equal opportunities for cultural, artistic, recreational, and leisure activities. These are in line with the goals of the United Nations Sustainable Development Goals (2030 Agenda), specifically, Goal 3, which aims at ensuring healthy lives and promote well-being, Goal 4, which aims to ensure inclusive and equitable quality education, and Goal 10, which aims at reducing inequality (UN, 2015).

The Multilayered Ecology of Child Development

As the bioecological theory posits (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998; Bronfenbrenner, 1999), for development to occur, an active, evolving child must engage in activities that take place regularly and over an extended period in its immediate physical and social environments (Proposition 1). The ecology of the child constitutes a complex developmental force, structurally organized in different levels of interconnected systems that directly and indirectly influence development (Wachs, 2015). It is constituted by a set of nested structures: the microsystem (proximal settings in which the child is situated and actively participates), the mesosystem (linkages between microsystems), the exosystem (external indirect influences on children´s microsystems), the macrosystem (societal institutions and cultural systems), and the chronosystem (historical change and macrosystem events influencing more proximal systems). Of interest to this research is the *microsystem* – the most proximal settings in which the child is situated and actively participates. These are heterogeneous in nature, with physical, social, and cultural dimensions functionally linked (Wachs, 2015). Daily activities are developed in such *microsystems* (e.g., home, school), thus presenting children with a variety of daily experiences which are expected to have developmental significance. Additionally, the Process-Person-Context-Time (PPCT) model is an operational research design encompassing the theory´s four key elements of which development is hypothesized to be a joint product (Bronfenbrenner & Morris, 2006).

It embodies the theory in a way that urges researchers to include in their designs the elements of *process*, *person*, *context*, and *time*. Because they are intertwined, the characteristics of the child, the process, the environment, and the outcome are necessary to understand development (Darling, 2007).

Proximal processes, also termed the engines of development, are the primary mechanisms through which child development is produced. They encompass enduring forms of progressively more complex, bidirectional interactions of the child with the elements of its immediate environment, occurring regularly and predictably (e.g., playing, caring for a sibling, performing complex tasks, learning new skills, and parent–child activities). For these proximal processes to be effective they must encompass increasingly complex, reciprocal, and interactive activities that invite "attention, exploration, manipulation, elaboration, and imagination" (Bronfenbrenner & Morris, 1998, p. 997). These proximal processes are at the center of children´s daily activities, constituting the building blocks of everyday life (Tudge & Hogan, 2005). The developmental effectiveness of *proximal processes* varies as a function of the attributes of the child and the characteristics of its immediate and more remote environmental *contexts*, but also the developmental outcomes under examination, the periods in which they take place, as well as social changes occurring over time (Proposition 2) (Bronfenbrenner, 1999). *Process* integrates the present research as an indicator of exposure to specific *microsystems* with distinguishing characteristics but also as an indicator of the quality of the environmental settings where activities ensue (i.e., home, after-school program, school).

Person characteristics are the behavioral dispositions that set *proximal processes* in motion and sustain their operation whether in the domain of relationships or in the development of tasks. They include, on the one hand, difficulties in regulating emotions and behavior (e.g., impulsiveness, distractibility, lack of interest), and, on the other hand, developmentally generative characteristics (e.g., volition, responsiveness, curiosity, readiness to pursue long-term goals). Therefore, behavior in daily life is influenced by a child´s resources, which include both developmental assets (e.g., abilities, experience, and skills) and developmental liabilities (e.g., conditions that limit or disrupt behavior such as illness or handicaps). The child also shows demand characteristics that motivate the engagement with *proximal processes* and significant others present in each *microsystem* (e.g., focus of attention) (Bronfenbrenner, 1999). Thus, the cognitive and socioemotional characteristics of the child are indicators of developmental outcomes but also precursors of later development. For this reason, child characteristics "are both a producer and product of development" (Bronfenbrenner, 1999, p. 5). *Person* characteristics appear in the present research as the child´s developmental status, prior functioning, gender, and engagement levels.

Context means that it is within the child´s environments, which are constituted by persons, objects and symbols, that *proximal processes* occur. The quality features of the environment foster or hinder development and constitute the main features of children´s developmental biome. In our study, the center of gravity for developmental processes is the *microsystem*, constituted by patterns of activities, roles and interactions experienced by the child within a particular activity setting. These microsystems also include physical, social, and symbolic features that may promote or hinder the child´s engagement with the activities and tasks in the settings. Accordingly, environments that provide opportunities and support for growth are those in which the proximal processes are typically both consistent and predictable (Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998). In contrast, when children's experiences of their environment are chaotic, lack structure and support, or are unpredictable, the extent to which *proximal processes* are effective is limited (Bronfenbrenner & Evans, 2000; Wachs & Evans, 2010). Therefore, *contexts* influence development through the resources they provide and the stability and consistency that are required for *proximal processes* to be effective (Bronfenbrenner, 1999). Because the child shapes and interacts with her environment, each context is responded to differently by different children (Darling, 2007). *Context* appears in the present research as the characteristics of the diverse *microsystems* of a child´s ecology in the form of activity settings. Daily activities occur in interaction with social partners, objects, and symbols on a regular basis in different settings, thus observing daily life as a developmental phenomenon implies the examination of typically occurring experiences, the characteristics of the child and its social partners, as well as the qualities of the settings where those experiences ensue (Tudge & Hogen, 2005).

Time refers to the *exposure* to *proximal processes*, particularly, *microtime*, which reflects the stability versus instability of *proximal processes*, and *mesotime*, which reflects a broader periodicity of those processes in days and weeks (Wachs, 2015). For example, higher exposure to daily activities in terms of frequency, intensity, and duration are expected to produce stronger effects than low/inconsistent/null participation (Vandell et al., 2015). Time appears in the present research in several dimensions: the time spent in activities, its organization in different patterns, and change in time use across middle childhood.

Furthermore, in the present work, children´s daily activities are defined as *molar* in nature, instead of *molecular*. As Bronfenbrenner (1979) posits, a *molar activity* is an ongoing behavior with a momentum of its own and is perceived by its participants as having meaning or intent. Because they are an ongoing motivated process, and not an utterance or instantaneous behavior (which is *molecular* by nature), they constitute complex developmental units that simultaneously reflect the cause, context,

and consequence of psychological growth. Daily activities contribute to the expansion of children´s phenomenological field because they occur in larger temporal trajectories involving a sequence of steps or stages, thus constituting a means to an end. They are also developed in different ecological settings frequently involving peers and adults, thus being complex and multidimensional. The expansion of children´s phenomenological field is linked to an ever wider and differentiated ecological environment in which the child not only participates in and benefits from but also actively contributes to defining its structure and content (Bronfenbrenner, 1979).

In addition to the interest in daily activities as complex developmental units, the definition of *molar* also pertains to units or systems in their entirety. Molar analysis is a way of examining behavioral processes as holistic units expanding through time. This approach emphasizes comprehensive concepts and overall structures. Conversely, molecular analysis is focused on the individual components of a phenomenon, therefore, it is a way of examining behavioral processes in terms of elemental, transient units (Shimp, 2014). Molar analysis includes three dimensions that contribute to behavioral variability: (1) behaviors that occur at different times, in different places, and possibly involving different individuals engaged in different activities, are aggregated into one category of activities that have the same reinforcing consequences; (2) these aggregated activities are assumed to be produced with the same probability over a certain period of time; and (3) a statistic is selected to describe this multidimensional aggregate (Shimp, 2014).

Daily activities are also developmental and cultural units of analysis. Developmental pathways consist of activities embedded in ecological and cultural settings comprising values and goals, resources needed, relationships, tasks, emotions, and cultural scripts that shape behavior (Weisner et al., 2005). Based on the sociocultural theory of human development, Rogoff and colleagues (2018) posit that child development is a process of growth in ways of participating in the endeavors of communities, as development occurs through everyday experiences, which are cultural by nature. Furthermore, the authors suggest that the child and the context of activities cannot be seen as separate entities, concluding that the basic processes of human development are the same processes of participation in daily life. Therefore, they argue that developmental science should focus on the ecologies in which children develop, focusing on children's participation in the cultural and social worlds that they inhabit. Furthermore, the ecocultural theory of development (Weisner, et al., 2005) postulates that child development occurs alongside pathways consisting of everyday activities embedded in ecological and cultural contexts, and that well-being is an expression of engagement in such activities. These authors suggest that the sociocultural perspective situates human development in the population-

specific, culturally- and intentionally-designed everyday worlds, and that these worlds must be better understood in the context of human development.

Recently, Lam and McHale (2015) reviewed extant literature on time use as cause and consequence of youth development building on the developmental theories described above. The analytical dimensions used (nature of activities, social context of activities, youth characteristics and development, and the larger sociocultural context) portray children´s time use as a developmental phenomenon in which daily activities affect and reflect children´s development. They postulate that: (1) children´s adjustment and personal characteristics influence the choice of activities and their involvement in those activities (which is understudied); (2) daily activities vary in content and organization and therefore provide different learning and socialization experiences; (3) social partners are the vehicle through which children are affected by their proximal social environments in their activities (e.g., caring parents, deviant peers); and, (4) activities are developed in a multi-layered context which provides the cultural scripts and resources that organize the everyday lives of children (e.g., values, objectives). As described below, the methodological improvements suggested by these authors were incorporated in our study design.

A Person-Centered Approach to Children´s Everyday Life

In the present research we integrate both variable- and person-centered approaches to better describe children´s daily lives. The prevalent variable-centered approach focuses on studying associations between variables, which assumes that the population of interest is homogenous regarding those associations. The person-centered approach is interested in identifying groups or types of individuals who share attributes or patterns of relationships among several variables that differ from other groups – the population is heterogeneous concerning how variables aggregate and associate. Therefore, variables are properties of individuals and their ecological contexts and bundle differently across different types of individuals. Also, developmental change and trajectory may differ across subgroups of the population (Laursen & Hoff, 2006). It involves applying statistical techniques to quantitative data with the goal of finding "meaningful natural clusters" (Laursen & Hoff, 2006; *p.*381), also known as *types* or *taxa*. These techniques minimize differences within each *type*, while maximizing differences between the *types*. As a result, description is a strength of this approach. Because the child is viewed as a functioning, organized whole (person, process, and context characteristics) and not a variable, it is an approach highly consistent with developmental-ecological theories previously described (Bergman, 2001; Wachs, 2015).

However, both variable- and person-centered approaches are equally relevant to science, providing different perspectives on human development. For example, once the *types* have been defined through person-centered analysis, one may use variable-centered techniques to study the antecedents and consequences of the time use of such *types* of individuals. Previous research has provided ample evidence on the characteristics of children´s involvement with specific activities (e.g., sports, ASPs, ECAs) and the contribution of those categories of activities to child outcomes. Such knowledge is very useful to comprehend time use as a developmental phenomenon; however, data on children's everyday lives is still incomplete (see Hunt & McKay, 2015). Multifaceted participation patterns are better understood with analytical techniques that provide the characterization of individuals on the basis of several measures, thus incorporating the multidimensionality of everyday life (Farb & Matjasko, 2012). A standard variable-centered approach compares sample means to indicators of functioning; however, results of such analyses can differ across individuals and findings on an aggregate level provide a limited perspective of individual characteristics and functioning (i.e., ecological fallacy) (Zarrett et al., 2009). Conversely, a person-centered approach reflects a more holistic perspective of the features of everyday life that contribute to child development (Farb & Matjasko, 2012). By applying a person-centered approach to the study of children´s participation in daily activities we adopt the individual child as the unit of analysis, more accurately reflecting the diverse profiles of daily activities available to and engaged by children, as opposed to the analysis of their participation in single categories of activities (variable-centered analysis). These different combinations are expected to incorporate the complexity of everyday life, basically grouping children on the basis of their shared patterns of participation (Linver, Roth, & Brooks-Gunn, 2009; Morris & Kalil, 2006). It more accurately reflects "the bundles of activities available to and utilized by children and families in the real world" (Morris & Kalil, 2006, p.238). More than an analysis of quantitative variations, such an approach shows qualitative variations in children´s everyday participation relevant to child well-being and development (Zarrett et al., 2009). The use of a person-centered approach in the present research, encompassing both structured and less-structured daily activities, and incorporating the interplay of influences across several ecological settings (home, school, community), contributes to the knowledge of children's everyday lives and their developmental repercussions. Therefore, we are interested in daily activities at two different levels: types and categories that constitute children´s *portfolios* of daily activities, and the different combinations of those activities around *patterns* of time use.

A recent review by Hunt and McKay (2015) assumes that time use methodology is a window onto children´s lifestyles and that time use is both a determinant and an indicator of well-being (with an

emphasis on well-being rather than the prevention of poor health). The authors identified the need to support an ecological view of the determinants of well-being going beyond the focus on specific and isolated activities. As the authors eloquently put it, daily activities "are seen as the building blocks that create an overall pattern of time use" (p. 260). From the studies included in this review, very few used person-centered analysis or examined time use in relation to well-being outcomes. The authors concluded that the knowledge base of children's lives needs to be completed as well as the examination of how the quantities and qualities of time use affect children.

Moreover, the work of Ferrar and colleagues (2013), adds to the field by thoroughly reviewing and examining empirical literature on adolescent time use clusters and its correlates. This review builds on the idea that complex patterns of behaviors are better explainers than individual ones, and that knowing such patterns could help tailor more effective prevention programs for youth. Cluster analysis is a pattern recognition technique that partitions individuals according to variables of interest and aggregates them into different groups/clusters. The authors further reported high commonality between the reported clusters and an evident consistency between cluster patterns and their correlates, particularly, differences according to gender, age, ethnicity/culture, and socioeconomic status. In the same line of health approaches to children´s time use, Wong et al. (2017) published a work that assumes that time use is modifiable, thus, targeting sub-optimal patterns of behaviors could improve children´s health. As other works previously reported, they argue that person-centered approaches to children´s time use acknowledge the interdependence and complex relationships between different activity domains. Therefore, they hypothesized that different time-use clusters exist by early adolescence and that the most balanced time use (moderate levels of participation in multiple domains) is linked with better levels of quality of life. The authors concluded that youths who participate in various activities (study, physical activity, screen time) have better health than their counterparts; however, research tapping these links during middle childhood is scant.

Healthy and Positive Child Development

Middle childhood is a fundamental stage for studying daily activities as elements of positive development. It is a period of growth and change characterized by children acquiring new social and academic skills, developing identity and agency, and assimilating healthy, adaptive behaviors. These changes predict adolescent and adult functioning and are, partly, the result of early habits established in middle childhood (Huston & Ripke, 2006b; Simpkins et al., 2006). Middle childhood also represents a period of exposure to diverse environments outside the home and an increasing influence from experiences and interactions with others (Eccles, 1999; Morris & Kalil, 2006). The foundations for

lifelong healthy and adaptive functioning are thus developed during this stage, and daily activities (e.g., school, extracurricular activities, youth programs, sports, leisure time with parents) are considered essential elements contributing to children´s positive outcomes (Huston & Ripke, 2006a).

An emphasis on positive child development is important because it has a role in enhancing humanity and society. Models of positive child development have shifted the research focus from problems, deficits, and maladjustment to the promotion of skills, strengths, and well-being. Therefore, the interest in the processes through which children flourish and successfully develop has become the main drive for studying the contexts and experiences that help children thrive (Tolan et al., 2016). There is a gradual recognition that the focus on adverse developmental outcomes has made developmental science unbalanced and incomplete (Barbot et al., 2020). As a result, a consensus is forming regarding the evolution of science towards the positive aspects of child development in all domains of a child´s life, whether in cognitive and educational, social and emotional, or health dimensions (Lippman et al., 2011; Moore & Lippman, 2006). In addition, being effective in several activity settings gives the child a more positive view toward engaging and learning with life´s activities and challenges (Eccles, 1999). However, few studies have given equal attention to behaviors that embody competence, as opposed to problem behaviors.

What is the meaning of healthy and positive child development? While dysfunction refers to a child´s difficulties in regulating behaviors across situations (e.g., problem behaviors), competence is the expression of the integration of new skills and knowledge that promotes healthy, adaptive behaviors (Bronfenbrenner & Morris, 1998). Thriving is related to the self-regulation needed to optimize one´s health and developmental trajectory, and to promote a positive adaptation of the self in multiple, challenging contexts (Lerner et al., 2011). Behaviors associated with positive development include social competence with peers and adults in everyday situations, the self-regulation of cognition and emotion in the classroom or at home, or the demonstration of autonomy, responsibility, self-reliance, and empathetic, prosocial attitudes in social interactions and settings (Eccles, 1999; McClelland & Cameron, 2012). Consequently, our dimensions of interest include developmental outcomes such as social competence and prosocial behavior, achievement, as well as well-being outcomes, whether in the physical, psychological or social domains. These reflect adaptive behavior, thriving, and a successful navigation through everyday life contexts.

The choice for a multi-dimensional assessment of children´s positive developmental outcomes, using a multi-rater, multi-context approach is related to the fact that many behaviors are context-specific and context-sensitive – children behave as a function of their environment. Other reason is related to

the fact that children may be proficient in some skills or areas but are lagging behind in others. In addition, children, parents, and teachers have different perspectives on each child´s behavior as their roles, motives, expectations, and experience vary (Epps, Park, Huston, & Ripke, 2006). Thus, information must be collected from several complementing sources to fully understand positive development. In addition, this evaluation depends on valid measures that can substantiate positive child development research, however, assessing positive outcomes may be a complex task (Barber, 2006).

During middle childhood, social interactions developed in different settings become more intensive and complex, demanding increasingly adaptive behaviors from children (Eccles, 1999). The environmental contexts of middle childhood (home, school, community) make modest but significant contributions to development, predicting adolescent and adult functioning; thus, middle childhood matters (Huston & Rypke, 2006). They are contexts for developing healthy, adaptive behavior, but the empirical demonstration of these competencies, their relevance, how they emerge, and how they enmesh with development is still incomplete (Barber, 2006, Huston & Rypke, 2006). In addition, the developmental contributions of such contexts may be small; however, they may be developmentally substantial as small changes compound over contexts and time as a function of the multidetermined, cumulative nature of child development. Moreover, activities may play a compensatory role and more research is needed to understand which children benefit most from their specific participation profiles (Simpkins, 2015). Concluding, the higher-order questions guiding this research are the following: Are all children living a good life or are their childhoods unequal? Are specific profiles of daily participation more optimal and contribute more effectively to the thriving of children? Is this knowledge useful to enhance children´s everyday lives and support their well-being? Consequently, the lower-order questions are: What do children do in their everyday lives? Why do they do it? And, with what consequences for their positive development?

Objectives

This research focuses on the overall portfolios and patterns of daily activities that children engage with (considering structure and quality aspects of the activities), the multi-level ecological factors that influence the organization of children´s everyday life, and the impacts of these portfolios and patterns of participation in positive development during middle childhood (see Figure 1). Using a child-centered, multistage, convergent cross-sequential mixed-methods design, and applying a mixture of variable- and person-centered approaches, this research aims to study the complex interplay between daily activities and the health and developmental adjustment of school-aged children, considering the influence of individual, social, and cultural factors.

The specific objectives are the following:

Objective 1. To review recent advances in literature focused on the causes and consequences of time use in middle childhood.

Objective 2. To comprehensively describe the daily activities of school-aged children from the 3rd to the 6th grade, and assess different time use portfolios and patterns by socioeconomic status, family culture and functioning, quality of environmental settings, and child characteristics (gender, developmental adjustment, and engagement).

Objective 3. To investigate the associations between time use portfolios and patterns and positive developmental outcomes (well-being, social competence, adaptive behavior, achievement) from the 3rd to the 6th grade, considering the effects of socioeconomic status, family culture and functioning, quality of environmental settings, and child characteristics (gender, developmental adjustment, and engagement).

Objective 4. To analyze children´s perspectives about their time use, daily participation, and the links with growth and well-being considering their values, choices, needs, and everyday challenges.

Chapter 2: Methods

Research Design

The present study investigates the positive developmental effects of the quantitative and qualitative features of children´s daily activities in middle childhood and its influencing ecological factors (individual, social, and cultural) (Figure 1). The use of a child-centered, multistage, convergent cross-sequential mixed-methods design is expected to provide an in-depth comprehension of this complex phenomenon, focusing on answers to real-life problems of children. Furthermore, the description of developmental processes as they unfold during middle childhood may afford a comprehensive examination of different patterns of change and their ecological influences. A longitudinal investigation is also justified by the fact that research has given less attention to this age group, thus neglecting the challenges, opportunities, and differences (i.e., individual, social, cultural) that emerge during this transitional period. Such challenges, opportunities, and differences may contain short- and long-term implications for well-being and development.

The plan involved collecting and analyzing quantitative and qualitative data separately and converging (compare and contrast) the different findings in the following interpretation (Creswell & Plano Clark, 2011; Fetters et al., 2013; Creswell et al., 2011). A convergent cross-sequential mixed-methods design is characterized by several stages of iterative quantitative and qualitative data collection and analysis methods in which each stage informs the following. As a result, a multi-stage combination of studies using different methods was applied throughout the research, in which qualitative and quantitative assessments are linked at several points (Fetters et al., 2013; Subedi, 2016). In addition, a triangulation approach was integrated into the research design as it is expected to provide different perspectives, as well as different sources and types of data, about the complex, multi-level developmental processes of interest and its determinants, therefore improving the robustness of the findings (Barbot et al., 2020; Creswell & Plano Clark, 2011). Integration of data at the interpretation and reporting levels involved, firstly, a *contiguous* approach in which data were analyzed and reported in different sections of the same report (in this case in separate studies), and secondly, the integration of findings was made by *joint displays* in which visual and conceptual means are used to draw the new insights and synthesis gained from the previous step (Fetters et al., 2013).

The methodological plan included five stages of data collection (quantitative and qualitative) during a period of approximately 28 months (Figure 2). During the stages of data collection, a sequential sampling procedure was followed. Quantitative assessments relied on self-report questionnaires and standardized scales for children, parents, and teachers at stages 1, 3, and 4.

Qualitative assessments relied on focus group interviews with a purposive sample of children (4th Graders) at stage 2 and a Q-study with a purposive sample of children (3rd and 4th Graders) at stage 5. Stage 1 informed stages 2, 3, and 4, stage 2 informed stage 5, and stage 3 informed stages 4 and 5.

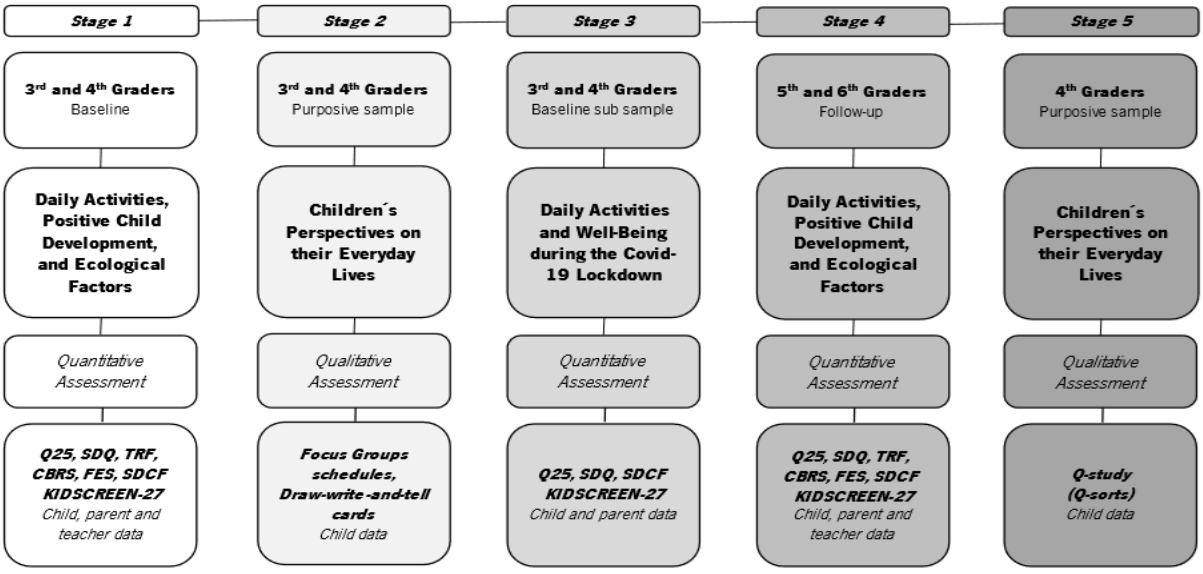
Participants and Procedures

Stage 1 Sample

At baseline (school year of 2019/2020), participants were recruited from 6 randomly chosen sites (School Clusters) in the Northern and Central Regions of Portugal (from a full list of schools provided by the Ministry of Education), specifically, in the districts of Aveiro, Braga, Coimbra, Porto, Viana do Castelo, and Viseu, including both rural and urban locations. School Boards were contacted by email and telephone to integrate the study, followed by meetings with directors and teachers, which were held in each participating school. All eligible children, as well as their parents and teachers, received an invitation with information about the study and an informed consent form to be signed. Of the 346 families invited, a total of 231 (67%) accepted to participate.

Figure 2

Study Design and Measures



In each class, teachers agreed to participate and provide relevant information on children´s learning and behavior. Next, participants received a set of self-report questionnaires and standardized scales on a paper and pencil version, or accessed an online version according to their preference, with different sections directed at children, parents, and teachers. Access to the instruments was provided at

schools and, after completion, returned to the researcher. Of the 231 initial participants, 22 incomplete sets of questionnaires were dropped resulting in the 209 participants who composed the baseline sample. The sample (Table 1) comprised 3rd and 4th Graders (n = 209), aged between 8 and 10 years old (M = 8.76, SD = 0.61), 58% of which were girls. Children had a chronic health condition in 9% of the cases (e.g., respiratory, allergies, hearing/vision) and a learning disability in 8% of the cases (e.g., dyslexia, attention-deficit). Parents, of which 85% were mothers, were married or in a civil union in 90% of the cases, 52% had higher education, and 84% were employed full-time. Family typology included nuclear (80%), extended (11%), single-parent (5%), and recombined (4%). Family location was urban in 49% of the cases, semiurban in 22%, and rural in 29%.

Stage 2 Sample

The first qualitative assessment was based on a purposive sample of children attending the 3rd and 4th grades in two primary schools (n = 21; girls = 57%). School boards were contacted to provide institutional approval and assistance. Parents provided informed consent and children provided assent in a written form and orally at the beginning of each session. The focus groups sessions were scheduled after classes in the school site (i.e., school library, classroom). Sampling procedures aimed at constituting socially heterogeneous groups of children based on school/neighborhood collective socioeconomic status.

Stage 3 Sample

During the post-lockdown of the first wave of the Covid-19 pandemic, baseline participants were invited by email, telephone, or postal mail to integrate the study focused on children´s daily activities and well-being during the lockdown and post-lockdown period. After providing informed consent (parents) and assent (children), participants responded via an online survey or a paper and pencil version, also according to their preference, as mentioned above. In June and July 2020, participants responded to the questionnaires retrospectively, reporting on the previous weeks of the lockdown and post-lockdown period (from the middle of March 2020 to the middle of June 2020). A sample of 110 children (age: M = 9.09, SD = 0.80) enrolled in the 3rd and 4th grades (50% girls), and their parents (85% mothers) participated in this study. Of the participating parents, 54% had an educational level up to the 12th grade and the remaining 46% had higher education. About 78% were employed full-time, 6% were half-time, and the remaining 16% were unemployed, receiving training, or performing domestic work. About 83% of families were nuclear, 9% single-parent, and 8% were extended/recombined families.

Table 1

Sociodemographic Characteristics of the Samples at 3rd/4th Grade and 5th/6th Grade

	3rd/4th Grade (*n* = 209)			*5th /6th Grade* (*n* = 153)		
Sociodemographic variables	%	*Range*	*M* (*SD*)	%	*Range*	*M* (*SD*)
Child						
Age		8 – 10	8.76 (0.61)		10 – 13	10.99 (0.70)
Grade		3 – 4	3.55 (0.50)		5 – 6	5.61 (0.49)
Grade 3 / 5	45			39		
Grade 4 / 6	55			61		
Gender		1 – 2	–		1 – 2	
Girls	58			59		
Boys	42			41		
Chronic health condition		1 – 2	–		1 – 2	
Yes	9			10		
No	91			90		
Learning disabilities		1 – 2	–		1 – 2	
Yes	8			9		
No	92			91		
Parent						
Relation		1 – 3	–		1 – 3	–
Mother	85			86		
Father	14			11		
Other	1			3		
Marital status		1 – 4	–		1 – 4	–
Married	76			70		
Civil union	14			14		
Single	3			9		
Divorced	7			7		
Educational level		1 – 9	5.85 (1.64)		1 – 9	5.48 (1.60)
Educational status		1 – 3	–		1 – 3	–
≤ 9th Grade	21			27		
High-school	27			32		
Higher education	52			41		
Professional status		1 – 4	–		1 – 4	–
Employed full-time	84			77		
Employed half-time	5			5		
Unemployed	7			13		
Other	4			5		
Family						
Typology		1 – 4	–		1 – 4	–
Nuclear	80			67		
Extended	11			14		
Single parent	5			16		
Recombined	4			3		
Income source		1 – 8	–		1 – 8	–
Capital gains	7			5		
Work income	97			96		
Services (irregular)	8			7		
Pensions	4			4		
Unemployment allowance	5			3		
Social benefits/others	6			5		

Stage 4 Sample

At follow-up (school year of 2021/2022), and following the previously described procedures at baseline, participants were enrolled in 6 sites (School Clusters) in the same districts of Northern and Central Portugal, four of which were the same as the baseline assessment and two new additional School Clusters. The later replaced two previous School Clusters that were unavailable to collaborate at the moment of assessment. All children and their parents were invited to integrate the follow-up assessment. An oversampling procedure was applied due to difficulties in enrolling children (as well as their parents and teachers) as a result of the ongoing Covid-19 mitigation measures in schools and communities. Furthermore, this procedure also aimed at achieving a more robust sample and include some underrepresented groups of the population (i.e., lower SES families). In addition, all the remaining participants from the baseline sample who were not reached by the sampling procedures in the School Clusters were contacted via email to complete the follow-up assessment. Procedures were similar to those described above (Stage 1 Sample). The overall sampling and data collection processes were severely and consecutively disrupted as a result of the Covid-19 pandemic mitigation measures put in force by the government, resulting in samples smaller than expected and a high number of incomplete protocols. A total of 581 families were invited from which 249 (43%) accepted to participate. However, from the 249 initial participants, a total of 96 incomplete sets of questionnaires from families and teachers were dropped, resulting in the final Stage 4 sample (Table 1). The sample comprised 5th and 6th Graders (n = 153), aged between 10 and 13 years old (M = 10.99, SD = 0.70), 59% of which girls. Children had a chronic health condition in 10% of the cases (e.g., epilepsy, respiratory, allergies, hearing/vision) and a learning disability in 9% of the cases (e.g., dyslexia, specific language disorder, attention-deficit with hyperactivity). Parents, of which 86% were mothers, were married or in a civil union in 84% of the cases, 41% had higher education, and 77% were employed full-time. Families were nuclear (67%), extended (14%), single-parent (16%), and recombined (3%).

In Study 2 (see Chapter 3 Results) the baseline and follow-up samples were analyzed separately. For Study 5, both samples (3rd/4th Graders and 5th/6th Graders) were integrated into one full sample for analysis, controlling for age effects. The full sample characteristics are described in Study 5, accordingly.

Stage 5 Sample

The second qualitative assessment (Q-study) was based on a purposive sample of children attending the 4th grade (n = 17; boys = 53%) in three primary schools. Procedures were identical to

those described in Stage 2 Sample. Sampling procedures aimed at constituting socially heterogeneous groups of children based on school/neighborhood collective socioeconomic status.

Ethics

This research was implemented with the support and supervision of the CIEC-UM Research Centre on Child Studies (FCT Unit 317) at the University of Minho, Braga, Portugal. The study protocol of this research followed the guidance and legal regulations in force and received the approval of the University Ethics Committee (*Ethics Committee for Research in Human and Social Sciences*) and the national authority MIME (*Survey Monitoring in School Environments*) from the General Board of Education. The study protocol followed the principles of beneficence and non-maleficence, fairness, social responsibility, and human dignity. As such, the protocol established the need to guarantee the protection of participants´ well-being, the promotion of voluntary and informed participation, the protection of anonymity and confidentiality, and the provision of post-research feedback. Consequently, participation was informed, voluntary, and confidential and consent was sought at all stages of data collection. After informing the participants about the research protocol and their rights, they provided an informed consent (parents, teachers) and assent (children). A tailored informed consent and assent procedure was followed with the participants at all stages of data collection, ensuring their autonomy. Data collection was streamlined to facilitate a broader participation and inclusion of participants, regardless of literacy levels and sociocultural backgrounds, as well as to reduce the risk of burden (e.g., language used was made as accessible as possible). Upon acceptance, participants provided personal information in order to be contacted by the researcher after baseline assessment and each protocol was attributed with a unique control code. An e-mailing list with all stakeholders was created and used to provide information about the study and to share the main findings from the several stages of the study.

To ensure the ethical management of data, personal information, and research data and results, a data management plan was designed and implemented, including the following practices:

a) data collection – data was obtained exclusively from self-report questionnaires and standardized scales for children, parents, and teachers in online and paper and pencil versions, and group interviews with children (audio recordings, draw-and-write cards, Q-sorts).

b) ethics, legal compliance, and responsibilities – the study protocol abided by the regulations in force and received the approval of the University of Minho and national authorities; informed consent was in line with the General Data Protection Regulation (GDPR) and was specific about all the present and future uses of data and security measures; all data and personal information gathered, remained

strictly confidential and anonymized,; data management during data collection and analysis was carried out by the author.

c) storage and backup – all data was anonymized with restricted access (password) and a unique identification code and all personal information was kept separately and only accessible through the control code; only the main researcher has direct access to data; data is adequately/safely stored (physically and digitally); audio recordings were transcribed and anonymized; personal data will be destroyed 12 months after the end of the research project; the remaining data on paper will be kept for 24 months before destruction; all digital data will be safeguarded in three different systems.

d) selection, preservation, and data sharing – digital raw and treated data have long-term value and will be available for both primary and secondary analyses by the researcher and other authorized research team members; after the conclusion of the research project, data may be stored on the University of Minho´s secure institutional data repository (datarepositorium.uminho.pt) with limited access.

Measures

CSDF - Sociodemographic Characteristics Questionnaire

Family characteristics. Child, parent, and family characteristics were assessed by a parent-reported sociodemographic questionnaire encompassing several domains (see Table 1), using categorical and ordinal items as well as open-ended responses. Respondents provided information on child *age, gender* (coded as girls = 1, boys = 2), and *chronic condition* (no = 1, yes = 2), and parent *marital status* (married/civil union = 1, other = 2), *professional status* (employed full-time = 1, other = 2), overall *educational level* (e.g., 4th Grade = 2, high-school = 5, PhD = 9; range: 1 to 9), and *educational status* (≤high-school = 1, higher education = 2). In addition, information was gathered on *family typology* (nuclear = 1, other = 2), and *location* (urban = 1, semiurban = 2, rural = 3).

Child pre-adjustment indicator. Parents retrospectively assessed both the *academic achievement* and *behavior* of their children in the previous school years in comparison with peers using two Likert scales (from "a lot less" = 1 to "much more" = 5, "much worse" = 1 to "much better" = 5, respectively). Then, the two items were averaged indicating the level of child adjustment in the previous school years (baseline α = .68; follow-up α = .55).

Q25 – Children´s Daily Activities Questionnaire

Children´s time use was assessed through a purposively built questionnaire in which the parent–child dyad reported on several dimensions of daily activity participation (i.e., frequency of

participation, child engagement, social context, and environmental features of the activities). Based on a broad review of literature (Imms, 2008; Rosenberg, 2014; Barker et al., 2014; Metsapelto & Pulkkinnen, 2012; Barnes et al., 2007; Vleioras, 2010; Rees & Dinisman, 2015; Raley, 2014; Vila-Nova et al., 2019), this instrument uses a holistic approach to the measurement of children´s daily activity participation, thus including a comprehensive set of activities that are expected to have developmental significance and impact children´s well-being. Hunt and McKay (2015) identified the need to go beyond the focus on single, isolated categories of activities and move towards a multidimensional analysis of youths´ daily life. In addition, recommendations and best practices for daily activity participation measurement from Bohnert et al. (2010) were considered in the development of the instrument. Although stylized questionnaires have lower accuracy than other time use measures (e.g., time use diaries, experience sampling methods), they remain the most practical method for larger samples that include child-reported data, and support the ranking of youths by activity frequency or intensity in a wide range of categories and types, with a satisfactory level of reliability and validity (Barker et al., 2014, Harris et al., 2005).

The construction and validation process of this instrument included several stages. Prior to the study, a validation procedure consisting of a discussion with experts and a pilot study with a small sample of parents and children was applied. Discussions with experts indicated the need to reformulate the wording in a few items and build a simpler and a more intuitive organization of the items in each type of activity. Sixteen parents and their children (4th graders) from two primary schools completed the paper version of the Q25 and a 6-item quality assessment tool (five Likert scales and one open-ended question) about the comprehensibility, usability, length/burdening, and satisfaction. Results indicated a moderate variability in items´ responses, very few report errors (e.g., omissions, two responses in the same item), and a high level of completion (88%). The quality assessment tool indicated that parents found the questionnaire: *moderately easy* or *easy* to complete (82%); the language used was *somewhat accessible* or *accessible* (82%); items were *easy* or *very easy* to respond (88%); was *moderately short* or *short* in length (69%); and was *somewhat fun/interesting* or *fun/interesting* for parents and children to respond (94%).

The selected 25 daily activities that the instrument comprises (Table 3 for full description, Chapter 3 Study 2) may occur in a wide range of environmental settings, such as the home, the school, and the child´s community. Both structured activities, characterized by being adult-led with rules and objectives (e.g., extracurricular activities, sports, youth programs), and less-structured activities, usually child-led and with lower levels of organization (e.g., play, watching TV, creative leisure), were included.

For each type of activity, respondents used Likert-type scales and categorical items assessing several dimensions of children´s participation in recent weeks, specifically: *frequency* (6-point, "never" to "daily"), *time spent* (4-point, "around 30 minutes" to "2 hours+"), *duration* (5-point, "≤ 3 months" to "2+ years"), *social partners* ("alone", "with children", "with adult", "with children and adults"), and *engagement* (e.g., level of satisfaction, interest, effort, and focus of the child) (Likert scale, from "not at all" to "totally"). For activities developed at school, the range of the frequency was adjusted (6-point, from "never" to "5 days a week"). These items afford the calculation of diverse activity scores related to different quantitative and qualitative indicators of child participation: *participation* vs. *non-participation* (i.e., dichotomic), *intensity* (e.g., weekly hours), *breadth* (e.g., diversity of activities within a given domain); and levels of child *engagement*.

Next, a score representing the *intensity* of weekly participation in hours was created for each type of activity by multiplying the weighted weekly frequency by the number of daily hours usually spent. For sleep, the number of hours per night on weekdays and weekends was averaged and multiplied by the reported frequency of quality nights of sleep (i.e., full night of regular sleep and predictable sleep routines). Because of the characteristics of the items assessing the frequency and time spent in each activity, a ceiling effect was observed (i.e., a maximum of 14 weekly hours per activity type). An exploratory factor analysis (EFA) on 24 intensity scores (except "Other activity") was conducted using the *maximum likelihood* extraction method with oblique rotation (*direct oblimin*), to assess if daily activities were factoring on latent dimensions of participation. Inflections in the scree plot indicated the existence of 4 possible factors. The results indicated two theoretically expected factors (4 items related to family activities in the home environment; 2 items related to social and cultural participation) and two less meaningful factors. Each factor had an eigenvalue over Kaiser's criterion of 1, however, fit indexes were less than satisfactory, *KMO* = .610, Bartlett's test of sphericity, χ^2 (120) = 367.14, $p < .001$, Goodness-of-fit test, χ^2 (62) = 85.76, $p = .025$. A preliminary Spearman´s correlation coefficient matrix from baseline data was calculated for all individual activity scores, and a diversity of small to moderate associations between daily activities was observed. On the one hand, these associations might indicate the measurement of different levels of exposure to daily activities (i.e., high correlations could indicate redundancy in the measurement of the activities). On the other hand, the strength and direction of these associations were in agreement with what was theoretically and empirically expected (e.g., *school ECAs* and *school sports*, $r_s = .32$, $p < .001$; *watching TV* and *Gaming/Internet*, $r_s = .26$, $p < .001$). In addition to considering the previously described analyses, it was decided that theoretical criteria and previous research would prevail in calculating the scores of activity categories.

Consequently, the overall number of time use variables was reduced to facilitate further analyses. A proportion of the individual types of activities (*n* = 15; 60%) were aggregated according to theoretical criteria (i.e., under larger categories/domains of activities commonly used in previous studies, where applicable) and considering the correlations among the types of activities within each category. In each, the intensity of weekly participation in the types of activities were summed (Tables 4 and 5) and standardized for analytical purposes. Accordingly, the operational activity categories used in this study are the following: 1) *Play time* including *play* and *creative leisure*; 2) *Family time*, including both dyadic and social time activities, *activity with parents*, *family meals*, and *social participation*; 3) *Screen time* including *watching TV* and *gaming/internet*; 4) *Physical activity* (PA) including *active play, school sports* and *sports (gym, club)* [to children participating in school ECAs/ASPs at the 3rd/4th Grade and school clubs at the 5th/6th Grade that incorporate physical activities were added 1.5 hours and 0.5 hours, respectively, according to individual responses]; and, 5) *Organized Activities* (OA) including *ECAs*, *ASPs*, *enrichment activities*, *tutoring*, and *youth group* activities. The remaining 40% (*n* = 10) of individual types of activities (e.g., *sleep*, *inactivity*) remained as stand-alone categories of activities. In addition, an average score for children´s *engagement* levels across each activity category was calculated (Tables 4 and 5). Correlations between the different daily activities indicate associations in the expected directions (Tables 6 and 7), and differences according to child, family, school, and community characteristics indicate a good sensitivity of the measure (see Results Chapter, Studies 2, 3, and 5).

The *quality of environments* in school and community settings was assessed by additional sets of items (see Bohnert et al., 2010). The child–parent dyad used a 5-item measure (Likert-scales ranging from "not at all" = 0 to "totally" = 4; e.g., "Are children provided with opportunities to develop new skills through stimulating and innovative activities?", "Is the physical and psychological well-being of children protected by rules, structure and supervision?") to assess the developmental quality features of each environmental setting where activities occur, namely, the dimensions of physical and psychological safety, structure, social support, positive and inclusive social norms, and stimulating skill building experiences (see Eccles & Gootman, 2002). A mean score was created for each of our environments of interest: *school environment*, *ECAs environment*, *sports environment*, *ASPs environment*, *EA environment*, *tutoring environment*, and *youth group environment* (Appendix 2). A higher score represents better developmental qualities of the activity environment. In addition, an overall score of *OA environment quality* was calculated by averaging the respective scores within this category of activities. The Q-25 was also further validated during this research to be used as a valid tool

in research and other educational, social, and clinical contexts related to child well-being and development.

SDQ – Strengths and Difficulties Questionnaire

Parents provided information on several dimensions of children´s psychological adjustment using the SDQ (Goodman, 2001), a well-established research tool on child behavior. The SDQ assesses 25 behavioral attributes (both positive and negative); respondents use a 3-point Likert-type scale to indicate how each behavior applies to the child (from "not true" = 0 to "certainly true" = 2). The 25 items are organized in five different dimensions (scales) of five items each, including *emotional symptoms*, *conduct problems*, *hyperactivity-inattention*, *peer problems*, and *prosocial behavior*. Each score was computed by summing the corresponding 3-point items (ranging between 0 and 10), a higher score representing higher levels of each behavior. Overall, the five-factor structure fits particularly well for the parent-version of the SDQ (Goodman, 2001). The validation of the Portuguese version for parents indicated reliability coefficients comparable to those found in previous studies, with a moderate internal consistency of the reports by mothers (median α = .64) and fathers (median α = .65). The SDQ's five-factor solution provides acceptable to good overall fit to the data collected across different raters, also correlating with age, sex, and self-regulation scores (Ferreira et al., 2020). In addition, the use of higher-order factors within the SDQ (e.g., externalizing behaviors, social competence) may help deal with poorer discriminant validity between some of the original SDQ subscales (e.g., conduct problems and hyperactivity-inattention). Therefore, all the dimensions, except the stand-alone *prosocial behavior* dimension, generate a *total behavioral difficulties* score. In addition, the emotional symptoms and peer problems dimensions generate an *internalizing* score, and the conduct problems and hyperactivity-inattention dimensions generate an *externalizing* score. All scores present good reliability indices (Appendix 3). These variables are adequate for research with community samples and have been widely used in other studies as indicators of child behavior and development (Yu et al., 2012; Steinberg & Simon, 2019; Gniewosz & Gniewosz, 2019).

TRF 6-18 – Teacher Report Form (Adaptive functioning section)

A teacher-report of the adaptive functioning section of the TRF (Achenbach et al., 2014) provided information on *school achievement* (six Likert scales; from "far below the class" to "far above the class") and *adaptive behavior* (four 7-point Likert-type scales; from "much less" to "much more" about work, behavior, learning, and happiness). *School achievement* items concerning the main disciplines in school (e.g., Portuguese, math, social studies, English) were averaged (α = .95); *adaptive behavior* items were summed (α = .87). A higher score represents better child competence levels in the

school environment. The TRF is a valid tool for the rigorous assessment of child behavior in the school context and a good indicator of achievement and competence (Fletcher et al., 2003; Pettit et al., 2013).

KIDSCREEN-27

The KIDSCREEN-27 (Matos et al., 2012; Ravens-Sieberer et al., 2007) measures children´s health status and health-related quality of life, including physical, psychological and social well-being dimensions. The KIDSCREEN-27 presents good psychometric properties and its dimensions have correlated (moderate to high) with questionnaires assessing similar constructs in the area of health-related quality of life (.36 to .63). This measure also detects differences according to age, gender, socioeconomic status, health conditions, and psychosomatic complaints (Ravens-Sieberer et al., 2007). In the present study, children reported on their health-related quality of life using the 27 Likert-scales (e.g., from "never" to "always") which assess five dimensions: *physical well-being* (5 items on physical activity, energy, and fitness); *psychological well-being* (7 items on positive emotions, satisfaction with life, and emotional adjustment); *parent relations and autonomy* (7 items on relationships with parents, the home environment, and autonomy); *social support and peers* (4 items on relationships with other children); and, *school environment* (4 items on perceptions of cognitive capacity and feelings about school). A total score and a score for each dimension were created by averaging the items and computing a 100-point scale, with a higher score representing higher levels of health-related quality of life. In the baseline sample, each dimension presented good psychometric properties, specifically, the Cronbach´s alpha levels varied between .70 (*parent relations and autonomy*) to .81 (*social support and peers*), with .90 for the total 27-item scale (Appendix 3). The KIDSCREEN instruments have been widely used to assess youths´ subjective health and well-being (Hunt et al., 2015; Resaland et al., 2015). A full description of child outcome variables for the younger and older samples are displayed in Appendix 3. For each study in Chapter 3 Results, the variables used in the models are described.

FES – Family Environment Scale

The original FES (Moos & Moos, 1986; Matos & Fontaine, 1992) comprises 90 dichotomous items (i.e., true, false) organized in ten sub-scales of 9 items each, that measure the respondents´ perceptions of the social, environmental, and relational characteristics of their nuclear families. These subscales may be removed to shorten the instrument without affecting validity or reliability and are used to assess underlying dimensions of family functioning, including *relationship*, *system maintenance*, and *personal growth* dimensions. In the present study we have used the factorial structure proposed originally by the authors (Moos & Moos, 1986).

Parents reported on a shortened version of the FES (total of 54 items) encompassing the following subscales: *cohesion* (i.e., support that family members provide for one another) from the relationship dimension; *organization* (i.e., clear organization and structure in planning family activities/responsibilities) *control* (i.e., rule-setting and procedures used in family life) related to the system maintenance dimension; and, *achievement orientation* (i.e., extent to which activities are cast into a competitive framework towards achievement); *intellectual-cultural orientation* (i.e., degree of interest in socio-political, cultural, and intellectual activities), and *active-recreational orientation* (i.e., the extent of family participation in recreational and social activities) related to the personal growth dimension. For each subscale, a score was computed by summing the nine items ("true" = 1, "false" = 0), considering inverted items.

Descriptive and reliability analyses (Cronbach´s alpha) were calculated for each sub-scale: *cohesion*, *organization*, *control* , *achievement orientation*, *intellectual-cultural orientation*, *active-recreational orientation* (see Appendix 2). A higher score represents a higher level in each dimension of family functioning. Because of low-reliability indices, the variable *control* was excluded from further analyses. The FES has been used in several studies focused on the characterization of different types of families and how variations among family environments influence individual and family functioning and interactional quality. Particularly, it has been used by its ability to predict child and adolescent outcomes and activity participation (Moos & Moos, 1986; Larson et al., 1996; Eisman et al., 2016; Harris et al., 2020).

Analytical plan

All analyses were performed on SPSS (Version 27, 28) and AMOS (Version 25). Range, medians, means, standard-deviations, bias-corrected accelerated 95% confidence intervals for means, and proportions were calculated to describe the study´s variables. Continuous variables that were skewed or kurtotic were standardized or log-transformed. The inferential analytical approach for each study is fully described in the respective Methods sections (see Chapter 3 Results). These include the calculation of correlations (Pearson, Spearman), Qui-square tests (with column proportion *z*-tests and Cramér´s V), exploratory factor analysis, tests of differences (T-test, Welch´s T-test, Mann-Whitney), multiple linear and logistic regression models, effect sizes (Eta-squared, Cohen´s *d*), and bias-corrected accelerated 95% confidence intervals, where applicable. Additionally, among person-centered approaches to data, cluster analysis is a statistical technique used for identifying groups of individuals that are analogous across variables of interest. A cluster represents a group of children with similar daily activity patterns, as similar as possible in terms of participation (within-group homogeneity), but as

different as possible from the remaining clusters (between-group heterogeneity) (Clatworthy et al., 2005). Missing data treatment is described in each study (Chapter 3 Results).

Qualitative data were transcribed, coded, and used in thematic analysis. A deductive-inductive approach was used in the identification and analysis of themes (Braun & Clarke, 2006). It was complemented by the content analysis of the draw-write-and-tell instrument. Children´s Q-sorts were analyzed using the KADE software (Banasick, 2019) to perform a factor analysis supported by a by-person correlation matrix.

Chapter 3: Results

Study 1

Daily Activities and Positive Development in Middle Childhood: A Scoping Review

Abstract

The interest in the processes through which children have a successful development has become the main drive for studying the contexts and experiences that help children thrive. The foundations for lifelong adaptive functioning are established during middle childhood and daily activities are considered essential elements contributing to children´s positive development. The present review aims to map original research, published since 2001, examining the links between participation in daily activities and positive developmental outcomes in samples of children between 6 and 12 years of age. A systematic search was conducted on Scopus, Web of Science, PubMed, PsycINFO, and EBSCO. A total of 60 papers were selected resulting from the inclusion and exclusion criteria. Findings indicate that: daily activities have short- and long-term developmental significance; a wider portfolio of structured activities is linked to positive development; dyadic and social time with parents is essential for children´s developmental health and competence; variations in positive development across middle childhood are explained by different patterns of daily activities; the quality aspects of activities also play a crucial role. A higher level of conceptual and methodological robustness of research is recommended to inform evidence-based interventions aimed at creating opportunities for all children to thrive.

Keywords: adjustment; child well-being; daily participation; leisure; time use

Introduction

Models of positive child development have shifted the focus of research from problems, deficits, and maladjustment to the promotion of skills, strengths, and well-being. The interest in the processes through which children flourish and have a successful development has become the main drive for studying the contexts and experiences that help children thrive (Tolan et al., 2016). The foundations for lifelong healthy and adaptive functioning are established during middle childhood and daily activities (e.g., extracurricular activities, youth programs, sports, leisure time with parents) are considered essential elements contributing to children´s positive development (Huston & Ripke, 2006a). Daily activities support children´s growth by providing opportunities for the development of skills and the integration of adaptive behaviors (Ben-Arieh & Ofir, 2002; Bronfenbrenner & Morris, 1998; Huston & Ripke, 2006b). Conversely, everyday life can be a source of disengaging experiences in which children have limited resources and opportunities for being happy, healthy, or competent (Weisner, 2010). Children´s daily activities thus reflect the developmental opportunities provided by families, schools, and communities, and are both a cause and a consequence of multifaceted developmental processes (Lam & McHale, 2015a; Larson & Verma, 1999). However, research has been focused on adolescence and less is known about the links between participation in daily activities and thriving in middle childhood. Particularly, what does recent literature tells us about the influence of different portfolios, profiles, and patterns of daily activities on positive developmental outcomes in children?

Middle childhood is a fundamental stage for the study of daily activity participation as an element of positive development. It is a period of growth and change characterized by the acquisition of new social and academic skills, identity and agency development, and the assimilation of healthy behaviors. These changes predict adolescent and adult functioning and are, in part, the result of early habits established in middle childhood (Huston & Ripke, 2006b; Simpkins et al., 2006). The extensive review by Larson and Verma (1999) on children and adolescents´ time use showed remarkable differences in daily activity patterns across different societies, supporting the idea that participation in organized activities is linked to positive development and that unstructured after-school leisure is associated with problem behaviors. This research also opened new lines of inquiry by identifying relevant challenges for researchers: the need to describe time use across different populations, the factors that shape it, and the influence of time spent in specific contexts on developmental outcomes. Furthermore, the review by Ben-Arieh and Ofir (2002) highlighted the positive impact of time use on child well-being. They challenged researchers to invest in the study of overall activities as a way of understanding children´s lives, contrarily to a focus on single activities. These authors called for further

inquiry of the early school years, pointed to the integration of more robust methods of investigation, and emphasized the major role that children should play in research. However, has research progressed towards answering these challenges?

The literature providing a comprehensive perspective on daily activities during middle childhood is still emerging. Recently, as a reflection of the extant corpus of research, most reviews have focused on adolescence (i.e., 12 to 18-year-olds) or the role of specific categories of activities (e.g., extracurricular activities) (see Eime et al., 2013; Farb & Matjasko, 2012; Hunt & McKay, 2015; Metsäpelto & Pulkkinen, 2014; Roth et al., 2010). In the present review, we are interested in the spectrum of positive influences of daily activities occurring in the home, the school, and the community. This holistic approach to positive development aims at covering multiple ecological influences shaping children's lives during middle childhood. Firstly, the influence of different combinations of activities (whether portfolios, profiles, or patterns) on developmental change and its underlying mechanisms could expand our understanding of children´s everyday lives, but extant literature may be underdeveloped (see Farb & Matjasko, 2012; Ferrar et al., 2013; Wong et al., 2017). Secondly, regarding the global concerns with the health of youths and the study of its determinants, as well as the focus on well-being as opposed to the focus on risk and disease, it is crucial to consider the lifestyles during middle childhood as central factors in the promotion of children´s developmental health (Hunt et al., 2015; Inchley et al., 2018; Simpkins et al., 2006). For example, because the way children spend their days is malleable, it is possible to promote positive outcomes by intervening in less-than-optimal time use patterns (Wong et al. 2017a). Thirdly, research has been focused on narrower or dysfunctional domains of behavior (e.g., delinquency, problem behaviors) giving less attention to the mechanisms that lead to positive development. Therefore, there is a need to accumulate evidence from studies in the field, with a preference for studies that provide a more comprehensive perspective of children´s lives, thus including the analysis of different combinations of types, categories, or domains of daily activities and its developmental effects.

A scoping review is a logical step into the analysis of the available and most recent knowledge. A greater understanding of how everyday activity participation is linked to development may guide researchers, professionals, and policymakers in designing evidence-based interventions that tackle inequalities and create opportunities for all children to thrive. Additionally, it may illuminate how families, schools, and communities can improve the structure and quality of everyday activities and experiences that effectively support children´s flourishing. Consequently, this scoping review aims at adding to the existing literature by mapping the results from studies published since 2001 about the

associations between participation in daily activities, particularly different portfolios, profiles, and patterns of participation, and positive developmental outcomes in middle childhood. In addition, it aims to complement the results with an in-depth analysis of issues related to design, methods, and analytical approaches, as well as future research endeavors.

Methods

This study is based on the methodological framework for scoping studies proposed by Arksey and O´Malley (2005) and further enhanced by Levac et al. (2010). A scoping study aims at answering a question in a broad field of research by systematically summarizing the existing knowledge, identifying gaps, and making recommendations for further research (Colquhoun et al., 2014). The analytical framework of the present scoping review draws on ecological systems theory (Bronfenbrenner & Morris, 1998) and the positive youth development (PYD) perspective (Phelps et al., 2009). Development occurs when children engage in activities that take place regularly in their immediate physical and social environments. These interactions between children and their environments are the building blocks of everyday life; it is expected that higher exposure to a variety of positive influences arising from several ecological settings will promote development. Specifically, positive development will be enhanced when resources found in homes, schools, and communities are aligned with children´s needs, strengths, and potential (i.e., multiple quality experiences filled with growth-related opportunities and supportive relationships) (Phelps et al., 2009, Zarrett et al., 2009).

Concerning the central constructs of the present review, the examination of positive development during middle childhood was based on a perspective focused on qualities and strengths rather than deficits. We include four adjustment indicators as core areas of positive development: social competence, self-regulation, achievement, and prosocial behavior. We have also integrated indicators of healthy functioning and child well-being (i.e., psychological well-being, subjective well-being, quality of life). Because specific activities may play a role in preventing problem behaviors whereas others may represent a source of less-than-optimal experiences linked to maladjustment (e.g., internalizing, externalizing behavior), reports on negative outcomes were included for comparison purposes. In addition, following the theoretical framework of this review, the examination of daily activities included several types, categories, and domains (e.g., play, study, organized activity, screen-time, physical activity, family meals) of activities engaged regularly by children and developed in diverse ecological settings (e.g., home, school, community). Both structured and less-structured activities were included in the analyses. Structured activities are characterized by being adult-supervised, goal-directed, and rules-based, in addition to being frequently group-oriented and developed in organized settings. Conversely,

less-structured leisure activities are usually developed in more informal settings at home or in the community, are child-initiated and led, are less organized, and have fewer objectives or formal rules (e.g., playing, using electronic devices and internet, hobbies, outdoor activities).

Several dimensions of participation were assessed: participation *versus* non-participation, frequency (e.g., weekly, monthly), the intensity of exposure (e.g., number of hours), breadth (e.g., number of activities within a portfolio), and engagement (see Bohnert et al., 2010). Consequently, the links between daily activities and child outcomes were organized in two different examination areas following the analytical frameworks provided by the studies: *variable-centered* and *person-centered* approaches. Standard variable-centered approaches to data analysis are widely used and are focused on the associations between variables (e.g., the association between single activity participation and an outcome). Here we include the measured frequency, duration, or intensity of participation in a *portfolio* of individual activities and their developmental correlates. Conversely, person-centered approaches adopt the child as the unit of analysis and work with profiles and patterns that refer to a comprehensive, multidimensional view of children´s participation in daily activities. These approaches are a more complex and qualitatively different description of children´s everyday lives and represent varying intensities of participation in diverse activities under a latent construct (e.g., *out-of-school*; *highly active*; *culturally-oriented*; *jocks*; *less active*) (see Sauerwein et al., 2016). While *profiles* refer to groups of activities theoretically based on *a priori* categories (e.g., *non-sport*), *patterns* are empirically based and use statistical techniques that provide solutions representing a diverse combination of daily activities (e.g., *all-rounders*) (see Zarrett et al., 2009).

Stage 1: Identifying the Research Question

The research question that guided this scoping review was the following: What is the available evidence about the associations between participation in daily activities and children´s positive development? Specifically, this study aimed at (1) mapping recent empirical literature and main findings on the associations between participation in daily activities, particularly different combinations of activities (portfolios, profiles, patterns), and indicators of positive developmental outcomes in children (6-12-year-olds); (2) describing the characteristics and methodological aspects of the studies, and (3) reporting the limitations and future research identified by the studies.

Stage 2: Identifying Relevant Studies

A systematic search for original empirical papers was conducted in April 2019 in Scopus, Web of Science, PubMed, Medline, PsycINFO, and EBSCO, using the search terms applicable in the field, with restrictions for the time of publication (the year 2001 and onward). A search expression was

iteratively used with minor changes and adaptations: (child* OR student) AND ("time use" OR "use of time" OR "daily activities" OR "extracurricular activities" OR "afterschool activities" OR "school-based activities" OR "organized activities" OR leisure) AND (involvement OR engagement OR participation OR patterns OR profiles) AND (well-being OR development OR outcomes OR achievement OR health OR adjustment) NOT (adolescen*). This search process was completed by reference tracking and pearling after selection and full-text assessment of the previous papers, between May and August 2019.

Stage 3: Study Selection

Inclusion criteria comprised original empirical quantitative studies, written in English, peer-reviewed, published from January 2001 to August 2019, with samples of children and a child-centered design, and assessing at least two or more types/categories/domains of daily activities associated with developmental outcomes. Regarding the age limits of the samples (from 6 years to 12 years), in longitudinal designs or cross-sectional studies with several age groups, at least one group in the sample had to be in the age interval with specific results reported. Exclusion criteria consisted of studies focused on specific conditions (e.g., chronic conditions, disabilities), centered on individual categories of activities (e.g., physical activity, self-maintenance), lacking an association with an outcome measure, and based on specific physical health outcomes (e.g., cortisol levels, BMI, obesity).

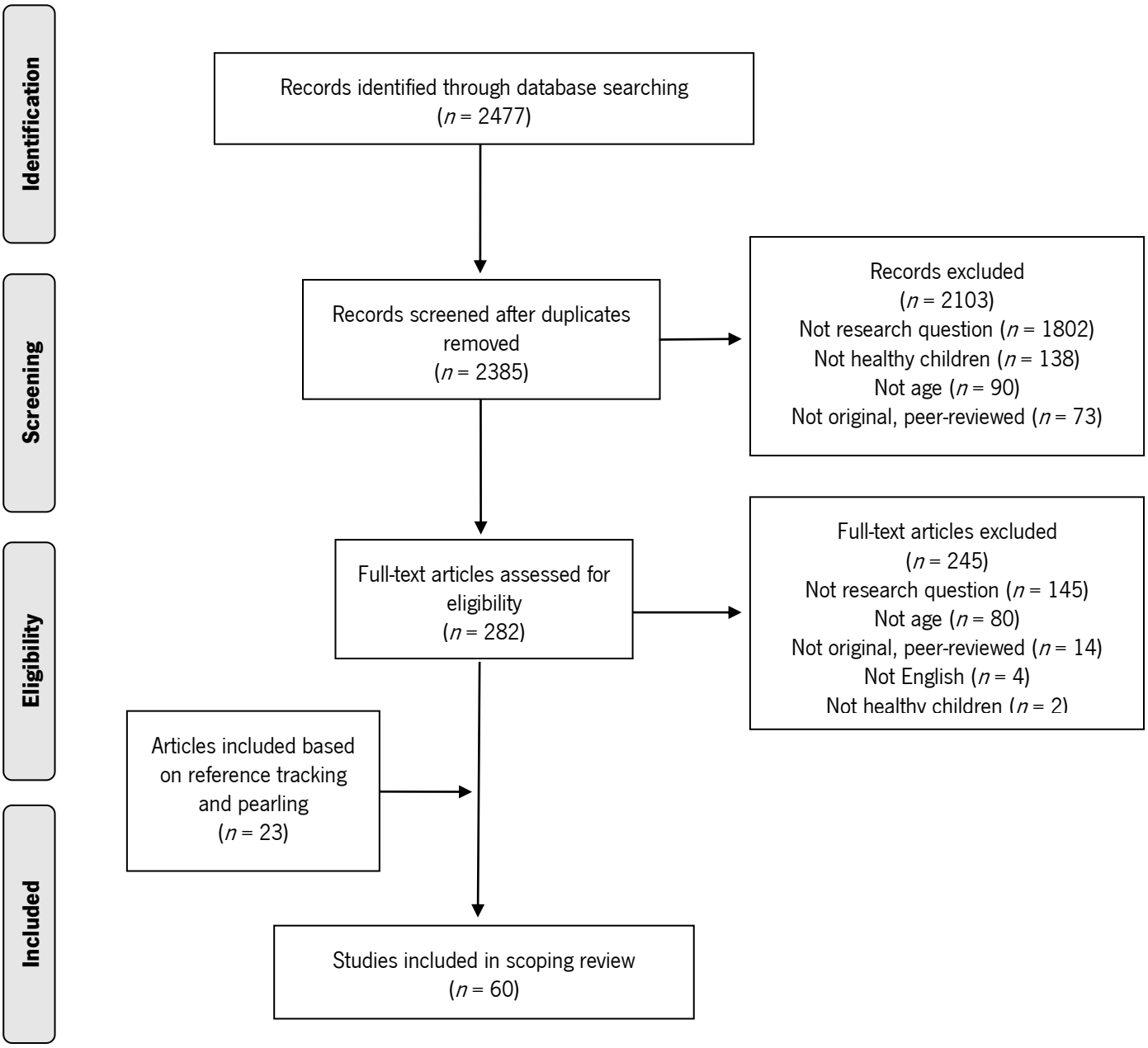
A total of 2477 records were identified through database searching (Figure 3). After duplicates were removed, 2385 papers were screened for title and abstract by the first author guided by the research question, resulting in the removal of 2103 papers and the pre-selection of 282. Then, the 282 full-texts were assessed for eligibility by the authors using the inclusion and exclusion criteria. Through an iterative process between the authors, 37 papers were selected to which 23 were added after reference tracking and pearling. Finally, a total of 60 papers were included in the analysis.

Stage 4: Charting the Data

A data charting form was created following the analytical framework of the present scoping review, including the following dimensions: (1) information about the studies (i.e., authors, year of publication, country, aims, design, sample characteristics, methods, analytical/statistical approach); (2) main results of the studies (i.e., associations between participation in daily activities and child outcomes); and (3) limitations and future directions identified by the studies.

Figure 3

Flowchart Displaying the Database Search Results for the Scoping Review



Stage 5: Collating, Summarizing, and Reporting the Results

Table 1 describes the characteristics of the selected studies (reference, country, aims, sample, activity participation assessment, covariates/controls, analytical approach), organized by research design (cross-sectional, longitudinal/prospective, and experimental), and in each section displayed by alphabetical order of the authors. In the next section, a summary of the studies´ key findings on the associations between children´s participation in daily activities and indicators of positive development is

provided. Results contain the variable-centered findings reported (*portfolios of structured activities* and *less-structured leisure and care activities*) and the person-centered findings (*profiles and patterns of daily activities*). *Portfolios of structured activities* were subdivided into three categories: *extracurricular activities* (ECAs), *afterschool programs* (ASPs), and *sports and physical activity*. As Gardner et al. (2012) postulate, the variety of experiences these activities offer to children differs as a function of different goals, social contexts, and organizational structures. As such, these distinctions may have different impacts on children. For these reasons, extracurricular activities and sports refer to group-based activities that provide opportunities to promote specialized skill-building, whereas afterschool programs are multilayered and provide youth with several activities in academic, social, and cultural domains, aiming at promoting children´s growth (Gardner et al. 2012). Whenever possible, we disentangle differences between different dimensions of children´s participation (e.g., participation intensity) (see Bohnert et al., 2010; Roth et al., 2010) and positive, non-significant, negative, and mixed/complex effects are reported.

Table 2

Characteristics of the Selected Studies

Cross-Sectional Studies

Reference Country	***Aims***	***Sample***	***Activity Participation Assessment Covariates/Controls***	***Analytical Approach***
Badura et al. (2015) Czech Rep.	Associations between participation in organized leisure activities and physical and mental health in adolescents	*n* = 10 503 (11-, 13-, 15-year-olds)	• Youth-reported questionnaire on organized leisure activities: team sports, individual sports, art school, youth organizations, leisure centers, church • Age, gender	Chi-square test; cluster analysis; ANOVA; logistic regression (×)
Badura et al. (2016) Czech Rep.	Associations between participation in organized leisure activities and school engagement, stress, and academic achievement	*n* = 10 483 (11-, 13-, 15-year-olds)	• Youth-reported questionnaire on organized leisure activities: team sports, individual sports, art school, youth organizations, leisure centers or after-school clubs, church • Age, gender, SES	Chi-square test; cluster analysis; logistic regression (×)
Badura et al. (2017) Czech Rep.	Associations of participation in organized leisure activities with repeated substance use, violent behaviors, truancy, and injuries	*n* = 10 279 (11-, 13-, 15-year-olds)	• Youth-reported questionnaire on organized leisure activities: team sports, individual sports, art school, youth organizations, leisure centers or afterschool clubs, church • Age, gender, SES	Hierarchical logistic regression (×); multinomial logistic regression; cluster analysis; linear regression
Barker et al. (2014) USA	Effects of less-structured activities on children´s self-directed executive functioning	*n* = 70 (6-7-year-olds)	• Parent-reported comprehensive survey on less-structured activities: lessons, tutoring, homework/study, chores, religious, child-initiated practice, free play, social outings, visits, parties, enrichment activities, educational events, reading, screen-time, sleeping, meals, care, commuting/travel time, etc. • Age, gender, household income, child vocabulary	Correlation; multiple linear regression
Berntsson and Ringsberg (2014) Sweden	Associations between parents' activities with children, parental experiences of time pressure, and children's health	*n* = 1461 (2-17-year-olds)	• Parent-reported questionnaire on activities: play, cinema/theatre/sporting event, homework, read books, walks, music, sports activities, TV, videogames or computer, Internet, shopping, drive the child, concerts, do something else • Age, gender, parental time pressure	Fischer's exact probability test
Bohnert et al. (2008) USA	Relations between types of activities during discretionary time and engagement, positive affect, confidence, and perceived alienation	*n* = 246 (10-15-year-olds)	• Child-reports from ESM, 139 activity codes categorized: *active structured* - sports, arts/music, religious-based activities; *active unstructured* - sports, arts/music, hobbies, socializing; *passive unstructured* - media and nonmedia-related activity • Grade, gender, family income	Correlation; ANOVA
Bohnert et al. (2009) USA	Relationships between different types of discretionary time activities and depression and delinquency	*n* = 246 (10-15-year-olds)	• Child-reports from ESM, 139 activity codes categorized: *active structured*, *active unstructured*, and *passive unstructured* • Gender, positive affect, alienation, neighborhood environment	Correlation; hierarchical regression (×) (M)
Brown et al. (2011) USA	Perceptions of the degree of busyness and stress in early adolescents´ lives	*n* = 882 (9-13-year-olds)	• Child-survey (handheld data collection devices) on activity involvement: non-school-related activities, homework, screen-time • Gender, age	Correlation; logistic regression
Chiu and Lau (2018) China	Relations between extracurricular participation and school readiness and psychosocial outcomes	*n* = 64 (5-6-year-olds)	• Parent-reported questionnaire on extracurricular participation: Chinese, English, sports, art, music, math, dancing, Road Safety Patrol, Putonghua, and others • Gender, parental involvement, maternal education/employment/marital status, family income	Correlation; hierarchical multiple regression (×)
Covay and	Extracurricular participation, SES advantage	*n* = 21 260	• Parent reports on ECAs: sports, clubs, dance lessons, music lessons, art lessons, and	Hierarchical linear regression

Carbonaro (2010) USA	and achievement	3rd Graders	performing arts • Gender, race, family structure, siblings, SES, school-level SES, achievement Grade 1	(×)
Flanagan et al. (2015) USA	Perceptions of bonding, social capital and community support of adolescents who participated in community service, ECAs, both, and neither	*n* = 2373 10-20-year-olds	• Adolescent-reported questionnaire on organized activities: ECAs (clubs or organizations) and community service; four groups with different activity patterns: community service, ECAs, both, and neither • Age, gender	ANOVA (×); multiple comparisons tests (Holm's procedure); content analysis
Fletcher et al. (2003) USA	Associations between participation in structured leisure activities and adjustment	*n* = 147 4th Graders	• Parent-reports (home interviews) on ECAs: sports teams, church activities, other clubs • Sex, ethnicity, SES	Correlation; MANOVA
Howie et al. (2010) USA	Effects of participation in out-of-school activities on social skills and problem behaviors	*n* = 25 797 6-11-year-olds	• Parent-reports (telephone survey) on out-of-school activities, categorized: sports; clubs/organizations; both; no participation • Gender, race, poverty status, type of school, family structure, family education, school and community safety	Chi-square test; ANOVA
Kelishadi et al. (2015) Iran	Relationship between leisure time spent watching television and at a computer and aggressive and violent behavior (fighting, bullying)	*n* = 13 486 6-18-year-olds	• Child-reported questionnaire: watching TV and leisure time on a computer • Age, gender, educational level, type of housing, physical activity, sleep time, family size, SES	*t*-test; Chi-square test; multivariate logistic regression
Kremer et al. (2013) Australia	Associations between physical activity, leisure-time screen use and depressive symptoms	*n* = 8256 10-16-year-olds	• Child survey (online self-report instrument) on physical activity behavior and screen time: TV, computer, videogames, physical education classes, sports, dance, play games, sports, clubs, organizations or other activities • Age, gender, SES, location	Chi-square; multivariate logistic regression (×)
Lagacé-Séguin and Case (2010) Canada	Effects of parental involvement and ECAs on well-being and academic competence	*n* = 72 9-13-year-olds	• Child-reports on activity participation per week: prosocial activities, sports teams, performing arts, school involvement activities, academic clubs • Sex, age, parental involvement in activities, parental marital status and educational level	Multiple linear regression (×); hierarchical regression (×)
Linver et al. (2009) USA	Effects of patterns of participation, particularly sports, on youth development	*n* = 1711 10-18-year-olds	• Youth-reports of involvement: sports, non-sports school groups, community groups, volunteer time, religious youth groups • Age, gender, ethnicity, public/private school, parents' level of education, family income, maternal work status, one-/two-parent family, ecological assets	Cluster analysis; biserial correlation; multinomial regression; multivariate linear regression
Marques et al. (2014) Portugal	Effects of physical activity and sedentary behaviors on leisure-time activities and perception of competence and academic achievement	*n* = 802 10-12-year-olds	• Child-reported questionnaire on leisure-time physical activity and recreational sedentary behaviors: TV; playing games console/video game devices; using the computer for leisure; leisure-time physical activities • Age, gender, BMI, weight/height, SES	Correlation; multilevel mixed effects regression; *t*-test; Chi-square
Mathur and Berndt (2006) USA	Age and sex differences in friends' activities and relations between participation and perceived friendship quality	*n* = 105 4th, 8th Graders	• Youth-reported questionnaires on the frequency and importance of friends' activities (40 activities), categorized: socializing, school, maintenance, play and games, media, sports • Age, gender	Correlation; ANOVA (×)
Molinuevo et al. (2010) Spain	Relationship between participation in ECAs and externalizing and internalizing problems and social school behavior	*n* = 867 2nd, 4th, 6th Graders	• Parent-reports on activity involvement: dance, sports, languages, computers, music, psychomotor activity, religious, workshops, organized leisure centers (dichotomized into sports and non-sports) • Gender, parental practices, parent education, sports, and non-sports	Chi-square; *t*-test; hierarchical regression

Morrissey and Werner-Wilson (2005) USA	Relationship among attitudes toward family and community, participation in structured out-of-school activities, and prosocial behavior	*n* = 304 5th -12th Graders	• Youth-reported questionnaire on structured activities: clubs, youth groups, team sports, individual sports, community groups, organized activities, volunteering • Age, year in school, gender, GPA, community opportunities, attitudes towards the community, family structure, living arrangements, SES	Correlation; partial regression equations (path analysis)
Oberle et al. (2019b) Canada	Profiles of participation in ECAs in Grade 4 and differences in mental well-being and perceived overall health	*n* = 27 121 4th Graders	• Child-reports on ECAs: educational lessons/activities, art/music lessons, youth organizations, individual sports, team sports • Gender, age, first language	Latent class analysis (LCA); ANCOVA
Park et al. (2015) USA	Differences between children in community- or school-based ASPs and non-participants in academic and behavioral development	*n* = 912 Kindergarten-Grade 8	• Parent-report on after-school childcare arrangements according to attendance on a school- or community-based ASP • Age, gender, parents' marital status, education, language used at home, housing status, poverty status, welfare subsidies, school type, location	*t*-tests; Chi-square; multiple regression; OLS regression; logistic regression
Park and Zhan (2017) USA	Relation between different after-school childcare arrangements and academic and behavioral outcomes	*n* = 717 Kindergarten-Grade 8	• Parent-report on types of care arrangements: ASPs (community- and school-based care), relative-, neighborhood-, self-, parental-, combination-care • Age, gender, race/ethnicity, mothers' marital status and education, childcare subsidies, household location	Multivariate logistic regression
Riese et al. (2015) USA	Relationship between participation in ECAs and bullying perpetration	*n* = 62 215 6-17-year-olds	• Parent reports (phone interviews) of participation in activities: sports teams/lessons, non-sport clubs, organizations, organized lessons/activities; categorized as: sports only, non-sports only, sports plus non-sports, no ECA • Age, sex, race/ethnicity, SES	Multivariable logistic regression; stratified regression
Simoncini and Caltabiono (2012) Australia	Relationship between child behavior and participation in extracurricular activities	*n* = 902 5-8-year-olds	• Mothers-reports on ECAs: swimming, soccer, dancing, gymnastics, rugby, tennis, athletics, music, several sports, church groups • Gender	Kruskal-Wallis test; Bonferonni adjustment (post hoc analyses)
Tsiros et al. (2017) Australia	Associations between aspects of time use and health-related quality of life	*n* = 239 10-13-year-olds	• Time spent in activities using the Multimedia Activity Recall for Children and Adolescents (MARCA; 24h recall tool), categorized: physical activity (sport, active transport, play), screen time (TV, videogames, computer), sleep • Gender, percent fat, Tanner stage, household income	Partial least squares regression (sex-stratified analyses)
Wong et al. (2017) Australia	24-hour time-use patterns and their association with health-related quality of life	*n* = 1455 11-12-year-olds	• Time use using the MARCA (24h recall time diary), categorized: screen time, physical activity, school (structured classes, studying, homework, reading, music), sleep, passive transport, domestic work • Sex, age, BMI, neighborhood disadvantage, pubertal status	Compositional cluster analyses; ANOVA; linear regression models (unadjusted and adjusted)
Zhang et al. (2017) China	Daily time spent in moderate-to-vigorous physical activity (MVPA), screen viewing, homework, and sleep and associations with obesity and poor mental health	*n* = 17 318 6-11-year-olds	• Population-based child survey using CLASS-C (7-day recall questionnaire) on time spent in MVPA, screen viewing, and homework; sleep duration (parental report) • Age, gender, health status, household income, parents´ educational attainment	Logistic regression; generalized additive models (GAM) (with objective optimization)

Longitudinal / Prospective Studies

Reference Country	***Aims***	***Sample***	***Activity Participation Assessment Covariates/Controls***	***Analytical Approach***
Allhusen et al. (2004) USA	Relations between family factors, children´s functioning, and out-of-school care, and the relationship between specific types of care	*n* = 924 Kindergarten to Grade 1	• Mothers´ reports (phone interviews) of weekly care arrangements: ASPs, ECAs, sitter care, father care, and nonadult care • Child pre-adjustment, demographics, family income, household composition, work hours,	Logistic regression; MANCOVA

	and developmental outcomes	(age 7)	parenting behavior	
Aumètre & Poulin (2018) Canada	Associations between the breadth of participation in organized activities and academic and behavioral outcomes	*n* = 548 Kindergarten to Grade 4	• Mother-reports (questionnaire) on organized activity participation: individual sports, team sports, artistic, clubs and organizations, religious, and educational • Sex, behavior and school readiness in kindergarten, mother's education	Correlations; ANOVA; Pillai's trace test MANOVA, MANCOVA
Borga (2018) Ethiopia, India, Vietnam	Impacts of time spent in activities on the acquisition of cognitive and noncognitive skills	*n* = 5000 5-8-,12-15-year-olds	• Time use diary, categorized: caring for others, domestic chores, tasks at the family business, activities for pay, school, studying outside of school, play time/general leisure, sleep • Gender, birth order, anthropometry, health, social networks, community measures, residence, family size, wealth, parental education, social capital	Regression models (estimation of the production function for skill formation)
Carbonaro & Maloney (2019) USA	ECA participation effects on socio-emotional skills and academic achievement	*n* = 21 260 Kindergarten to Grade 8	• Parent and child reports on participation in out-of-school activities: dance lessons, athletic events, organized clubs, music lessons, art lessons, performing arts, drama classes, crafts classes • Race, gender, age, SES	Structural equation modeling (cross-lagged panel model with fixed effects); correlations; factor analysis
Crosnoe et al. (2015) USA	Activity participation trajectories and academic achievement	*n* = 997 Grade 1 to Grade 9	• Mother-reports on out-of-school time use (Grade 1 to Grade 5) and youth self-reported involvement (age 15) in structured activities: group or individual lessons; music lessons or coached sports; organized sports, arts, homework groups, or clubs • Gender, race, pre-achievement, behavior, family structure and process variables, neighborhood structural aspects	LCA; hierarchical linear regression (×)
Crosnoe & Trinitapoli (2008) USA	Profiles of shared family activities and the extent to which these profiles in childhood predict achievement in adolescence	*n* = 852 7-12-year-olds (Time 1)	• Parent- and child-reported time use diaries on activities (amount of time spent in each activity with a parent): television, 12 types of physical recreation (e.g., team sports, hiking, playground activities), 19 types of cultural events (e.g., theater, public sporting events), and participating in seven educational activities • Race/ethnicity, gender, Wave I scores, family structure, number of siblings, parent education, family income, parent employment, community type	Cluster analysis (*k*-means); linear regression; crosstabulation; multinomial logistic regression
Dumais (2006) USA	Social class differences in participation rates in ECAs and the relationship between extracurricular participation and educational outcomes	*n* = 5696 Kindergarten to Grade 3	• Parent-reported participation in activities during kindergarten and Grade 1: dance lessons, organized athletic activities, organized clubs, music lessons art classes/lessons, organized performing arts programs • Gender, race, SES	Multivariate linear regression (×); *R*-squared
Fauth et al. (2007) USA	Links between after-school activity participation and anxiety/depression, delinquency, and substance use	*n* = 1315 9-, 12-year-olds (Wave 1)	• Youth-reported (school interview) participation in activities: sports or cheerleading, performing arts, student government or student council, community-based clubs, church groups + breadth • Age, sex, race/ethnicity, mothers´ educational attainment, marital status, income-to-needs ratio	Three-level hierarchical regression (×)
Gardner et al. (2012) USA	Effects of domestic violence and youth participation in organized out-of-school-time activities on internalizing symptoms	*n* = 1419 9-, 12-, 15-year-olds (Wave 1)	• Parent-report of the time spent on organized activities: school-based ECAs and school- or community-based afterschool programs; categorized as *no participation*, *moderate participation*, and *intensive participation* • Age, gender, race/ethnicity, household per capita income, parent education, family size, family structure	Missing data treatment (MI); linear regression
Lam et al. (2012) USA	Developmental course and adjustment correlates of parent–child shared time from middle childhood to late adolescence	*n* = 188 4th, 5th Grade (Time 1)	• Youth-reports assessing 70 activities (interviews), duration and social contexts of the activities/social and dyadic time with mothers and fathers: work, media use, leisure, meals, other entertainment • Age, parents' levels of education, family size at Time 1, parents' psychological and marital	Multilevel modeling (MLM) (×)

			characteristics	
Lam et al. (2016) USA	Developmental course, family correlates, and adjustment implications of youth housework	*n* = 402 4th, 5th Grade (Time 1)	• Youth-reports (phone interviews) on the time spent in four stereotypically feminine tasks (cooking, doing dishes, doing laundry, and cleaning the house) and a self-care task (cleaning room) • Age, gender, birth order, parental education, family size, single-parent family, parents´ work hours, youth's familism values, parent-child conflict about housework	Multilevel modeling (MLM) (×)
Mahatmya & Lohman (2011) USA	Changes in welfare, employment status, and participation in after-school activities influences on adolescents' delinquency	*n* = 767 10-14-year-olds (Time 1)	• Youth-reports (Waves 1, 2 and 3) regarding after-school involvement: school class or school club, sports, music or art, sports teams through school/community group, art or music lessons outside of school, after-school or summertime clubs or programs at school/community, YMCA, clubs or other • Age, gender, ethnicity, mother education, marital status, income-to-needs ratio, welfare/employment variables	Multivariate and hierarchical OLS regression (×)
Mahoney et al. (2005) USA	Relation between afterschool program participation and the academic performance and motivational attributes of disadvantaged children	*n* = 599 Grades 1, 2, 3	• Parent-reported number of hours in after-school arrangements (2-time points): care by a parent/legal guardian, care in an ASP, non-adult care, care by another adult (ASP includes snack, homework, enrichment learning, recreation, art) • Race/ethnicity, family poverty status, caregiver employment, baseline academic adjustment, ASP quality, child level of engagement in ASP	Cluster analysis; MANCOVA
Mahoney et al. (2007) USA	Program-level differences in ASP engagement in relation to child competencies and program quality and content	*n* = 141 Grades 1, 2, 3	• ASP participation: snack, homework, and enrichment activities such as basketball, computers, art, board games, visitors, musical instruments • Race/ethnicity, program engagement, process quality, content, poverty status, caregiver employment	Hierarchical linear models (HLM) (accommodated the nested structure of the data)
Martin et al. (2013) Australia	Role of school-, home- and community-based arts participation in academic and non-academic outcomes	*n* = 643 Grades 5-11 (Wave 1)	• Youth-reports representing attendance of the arts and participation: receptive arts participation, active arts participation, parent-child arts interaction, home arts-based resources, external arts tuition, in-school arts tuition, arts engagement • Prior achievement, gender, age, language spoken at home, parent education	SEM maximum likelihood (robustness to non-normality and non-independence, adjusting for clustering)
McHale et al. (2001) USA	Links between free-time activities and school grades, conduct, and depression symptoms; mechanisms that underlie activity–adjustment links	*n* = 198 10-year-olds (Time 1)	• Child-reports (phone interviews on Year 1 and 3) on 53 activities aggregated into hobbies, sports, reading, playing with toys and games, outdoor play, watching TV, hanging out; social contexts of activities: *time with mother*, *with father*, *with peers* (no adults present), *with nonparental adults*, *alone* • Gender, SES, parent education and occupational prestige, activities at age 10	Correlation; ANCOVA; partial correlation; hierarchical regression
McHale et al. (2004) USA	Links between sex-typed activities and gender development over 2 years	*n* = 200 10-year-olds (Time 1)	• Child-reports (telephone interviews) of time spent in sex-typed activities: *feminine activities* - books or magazines, writing, art, handicrafts, musical instrument, dance, gymnastics, swim, play with pets/animals, etc.; *masculine activities* – sports, hunting, fishing, toy vehicles, action figures; *neutral activities* – computer/video games, religious, outdoor activities, bike, skateboard, collect things, club, TV, play games, etc. • Sex, social partner, context of activity, *fem./mas.* activities, T1 gender development, parental education	ANOVA; partial correlation; *t*-test
Metsäpelto & Pulkkinen (2012)	Associations of ECAs and socioemotional behavior and school achievement	*n* = 281 Grade 3-4 (Time 1)	• Child and parent reports (questionnaire) of participation in ECAs during 2 school years: individual sports, team sports, arts and crafts, music, academic clubs, performing arts, youth programs	ANOVA; MANOVA

Finland			• Gender, age, grade level at T1	
Mourgela & Pacurar (2017) Greece	Impact of ECAs with and without screens on school performance; distinct user profiles based on ECAs with and without screens	*n* = 201 9-12-year-olds (3 Waves in the school year)	• Youth-reports on the kind, duration, and variety of ECAs: *with screens* - playing video games, surfing the Internet, playing network games, Facebook, chatting, listening to music, watching animations on TV, watching documentaries on TV; *without screens* - paper-based reading, athletic activities • User profiles, activities with and without screens	Chi-square; correlation; classification and discriminant analysis
Schwartz et al. (2015) USA	Participation within and across activity settings among low-income, urban youth; how participation relates to course performance	*n* = 554 5th, 6th Graders (Wave 1)	• Youth-reported survey on the frequency of extracurricular participation in school, community, religious, and athletic settings: volunteering, cheerleading, fundraising, musical, debate, drama, school clubs, student government, youth groups, needy groups, youth officer, instructor, youth organizations, community groups, improvements projects, team sports, dance, etc. • Race/ethnicity, family structure, employment status, academic behavioral engagement	EFA; CFA; linear mixed models (random plus fixed effects)
Oberle et al. (2019a) Canada	Transitions in extracurricular participation from Grade 4 to 7; effects of shifting from non-participation to participation on mental health	*n* = 10 149 Grade 4 and Grade 7 (Time 1)	• Youth-reported (questionnaire) participation in ECAs: educational lessons or activities, art or music lessons, youth organizations, individual/team sports • Age, sex, peer belonging	Missing values treatment (FIML); path analysis; LCA; LTA
Sauerwein et al. (2016) Germany	Effect of school-based and out-of-school leisure activities on social and scholastic development; gender, socioeconomic status and ethnicity influences on the choice of, and engagement in activities	*n* = 5278 Grade 5 to Grade 7	• Youth-reported involvement in school-based ECAs (academic, cultural, sports, computer/media activities) and out-of-school activities (meeting friends, sports, reading, computer, music, private lesson) • Sex, migration background, school track, SES	LCA; latent structural equation models (accounting for clustering); missing values treatment (FIML)
Schuepbach (2015) Switzerland	Effects of intensity of attendance and quality of ECAs on achievement from the end of Grade 1 to the end of Grade 3	*n* = 521 (*n* = 295) Grade 1 to Grade 3	• Parent-reports on the attendance and intensity of participation in ECAs: supervised school lunch, homework club, recreational activities (sports, music), free play, educational programs and activities • Comparison group, quality of ECAs, Math skills at the start of Grade 1, IQ, family promotion of child's development	*t*-tests; linear latent growth models
Urban et al. (2009) USA	Effect of adolescent activity involvement on positive and negative developmental outcomes; moderation of neighborhood assets	*n* = 626 Grade 5 to Grade 7	• Youth-reports on their weekly involvement in activities (student questionnaires): Scouts, 4-H Clubs, Boys/Girls Clubs, martial arts, tutoring, paid work, mentoring/peer advising, dance, music, religious youth group, academic clubs, school government, religious education, sports, school band, acting/drama, volunteer work, YMCA/YWCA, Big Brothers/Big Sisters, after-school care program • Gender, self-regulation, family income, neighborhood ecological assets	Correlation; hierarchical multiple regression (linear/quadratic terms) (×)
Urban et al. (2010) USA	Individuals' self-regulation interactions with participation in ECAs and the effects on positive youth development	*n* = 545 From Grade 5 to Grade 7	• Youth-reports (questionnaires) on weekly involvement in activities: see previous study (Urban et al., 2009) • Gender, self-regulation, family income, neighborhood ecological assets	Correlation; hierarchical multiple regression (linear/quadratic terms) (×)
Wade (2015) USA	Effect of children's experiences in an ASP on their social-emotional functioning; relation between different program regulatable features and children's experiences in an ASP	*n* = 298 Grade 1 to Grade 5	• Mother-reports (phone interviews) on participation as the amount of time that children were in the ASP • Gender, ethnicity, maternal education and ethnicity, income to needs ratio, maternal partner status, maternal hours of employment, ASP relationships and regulatable features	Hierarchical linear models (controlling for time-invariant covariates and naturally occurring developmental patterns)
Zarrett et al. (2009)	How the quality of sports participation, defined in relation to youth participation in	*n* = 1357 Grade 5 (T1),	• Youth-reported time spent in out-of-school activities during the school year: youth development programs (4-H Club), after-school clubs, community- and school-based sports,	Cluster analysis (Ward's method/*k*-means); ANCOVA;

USA	other activities, contributes to adolescents' psychosocial functioning	Grade 6 (T2), Grade 7 (T3)	performing arts, arts/crafts, service activities, paid work • Race/ethnicity, sex, goal orientation, family income, mothers' education, region, locale, duration of sports participation, total time in OST activities	OLS hierarchical regression; logistic regression (propensity scores)

Experimental/Quasi-Experimental Studies

Reference ***Country***	***Aims***	***Sample***	***Activity Participation Assessment*** ***Covariates/Controls***	***Analytical Approach***
Gottfredson et al. (2004) USA	Effects of participation in ASPs on delinquent behavior; mechanism through which participation reduces delinquent behavior	*n* = 825 4th-8th Graders	• Experimental group participated in ASPs (academic assistance, social skills training, recreational or enrichment activities); measures of unsupervised after-school time and involvement in constructive activities • Participation vs non-participation in an ASP, gender, race, age groups	Structural equations models (M) (×)
Loughry et al. (2006) Palestine	Impact of child-focused interventions involving structured activities on children's social and emotional well-being, relationships with parents and future orientation	*n* = 400 6-17-year-olds	• Experimental group participated in organized cultural and recreational activities: traditional dancing, artwork, sports, drama and puppetry, after-school educational activities, week-long holiday camps • Intervention/comparison groups, location, age, gender	ANCOVA (repeated measures)
Metsäpelto et al. (2010) Finland	Association between participation in a school-based intervention program and children's socioemotional development	*n* = 440 1st, 2nd Graders (Time 1)	• Child and parent questionnaire on the participation during a 2-year ECAs program; children´s participation in ECAs during the school day recorded by a teacher/club leader throughout the intervention • Age, gender, classroom	Hierarchical linear modeling (HLM); growth curve for repeated measures; hierarchical regression
Riggs (2006) USA	Influence of ASP attendance on immigrant Latino children's social development	*n* = 94 1st to 6th Graders	• Attendance to the program G-10 over 8 months (academic achievement + PATHS curriculums): lessons from the two curricula, 2/3 times a week • Age, sex, acculturation, family functioning, program site	Correlation; hierarchical linear regression

Notes. ECA = Extracurricular Activity; ASP = After-School Program; ESM = Experience Sampling Methods; (×) = tested interactions/moderation; (M) = tested mediation; Latent Class Analysis = LCA; Latent Transition Analysis

Results

Characteristics of the Studies

Country of Origin and Year of Publication

More than half of the studies originated from the USA (*n* = 35), followed by European countries (*n* = 11), Australia (*n* = 5), Canada (*n* = 4), China (*n* = 2), Iran (*n* = 1), Palestine (*n* = 1), and a study with international data (Ethiopia, India, and Vietnam) (*n* = 1). Most studies (*n* = 35) were published between 2011 and 2019. The remaining studies (*n* = 25) were published between 2001 and 2010.

Aims and Design of the Studies

Overall, the studies aimed at finding links between various dimensions of participation and positive cognitive, socioemotional, and behavioral outcomes (e.g., Aumètre & Poulin, 2018; Oberle et al., 2019b) (see Table 1). Almost half of the studies analyzed changes in these links across the school years, including different activity participation trajectories (e.g., Oberle et al., 2019a; Sauerwein et al., 2016), however, only a small part of the studies tested for causality by using an experimental design (e.g., Metsäpelto et al., 2010). Of the 60 studies, 29 had a cross-sectional design, 27 a longitudinal/prospective design, and four were experimental. Multi-informant and multi-method assessment procedures were predominant. A variety of data collection methods was used, including questionnaires and scales (*n* = 54), interviews (including telephone surveys) (*n* = 15), observational methods (*n* = 5), time use diaries (*n* = 5), and electronic devices (*n* = 5) (e.g., ESM). Regarding the participants and informants of the studies, data was obtained from child/adolescent reports in 80% (*n* = 48) of the studies, parent/adult caregiver reports in 63% (*n* = 38), teacher reports in 18% (*n* = 11), and other professionals, staff or observer reports in 18% (*n* = 11).

Participants and Samples

The sample size of the studies varied between 64 and 62 215 participants. Children´s age ranged from kindergarten through 18 years old, generally covering a large age interval, or in the case of longitudinal designs, a wide period of child development. Also, 27 studies were focused specifically on samples that included children from kindergarten to 12-year-olds (Time 1 in longitudinal designs).

Assessment of Participation in Daily Activities

Data collection methods included telephone surveys, online instruments, as well as paper-and-pencil self-report questionnaires. Participation in daily activities was assessed using different types of measures: dichotomous (participation/non-participation), ordinal (i.e., frequency classes on a given period), and continuous (i.e., the amount of time spent, number of days). Methods that enable a detailed calculation of time use estimates (i.e., minutes, hours, days), such as time-use diaries and

ESM- and MARCA-type methods, were less utilized (e.g., Bohnert et al., 2009; Brown et al., 2011; Tsiros et al., 2017). At least one structured activity was included in 54 studies. Less-structured leisure and care activities were included in 27 studies, reflecting a lower representation in the empirical literature. Profiles of activity participation (*a priori* categories) were found in six studies and patterns of activity participation (based on statistical techniques such as cluster analysis) were described in further 12 studies.

Child Outcomes

Generally, studies assessed diverse indicators of positive development, including social competence, self-regulation skills, prosocial behavior, adaptive behavior, executive functions, academic achievement, motivation, self-esteem, mental health, positive youth development (PYD), life satisfaction, physical and psychosomatic health, and health-related quality of life (HRQoL). Negative indicators included internalizing and externalizing symptoms, problem behaviors (e.g., delinquency, truancy), bullying, aggressive behavior, and stress.

Analytical Approaches

The covariates and controls used in the models (Table 1) included sociodemographic variables (e.g., child age, sex, gender, race/ethnicity, family structure), variables related to family and community socioeconomic status (e.g., family income, poverty status, social capital, ecological assets, neighborhood disadvantage), process-level variables (e.g., parental involvement, family functioning, home environment, program engagement/quality), and child characteristics (e.g., pre-adjustment levels, self-regulation skills, health status). Regarding the analytical approaches, the studies used correlation, regression techniques (e.g., logistic, hierarchical, multinomial), analysis of variance, and structural equations modeling.

Summary of Key Findings

Variable-Centered Findings Reported by the Studies

Portfolios of Structured Activities: Extracurricular Activities (ECAs). *Participation* in ECAs was linked to higher school engagement, lower school-related stress, better academic achievement (Badura et al., 2016; Dumais, 2006), better levels of academic motivation and engagement (Martin et al., 2013), as well as higher adaptive behavior, academic attainments, and working skills, controlling for grade and pre-adjustment levels (Metsäpelto & Pulkkinen, 2012). Better levels of adjustment and social competence (Molinuevo et al., 2010), higher social skills and lower behavior problems (Simoncini & Caltabiono, 2012), and higher prosocial behavior (Morrissey & Werner-Wilson, 2005) and social capital (Flanagan et al., 2015) were also observed among child participants.

Regular participation in activities allowing frequent social interactions was also linked to the quality of friendships (Mathur & Berndt, 2006). Prospectively, a higher *intensity/duration* of participation may be beneficial if pursued over time in moderate amounts. For example, higher participation was linked to higher GPAs (Schwartz et al., 2015), participation during kindergarten/Grade 1 was linked to higher math scores controlling for pre-achievement and family characteristics (Allhusen et al., 2004), and better academic achievement was observed in the case of consistent participation through the end of elementary school to the start of high school (Crosnoe et al., 2015). In addition, the *frequency/amount* of time was linked to better behavior (Simoncini & Caltabiono, 2012) and lower internalizing problems (Gardner et al., 2012), and studying outside school was linked to better skills (Borga, 2018). Noteworthy, greater improvement was observed for those attending high-quality ECAs intensively (Schuepbach, 2015). ECAs play a promotive/protective role for mental health across childhood (Oberle et al., 2019a), with children showing higher life satisfaction and better self-rated health (Badura et al., 2015), lower substance use and truancy (Badura et al., 2017; Fauth et al., 2007), lower health complaints, (Badura et al., 2015), and better levels of self-esteem and life satisfaction (Martin et al., 2013). A minimum amount of participation should be required and investment in the quality of extracurricular programs is needed (Schuepbach, 2015). For example, in a study, the relationship with achievement was explained by differences in non-cognitive skills, usually developed in these contexts (Covay & Carbonaro, 2010). The *breadth/diversity* of participation was linked to better academic outcomes in the case of children involved in various types concurrently (Badura et al., 2016). *Breadth* affected gains in achievement between Grade 1 and Grade 3 (Dumais, 2006) and was associated with better school readiness and social competence (Chiu and Lau 2018). Over time, higher *breadth* trajectories were associated with better academic and behavioral outcomes in Grade 4 (Aumètre & Poulin, 2018), with youth benefiting from increased and diversified involvement (Schwartz et al., 2015).

The links between the duration of participation and achievement were found to be more pronounced among low-income youth (Crosnoe et al., 2015), with lower SES children benefiting more from participation than their counterparts (Dumais, 2006). Also, children with lower maternal involvement more likely to benefit from their participation in a higher number of activities (Chiu & Lau, 2018). SES was related to levels of participation (Covay & Carbonaro, 2010); a large percentage of low-income youth are less involved in ECAs during pre-adolescence, with substantial fluctuation in participation (Schwartz et al., 2015). In addition, within disadvantaged settings, children with positive person-level factors benefit the most from ECAs (Urban et al., 2010); higher PYD and lower depression and risk behaviors were found in girls in low asset neighborhoods, contrarily to high asset

neighborhoods, and worse PYD and risk behaviors were found in boys in low asset neighborhoods, contrarily to high asset neighborhoods (Urban et al., 2009).

Conversely, studies reported that the variance explained by ECAs is minimal, indicating that they are not a major factor in explaining educational outcomes (Dumais, 2006). Participation was not linked to the improvement of socioemotional skills (Carbonaro & Maloney, 2019), was not associated with externalizing or internalizing behavior in Grade 4 (Fletcher et al., 2003), and no significant differences in academic skills or externalizing problems existed after controlling for baseline levels and family variables (Aumètre & Poulin, 2018). Also, modest effects on academic ability were found but were only significant in later grades (Grade 3 and later) as the timing of exposure matters (Carbonaro & Maloney, 2019). Other studies reported higher odds for physical fights and injuries (Badura et al., 2017), and that the influence of breadth is nonlinear for delinquency (higher scores among youth who engage in an average number of activities) (Fauth et al., 2007). In addition, breadth was negatively associated with a child's liking of the activities (Chiu & Lau, 2018). Also, a detrimental impact of parental pressure on well-being was reported for children involved in several activities compared to those less involved (Lagacé-Séguin & Case, 2010), as activities at high intensity in more than two settings might be detrimental (Schwartz et al., 2015).

Portfolios of Structured Activities: After-School Programs (ASPs). *Participation* in ASPs was linked to motivation and social competence (controlling for pre-selection factors) (Mahoney et al., 2007), higher academic attainments and lower levels of internalizing problems (Metsäpelto & Pulkkinen, 2012), lower anxiety and depression (violent neighborhoods only) (Fauth et al., 2007), and lower levels of social anxiety and depressive symptoms (Metsäpelto et al., 2010). It was also reported, in a quasi-experimental study, a positive impact on the everyday lives of children and a protective function of ASPs; the intervention group showed lower externalizing and internalizing scores (Loughry et al., 2006). Also, participation is associated with positive perceptions of the community (Flanagan et al., 2015), and the available opportunities and attitudes held toward the community and family predicted youth involvement (Morrissey & Werner-Wilson, 2005). The *intensity/duration* was associated with positive developmental outcomes (Metsäpelto & Pulkkinen, 2012), higher grades and academic competence (Fletcher et al., 2003), as intensive participation has shown to be inversely associated with internalizing problems (Gardner et al., 2012). Greater rates of participation are more likely to decrease behavioral problems and increase social competence compared to children who attend less, and positive outcomes were manifested after eight months of program implementation (Riggs, 2006). Academic performance and motivational attributes were significantly higher for children in the ASP care

pattern compared with those in other care patterns; differences were clear for children rated as highly engaged in ASP activities (Mahoney et al., 2005). A higher number of years of participation (not the number of different activities or regularity) was related to lower internalizing problems (Metsäpelto et al., 2010), and increased after-school participation from early to late adolescence was linked to lower delinquency (Mahatmya & Lohman, 2011). Here, long-term engagement appears to play a crucial protective role (Metsäpelto et al., 2010). For example, higher quality, engagement, and positive experiences in ASPs predicted higher levels of social-emotional functioning and decreased externalizing problems, controlling for child and family covariates; ASPs seem to support children´s positive development if the child-caregiver relationships are positive (Wade, 2015). Youth programs that are more engaging and developmentally effective show better indicators in several domains of process quality (i.e., organization, social climate, skill-building emphasis) and devote more time to enrichment activities and less time to homework and non-skill-building activities (Mahoney et al., 2007).

Conversely, other studies found no relationship between participation in ASPs and externalizing problems or adaptive behavior (Metsäpelto et al., 2010), no associations with child outcomes in Grade 1 (Allhusen et al., 2004), no significant differences in academic and behavioral domains (Park et al., 2015), no links with grades (Mahoney et al., 2007), and lower academic performance (Park & Zhan, 2017). In addition, children in ASPs (with negative caregiver relationships) showed higher levels of externalizing problems compared to children not in ASPs, whereas children with positive relationships with their caregivers did not differ from non-participating peers. Also, children with a higher previous level of behavioral risk did not benefit more from positive after-school experiences than children with lower behavioral risk (Wade, 2015). The quantity of time spent in ASPs has been found to not influence child outcomes, however, regulatable features (e.g., staff experience, staff wages, child-to-caregiver ratios) predicted children's ASP experiences and levels of social-emotional development (Wade, 2015). In addition, stronger effects in delinquency reduction have been found in programs that incorporate a high emphasis on social skills and character development (Gottfredson et al., 2004).

Portfolios of Structured Activities: Sports and Physical Activity (PA). *Participation* and *intensity* of participation in sports and PA benefit positive youth development (Linver et al., 2009). Youths show higher levels of psychosocial maturity and more positive ratings of social competence when participating in these activities (Fletcher et al., 2003), also showing higher academic achievement and perception of physical competence (Marques et al., 2014), fewer health complaints (in boys) (Badura et al., 2015), better health-related quality of life (Tsiros et al., 2017), and better overall health (Berntsson & Ringsberg, 2014). Sports and dance have also been shown to be related to an increase in

noncognitive skills (Covay & Carbonaro, 2010). Higher levels of PA and lower levels of screen-time were associated with fewer depressive symptoms (Kremer et al. 2013). In addition, the links between sports and noncognitive skills are stronger for higher SES youths (Covay and Carbonaro 2010). Low-SES youths who participate in sports have higher test scores compared with low-SES students who do not participate (Covay & Carbonaro, 2010) and better adjustment was related to participation in sports activities in boys only (Molinuevo et al., 2010).

Conversely, other studies have found no relationship with socioemotional behaviors, academic attainments, or working skills (Metsäpelto & Pulkkinen, 2012), and participation has been associated with higher average delinquency scores and with fewer anxious/depressed symptoms but increased substance use (average scores and growth over time) (Fauth et al., 2007). Also, components of PA (active transportation, play) may have a lower impact on HRQoL than expected (Tsiros et al., 2017).

Portfolios of Less-Structured Leisure and Care Activities. Time spent with parents has been related to positive adjustment (McHale et al., 2001). Parental care was positively associated with fewer behavioral problems (Park & Zhan, 2017), dyadic time with fathers was linked to higher levels of self-worth, and social time with fathers was positively linked to social competence (Lam et al., 2012). As shared family time evolves, the time lost in the public domain shifts to home-based educational activities, yet, both family activities and activities with parents outside the home (e.g., recreational, cultural activities) were linked to better achievement (Crosnoe & Trinitapoli, 2008). For example, parent-child arts interaction and home-based arts resources are linked to better overall child outcomes (Martin et al., 2013). In addition, family leisure activities such as playing, cultural events, reading, music, and TV were positively associated with children's health. Also, playing video/computer games, out-of-home activities, and going for walks were positively linked to better health in the age group 7-12 years (Berntsson & Ringsberg, 2014). Noteworthy, the time spent in a broad range of less-structured activities predicted better self-directed executive functioning, in opposition to time spent in structured activities (Barker et al., 2014).

Conversely, other studies have shown that time spent alone or in unsupervised peer contexts predicted less-adaptive functioning (poorer school grades, conduct problems) (McHale et al., 2001). In addition, going shopping and doing homework were negatively associated with health (Berntsson & Ringsberg, 2014), and having more activities (3+) and more hours spent on homework increased the likelihood of feeling stressed (Brown et al., 2011). Also, housework was linked to depressive symptoms, showed mixed effects on cognitive scores, and predicted lower school grades (Lam et al., 2016). Moreover, two or more hours a day of screen time (TV and computer) was associated with

violent/aggressive behavior (e.g., fighting, bullying) (Kelishadi et al., 2015). Screen time was also linked with poorer HRQoL (Tsiros et al., 2017) and depressive symptoms (Kremer et al., 2013). Internet use was negatively associated with health (Berntsson & Ringsberg, 2014) and excessive screen time increased stress and the desire for more free time (Brown et al., 2011). Higher screen time and less sleep have been linked to obesity; compared to screen time, physical activity, and homework, the magnitude of the association between sleep and mental health is the largest. Screen time must be minimized to ensure more sleep and more time in healthy activities (Zhang et al., 2017).

Person-Centered Findings Reported by the Studies

Sets or combinations of different activities (e.g., hobbies, sports) are the most development-enhancing ways of time use (McHale et al., 2001); active patterns of participation (higher diversity) led to higher PYD compared with participation in few/no activities and participation in sports together with other activities were linked to optimal development (Linver et al., 2009), higher social competence (Howie et al., 2010), and lower rates of bullying (Riese et al., 2015). Profiles of active/structured activities were associated with higher levels of positive affect, engagement, and confidence, as well as lower levels of alienation (Bohnert et al., 2008). More active/involved youths were more likely to report excellent health and higher life satisfaction compared to their less active counterparts (Badura et al., 2017), and moving from non-participation to participation in multiple activities was associated with higher levels of mental health and social competence over time (Oberle et al., 2019a; Sauerwein et al., 2016). Highly engaged children have shown the greatest positive development; those who spent their time both in sports and youth programs, or those who show a higher involvement in a combination of different organized activities, fare better on multiple indicators of functioning (Zarrett et al., 2009). In addition, children in parent/relative care profiles of activities show better academic performance and behavior (Park & Zhan, 2017), and patterns of both home-based and public activities with parents are linked to better achievement, controlling for culture and lifestyle (Crosnoe & Trinitapoli, 2008).

Several studies have identified both optimal and suboptimal patterns of activity participation. Wong et al. (2017) found four clusters: *studious actives*, *techno-actives*, *stay home screenies*, and *potterers*. The *studious actives* (high PA, low screen-time) scored higher on physical/psychosocial health than *potterers* (low PA, moderate screen-time) while the remaining clusters showed intermediate values. Mourgela and Pacurar (2017) found five clusters: *sociable idlers*, *curious zappers*, *moderately active*, *resourceful players*, and *entertained readers*. Better academic outcomes were identified in the *moderately active* and *curious zappers* and moderate use of social networks/games was linked to better school results than high amounts of social media; *resourceful players* and *sociable idlers* showed

difficulties in subjects where homework is important. Sauerwein et al. (2016) identified five patterns: *out-of-school*, *highly active*, *culturally-oriented*, *jocks* (sports), and *less active*. *Culturally-oriented* youths presented better grades and higher levels of prosocial and cooperative behavior in Grade 5 and better prosocial behavior up to Grade 7. Moreover, Zarrett et al. (2009) identified six clusters: *high-engaged*, *sport-YD*, *sport-only*, *sport-performing art*, *sport-religion*, *non-sport*. The *high-engaged* and *sports-YD* patterns showed greater positive development. Sports are especially effective when clustered with other activities as *sports-YD* youths fare equally well or better than the *high-engaged* youths on all indicators of functioning. Oberle and colleagues (2019b) found four patterns: *all activities*, *no activities*, *sports*, and *individual activities*. Well-being and health scores were highest for children in *all activities* and *sports* clusters, and lowest for those in *no activities* and *individual activities*. In another study using the same clusters identified previously (Oberle et al., 2019a), the authors found that patterns of participation were stable over time and that moving from *non-participation* to the *sports* and *all activities* patterns was associated with higher levels of mental health over time. Badura et al. (2015) identified five clusters: *all-rounders*, *artists*, *individual sports*, *team sports*, and *inactive*. Active clusters were more likely to report excellent health and higher life satisfaction compared with the *inactive* cluster, and that associations with lower risk behaviors were stronger for the *artists* cluster (Badura et al., 2017). Other studies reported worse outcomes for unstructured activities profiles which were linked to feelings of loneliness, disappointment, and isolation (Bohnert et al., 2008). In addition, passive/unstructured activities profiles were associated with depressive symptoms; experiencing alienation during discretionary time was also linked to higher levels of depressive symptoms, and active/unstructured activities profiles were associated with higher levels of delinquency (Bohnert et al., 2009). Also, profiles of lower physical activity and sleep and higher screen-time were linked to suboptimal mental health (Zhang et al., 2017).

Conversely, other studies reported complex and mixed findings. For example, problem behaviors were not different among activity profiles after adjusting for covariates (Howie et al., 2010). Although *non-sport* (uninvolved) youths show the lowest outcome levels, *high-engaged* youths and *non-sport* youths had the highest depression levels of all activity profiles (Zarrett et al., 2009). The *out-of-school* and the *highly active* groups showed lower grades and more deviant behavior, and *jocks* showed more prosocial and cooperative behavior in Grade 5 but an increase in deviant behavior in Grade 7 (Sauerwein et al., 2016). The *team sports* cluster was not associated with reduced risk behaviors (Badura et al., 2017), and shifting from non-participation to activities with an individual focus was not associated with better mental health (Oberle et al., 2019a). Also, the strongest associations with health

were found in those engaged uniquely in *sports* and not those engaged in different activities (e.g., *all-rounders*), as opposed to other studies (Badura et al., 2015).

Discussion

Current state of research

The main goal of this paper was to describe the results of a scoping review about the associations between children´s overall participation in daily activities and indicators of positive development. This review provided a new and comprehensive analysis of a body of empirical literature dedicated to the positive effects of daily activity participation in middle childhood, complementing the prevalent literature whether focused on adolescence or individual activities. Generally, our findings indicate that: (1) most daily activities, whether structured or less-structured, have short- and long-term developmental significance; (2) a wider portfolio of participation in structured activities is linked to positive development; (3) among less-structured activities, dyadic and social time with parents is essential for children´s developmental health and competence; (4) variations in positive development across middle childhood are explained by children´s engagement with different profiles and patterns of daily activities, but these links are complex; and (5) quantity and variety seem to matter, but the quality of activities may also play an essential role in the promotion of positive development.

Among variable-centered approaches, the findings reported suggest that participation in structured activities (ECAs, ASPs, and sports) is associated with an overall positive, albeit moderate, influence on developmental outcomes, such as better health, achievement, social competence, and adjustment. Findings also included significant differences based on individual attributes, gender, socioeconomic status (SES), and community characteristics, which indicates different benefits from participation in structured activities for subgroups of the population (see Badura et al., 2015; Badura et al., 2016; Fauth et al., 2007; Urban et al., 2009, 2010a). Furthermore, less-structured leisure and care activities may have a higher impact on child competence than theoretically expected. Studies on home, family, and community activities indicated several associations with academic performance, emotional adjustment, and well-being. Here, family shared time and leisure activities, particularly dyadic and social time with parents, were positively linked to child outcomes. Despite less attention being given to research on less-structured activities, the selected studies have provided significant evidence of this relationship (see Barker et al., 2014; Berntsson & Ringsberg, 2014). Moreover, variations in screen-time, physical activity, and sleep patterns, which are highly influenced by family functioning and routines, have been consistently associated with the physical and mental health of youths (Berntsson & Ringsberg, 2014; McHale et al., 2001; Park & Zhan, 2017), also corroborated by recent findings (Wong

et al., 2017). Conversely, as expected, overall low participation rates and engagement with passive/unstructured leisure in various settings have been significantly associated with maladjustment and poorer health outcomes; depending on the social context and the quality of activities, profiles associated with feelings of insecurity, alienation, and loneliness, were overall linked to less-adaptive functioning (see Bohnert et al., 2008; Bohnert et al., 2009; McHale et al., 2001).

Among person-centered approaches, which provide a more holistic understanding of children´s everyday lives, specific profiles and patterns of activities were consistently and positively associated with child outcomes. Sets of activities were shown to be the most development-enhancing ways for children to spend their time (McHale et al., 2001; Riese et al., 2015). This overall positive influence of active and diverse activity patterns on child outcomes is particularly effective in the case of diversified profiles characterized by a higher intensity and duration of participation in high-quality activities (see Crosnoe et al., 2015; Fletcher et al., 2003; Mahoney et al., 2007; Metsäpelto & Pulkkinen, 2012; Schuepbach, 2015; Wade, 2015). The variety of relationships with competent peers and adults, which are sources of social support, and the skill-building experiences provided by the activities themselves, may constitute one way through which such positive outcomes are promoted. The diversity and regularity of the exposure to these productive interactions between children and their environments are the building blocks of positive developmental pathways; multiple quality experiences filled with growth-related opportunities that attend to children´s needs, strengths, and potential are thus essential elements for thriving. Noteworthy, better-adjusted children become more involved in adaptive activities over time, suggesting that time use is both a cause and a consequence of child development (Lam & McHale, 2015a; McHale et al., 2001). For these reasons, an ecological and comprehensive perspective of children's everyday lives is crucial for the understanding of healthy and positive developmental trajectories (Lam & McHale, 2015a; Phelps et al., 2009; Tolan et al., 2016; McHale et al., 2001).

However, these associations between daily activities and child outcomes are complex. As Zarrett et al. (2009) posit, more exposure may be better for the positive development of youths, but not always, for all children, and in all circumstances. Some complex, and sometimes contradictory, results were found, indicating that activities may have different roles according to their specific features, the ecological settings where they ensue, and the characteristics of children´s participation (see Carbonaro & Maloney, 2019; Covay & Carbonaro, 2010). This is the case of extracurricular participation, whereas opposed to previous assumptions, mixed results were reported by some studies regarding the breadth of participation, finding it either detrimental or negligible for children´s adjustment and learning (Aumètre & Poulin, 2018; Chiu & Lau, 2018; Schwartz et al., 2015). Notably, some studies reported

weak or non-significant associations after the inclusion of strong controls in the models (e.g., Aumètre & Poulin, 2018; Dumais, 2006; Park et al., 2015). Individual activities are elements of the multilayered everyday life of children, and their impact, if individually considered, is expectedly small (Ben-Arieh & Ofir, 2002; Lam & McHale, 2015a). Although a few of the studies reporting the benefits of activities may have captured a selection effect rather than outcomes caused by participation, small effects do not exclude the possibility of a positive developmental influence in the long term. Positive links between participation and child development are relevant because of cumulative effects, where even small additions may compound over time and ecological settings (Denault & Poulin, 2009; Oberle et al., 2019b; Prentice & Miller, 1992). Varied types of activities developed in different settings may offer distinct opportunities to improve child outcomes (Fauth et al., 2007; Simoncini & Caltabiono, 2012). Conversely, daily activities can also be a source of chaotic, unpredictable, or disengaging experiences that lack organization and constitute a context for maladjustment. Quantity and variety seem to matter, but the quality aspects of activities may also have an essential role in promoting positive child outcomes. Here, as discussed before, processes are key elements. They comprise the interactions with significant others (e.g., regulation, support, meaning-making), the settings where activities ensue (e.g., goals, resources, organized *versus* disorganized), and the opportunities for growth provided by the activities (e.g., engaging, challenging). Studies focused on different patterns of structured and less-structured activities developed at home, at school, or in the community, including measures on both the quantitative and qualitative dimensions of activities, could help disentangle these complex effects (Lam & McHale, 2015a).

Moreover, there has been no clear consensus regarding the optimal amount of time children should spend engaged in either structured or less-structured activities to meet their developmental needs (Metsäpelto et al., 2010; Urban et al., 2010). It has been suggested that parents should be actively involved in their children's leisure to promote well-being and growth, indicating the need for intervention studies on home and family time. Experiments on social and dyadic time with parents, or on children´s individual and self-directed activities, may help disentangle causal pathways on child adjustment (Berntsson & Ringsber, 2014; Lam et al., 2012). Furthermore, studies testing the impact of interventions outside the home environment would help establish how structured activities and programs promote adjustment across middle childhood (McHale et al., 2001; Park & Zhan, 2017). For example, it would be important to assess the impact of school programs offering accessible extracurricular activities throughout the school track (Howie et al., 2010; Metsäpelto et al., 2010). Research and policy would benefit significantly from future work examining the longitudinal, cumulative

effects of different patterns of daily activities developed in diverse ecological settings, with the calculation and report of effect sizes, consequently informing activity guidelines (Aumètre & Poulin, 2018; Schwartz et al., 2015; Zhang et al., 2017).

Compared with previous reviews (Larson & Verma, 1999; Ben-Arieh & Ofir 2002), significant advancements in research design and methodology were observed. More than half of the selected studies had a longitudinal/prospective or experimental design, generally used large samples covering a wide age interval, and a significant proportion was focused specifically on the middle childhood years. In addition, the prevalence of multi-methods and multi-informants, a large proportion of which including child reports, was a significant improvement observed in the research. The reliance on child reports on topics that relate to their lives and well-being indicates recent and positive changes in the ethical and epistemological assumptions held by researchers about childhood and children´s role in research (Martins et al., 2018). Furthermore, studies included a wide variety of healthy and positive outcome measures which indicates a shift in research from a problem, deficit, or psychopathology focus to a positive development approach (Tolan et al., 2016). Several studies also included measures on child, family, neighborhood, and community characteristics, as well as on process-level variables (e.g., home environment, the social climate of ASPs), thus improving the models´ robustness and significantly adding to the existing research corpus. In addition, it was observed a growing interest in children´s daily participation patterns, which may provide a more comprehensive view of children´s everyday lives, helping distinguish healthy lifestyles from those that may constitute a risk for children (Wong et al., 2017). This scientific interest in the description of children´s everyday lives reflects the improvement of children´s social status, constituting an echo of the enforcement of children´s rights (Ben-Arieh & Ofir, 2002).

The present review showed that two-thirds of the selected studies originated in the North American continent, raising issues related to the generalization of findings (see Metsäpelto & Pulkkinen, 2014). Families, schools, and communities most likely provide different bundles of activities and developmental opportunities to children in societies with different social and cultural systems. Despite sharing common features, developmental processes are heterogeneous and socially and culturally specific. Here, cross-cultural research and replication studies could improve the knowledge of the ecological aspects of development related to time use (see Lam & McHale, 2015a). Moreover, the pervasive underrepresentation of specific social groups (e.g., minorities, low SES, at-risk youth) can difficult generalization and produce biased results (Bohnert et al., 2008; Lam et al., 2016; Schwartz et al., 2015; Wong et al., 2017b). New lines of inquiry providing a better insight into the differences

between social groups, whether based on socioeconomic status, culture, or gender, would constitute a relevant addition to research (Lam & McHale, 2015a; Lam et al., 2012; Metsäpelto & Pulkkinen, 2014).

Limitations and future research

Conceptual and methodological robustness of research is needed to answer the multiple challenges identified by the selected studies. These limitations have repercussions regarding the interpretation of findings and guide future research. In light of this, studies also presented a wide scope of issues to be addressed by researchers interested in the interplay of daily activities and positive development in middle childhood.

The use of correlational, cross-sectional designs with small, non-probabilistic samples (e.g., sample homogeneity) limits the generalization of results as well as conclusions regarding the effects of participation (Flanagan et al., 2015; Kremer et al., 2014; Mathur & Berndt, 2006; Molinuevo et al., 2010; Schuepbach, 2015). Even more robust designs are not impervious to limitations. For example, in longitudinal studies, attrition and the pervasiveness of missing values continue to challenge researchers (Aumètre & Poulin, 2018; Schwartz et al., 2015). In addition, the paucity of experimental designs found in the present review points to the paucity of evidence on causation. Therefore, in addition to the use of representative, heterogeneous samples, future studies should incorporate robust measures in quasi-experimental or prospective designs, which allow for the determination of causal pathways, directionality, and change over time, and contribute to the explanation of the mechanisms influencing children´s development (Linver et al., 2009; Metsäpelto et al., 2010; Morrissey & Werner-Wilson, 2005; Zhang et al., 2017).

Although reports from different informants were frequently included in the studies, participation in daily activities was measured mainly by self-report questionnaires (e.g., stylized questionnaires). The potential biases associated with self-report (e.g., recall bias, social desirability) and the lack of objective measures remain a challenge for research quality (Badura et al., 2016; Chiu & Lau, 2018; Mahatmya & Lohman, 2011; Martin et al., 2013; Zhang et al., 2017). Furthermore, the use of time-use diaries and experience sampling methods was scarce, which can be considered a substantial limitation in this research field (Ben-Arieh & Ofir, 2002; Hunt & McKay, 2015; Larson & Verma, 1999). In addition, the focus on single categories of activities, the underrepresentation of relevant daily activities, and the lack of information about the dimensions of participation (e.g., intensity, duration, exposure, breadth) have been referred to as important limitations (Chiu & Lau, 2018; Flanagan et al., 2015; Gardner et al., 2012). These critiques developed by several authors (Bohnert et al., 2010; Roth et al., 2010; Wade,

2015), constitute an essential element in the interpretation of previous findings and the design of future research.

The present review showed the complex nature of the links between daily activities and child outcomes, regarding not only the direction but also the magnitude of the associations (Aumètre & Poulin, 2018; Linver et al., 2009). Some authors have suggested several analytical strategies that may improve the robustness of the models. A reliable control for self-selection factors (e.g., children´s pre-adjustment levels, parental and family characteristics) when investigating the interplay between participation and child outcomes is essential for the examination of independent relationships (Bohnert et al., 2009; Linver et al., 2009; Kelishadi et al., 2015; Lam et al., 2012). Several authors also indicated the need to include information on the availability of and access to activities in schools and communities (Fauth et al., 2007; Loughry et al., 2006; Mahatmya & Lohman, 2011; Schwartz et al., 2015; Simoncini & Caltabiono, 2019; Urban et al., 2010b). Additionally, others point to the inclusion of process-level variables such as children´s engagement with activities, the quality of relationships with peers and adults, and other developmental features of activities (Aumètre & Poulin, 2018; Martin et al., 2013; Zarrett et al., 2009). Future research should also consider testing potential mediators such as competence, self-regulation, and support by significant others, and potential moderators such as parental support, the home learning environment, or the school climate (Fauth et al., 2007; McHale et al., 2001).

Overall, claims about the developmental influence of daily activities can be more robust if models include detailed measures of child participation and consider the quality of activity settings and experiences as interconnected elements that shape child development (Badura et al., 2017; Fauth et al., 2007; Hunt & McKay, 2015; Riese et al., 2015). Researchers need to consider the complex nature of children´s everyday lives and make use of a wider time frame to achieve a realistic representation of activity participation. An example would be research longitudinally examining participation in both structured (e.g., afterschool programs, extracurricular activities) and less-structured activities (e.g., time with parents, unstructured free-time activities), probing for details about the content, social context, and engagement levels on each activity across several days of the week (see Crosnoe & Trinitapoli, 2008b; Dumais, 2006; Gottfredson et al., 2004; McHale et al., 2001; Oberle et al., 2019b; Park & Zhan, 2017). The use of a combination of more robust quantitative and qualitative data collection methods and better analytical models could provide a more detailed description of children´s everyday lives (Martin et al., 2013; Metsäpelto et al., 2010; Mourgela & Pacurar, 2017). Person-centered approaches may prove to be very useful in this field of research by capturing the complex, nonlinear and reciprocal

interactions across children´s daily activities. These approaches provide a better understanding of the patterns of participation during childhood and help to identify groups of children who share characteristics in their daily lives that have developmental significance (Mahoney et al., 2005). Data analytic methods such as cluster analysis, latent class/profile analysis, joint trajectories, and latent transition analysis enable the concurrent and longitudinal examination of multiple dimensions of participation, facilitating the identification of optimal patterns of time use (Aumètre & Poulin, 2018). For example, if different time use patterns predict children´s developmental health, then this evidence could guide services, professionals, and families about the best activity patterns for children (Wong et al., 2017). In addition, creating a comprehensive description of the trajectories of activity participation across all school years would be highly informative for evidence-based interventions (Crosnoe et al., 2015).

A comprehensive analysis of the determinants of participation at different ecological levels is also needed, specifically the factors that are facilitators or barriers to participation. Differences in activity patterns are linked to children´s characteristics interacting with the affordances and constraints present in their environments. Children should be viewed as actively driving family processes, inducing the behavior of social partners, and transforming the nature of everyday activities, and not as passive recipients of environmental stimuli; children´s characteristics often self-select youth into activity profiles influencing, for example, the type of afterschool care provided (Chiu & Lau, 2018; Crosnoe & Trinitapoli, 2008; Mahoney et al., 2005). It would be worth investigating why children choose certain extracurricular activities and avoid others (Sauerwein et al., 2016), including the exploration of person-environment fit (Urban et al., 2010). In addition, research is needed to understand the underlying mechanisms that produce gendered differences in daily participation patterns (Urban et al., 2009). Children's daily activities are a primary means through which social structures and culture are instantiated. As such, McHale et al. (2004) suggest that researching gender development as a function of children's time use across a range of cultural settings may constitute a fruitful endeavor. Additionally, features of the social ecology such as parental beliefs and expectations, family functioning and culture, neighborhoods´ ecological assets, and collective SES influence time use and participation rates, potentially including or excluding groups of children (Howie et al., 2010; Mahoney et al., 2005; Metsäpelto et al., 2010). For example, family SES, a factor linked to low or non-participation, needs to incorporate research investigating daily activity participation (Oberle et al., 2019a). Access to activities is critical both in interpreting findings and in promoting the inclusion of at-risk subgroups of the population, indicating the need to distinguish children who are provided with opportunities from those

facing several barriers (Covay & Carbonaro, 2010; Oberle et al., 2019b; Schwartz et al., 2015). For example, studying disengaged children would increase the knowledge of the common factors that explain both non-participation and maladjustment (Molinuevo et al., 2010).

Limitations of the present scoping review include the lack of assessment of the quality of the selected studies, the considerable amount of data gathered and reported, and the fact that a scoping study does not provide a new synthesis of the evidence in a given field, instead, it is focused on summarizing the corpus of research. Also, the content of this work does not encompass all the theoretical, empirical, and methodological dimensions and issues that constitute this research field. Instead, we aimed to make a descriptive account of the research available, disseminate useful findings from available studies, provide a discussion on main findings and significant design and methodological problems, and identify future research endeavors that can be fruitful.

Conclusion

Portfolios, profiles, and patterns of participation in daily activities are diversified in the child population, explaining cross-sectional and longitudinal differences in positive development across middle childhood. Such differences between groups of the population have repercussions for policies in the social, health, and educational domains. A greater understanding of how everyday activity participation is linked to healthy and positive development may provide guidance for professionals, decision-makers, and researchers in designing evidence-based interventions aimed at tackling inequalities and creating opportunities for all children to thrive. Additionally, it may illuminate how families, schools, and communities can improve children´s time use, positively influencing children´s lives and effectively supporting well-being and growth. However, a higher level of conceptual and methodological robustness of research is needed to understand such complex relationships. Future studies should represent in detail the nature of children´s daily activity participation, both the quantities and qualities, and include the factors that facilitate or undermine such participation. Building participation guidelines on the optimal balance between structured and less-structured activities that support a healthy and positive development is warranted.

Study 2

Children´s Daily Activity Portfolios and Patterns and the Influence of Multilevel Ecological Factors

Abstract

Children´s time use is a complex developmental phenomenon in need of a more in-depth, detailed understanding. The present study aimed to provide a comprehensive description of children´s everyday lives in middle childhood and examine how different portfolios and patterns of daily activities occurring at home, school, and community are influenced by multilevel ecological factors. Based on cross-sectional, multi-informant data from a younger sample of Portuguese 3rd and 4th Graders (n = 209) and an older sample of 5th and 6th Graders (n = 153), this research expands previous literature by providing a mixture of variable- and person-centered analytical approaches to children´s everyday lives. For the younger sample, five different clusters of children were found: "less-active studious", "highly-engaged players", "less-involved after-schoolers", "highly-active homies", and "sedentary home screeners". For the older sample, four different clusters emerged: "active studious homies", "after-schoolers", "less-engaged", and
"sedentary home players". Findings indicate that children´s everyday lives are characterized by multidimensional, heterogeneous, and qualitatively different participation portfolios and patterns. Both significantly vary as a function of child characteristics, parental education, family functioning and culture, and the quality of the environments where activities ensue. These variations may represent different levels of exposure to developmental opportunities. An ecological developmental perspective of children´s time use is necessary and useful to enlighten how families, schools, and communities can positively influence children´s lives and effectively support their well-being and growth.

Keywords: daily life; ecological contexts; middle childhood; participation; person-centered analysis

Introduction

Children´s time use is a complex phenomenon in need of a more in-depth, detailed understanding. What children do in their everyday lives and why they do it are important facets of development, with implications for lifelong healthy and adaptive functioning (Huston & Ripke, 2006a; Simpkins et al., 2006). During middle childhood, children are exposed to new, varied experiences in environments outside the home. This wider and differentiated ecology becomes increasingly more layered and complex (Bronfenbrenner, 1979; 1999). Comprising playing and hobbies, dyadic and social time with parents, school, sports, homework, extracurricular activities, and after-school programs, among others, daily activities are at the center of the everyday interactions between children and their physical, social, and cultural environments (Bronfenbrenner, 1999; Weisner, 2002). Consequently, children´s daily activities are often described as reflecting the developmental opportunities provided by their families, schools, and communities (Lam & McHale, 2015a; Larson & Verma, 1999). As the building blocks of children´s developmental pathways, daily activities are expected to promote well-being and cognitive and socioemotional growth (McHale et al., 2001; Metsäpelto & Pulkkinen, 2012; Oberle et al., 2019; Zhang et al., 2017), but less is known about children´s complex participation patterns and the diverse influences that shape their everyday lives.

In the context of contemporary parenting cultures, many children, particularly those from more affluent families, could be described as cultural omnivores (Wheeler & Green, 2018). Participation in different bundles of home-, school-, and community-based activities provides important support for parents trying to balance work and family life and who hold expectations towards children´s well-being and social and academic enrichment (Chiu & Lau, 2018; Gracia & García-Román, 2018; Patočková et al., 2021; Wheeler & Green, 2018). However, because time use is a multifaceted phenomenon, a more comprehensive representation of the diversity of daily activities and the ecology in which they are embedded is necessary. Previous literature has often focused on analyzing single categories or domains of activities (i.e., sports, screen time, or organized activities), but children´s daily life cannot be fully characterized by unidimensional participation. Instead, daily activity patterns should be analyzed as multidimensional units (Ferrar et al., 2013; Hunt et al., 2015; Hunt & McKay, 2015; Wong, Lycett, et al., 2017). Furthermore, while for some children everyday life could be characterized by a portfolio of daily activities full of opportunities for active, stimulating, and engaging experiences, for others it could be characterized by limited opportunities for thriving (Ben-Arieh & Ofir, 2002; Huston & Ripke, 2006b). This is because participation in daily activities is influenced by individual and environmental factors, and these multilevel factors need to be further clarified (Eisman et al., 2016; Patočková et al., 2021).

Therefore, the present study aims to provide a comprehensive outlook of daily life in middle childhood and identify its ecological correlates.

Variable- and Person-Centered Approaches to Children´s Daily Activities

The standard variable-centered approach uses indicators of participation in daily activities to characterize specific domains of time use in the population and investigate the links between daily activities and their predictors and developmental outcomes. Previous literature has provided ample evidence on the portfolios of children´s after-school care arrangements, involving family leisure and care, youth programs, extracurriculars, and sports, among others (Barker et al., 2014; McHale et al., 2001; Metsäpelto & Pulkkinen, 2012; Oberle et al., 2019; Park & Zhan, 2017). However, much less attention has been given to the concurrent interplay of varied activities ensuing from different ecological settings (see Linver et al., 2009; Zarrett et al., 2009).

Multifaceted patterns of participation are better understood using analytical approaches that characterize individuals on several indicators, incorporating the multidimensionality of children´s everyday life from a macroscopic viewpoint (Farb & Matjasko, 2012; Ferrar, Chang, et al., 2013; Hunt & McKay, 2015). A person-centered approach can be effective because it reflects a more holistic perspective of the features of everyday life; it´s a viewpoint that places the child at the center as a complex, organized whole rather than a summation of variables (Bergman, 2001). Here, the individual child is the unit of analysis, reflecting more accurately the diverse patterns of daily activities available to and engaged by children, thus complementing the variable-centered approach. These different combinations are expected to incorporate the complexity of daily life, grouping children based on their shared patterns of participation (Linver et al., 2009; Morris & Kalil, 2006), and accurately reflecting "the bundles of activities available to and utilized by children and families in the real world" (Morris & Kalil, 2006, p.238). Previous person-centered research has uncovered different profiles of children´s participation in organized activities and time spent on family leisure (Badura et al., 2015; Crosnoe & Trinitapoli, 2008; Linver et al., 2009; Oberle et al., 2019; Zarrett et al., 2009). However, to our knowledge, very few studies have incorporated both the structured and less-structured leisure activities that best characterize the reality of children´s daily life during middle childhood (see Bartko & Eccles, 2003; Wong et al., 2017).

Ecological Influences on Children´s Participation

Children´s participation in and engagement with daily activities reflects their individual choices and characteristics, including their agency, skills, and adjustment levels (Lam & McHale, 2015a; McHale, 2001). Children are not passive recipients of environmental stimuli, as they are active

participants influencing social partners and processes as well as the nature of the activities. Therefore, children´s characteristics are expected to self-select them into different activity profiles. Prior research of child-level influences has established marked variations in participation between groups of children based on age and gender (Crosnoe & Trinitapoli, 2008; Mahoney et al., 2005; Metsäpelto & Pulkkinen, 2014). However, the role of children´s attributes as elements of time use has been overlooked and less is known about the effects of child functioning or developmental status on daily participation profiles (see Allhusen et al., 2004; Aumètre & Poulin, 2018; Wade, 2015). Particularly, the enjoyment of activities by children and their psychological engagement levels have been less explored by the literature (see Bohnert et al., 2010; Yelland et al., 2021).

Concerning family-level influences, social address variables have been consistently linked to the after-school time use of children (Allhusen et al., 2004; Howie et al., 2010; Mahoney et al., 2005). Children from highly educated parents are less involved in screen time and spend more time in educational, enrichment, and parent–child dyadic and social activities (Bianchi & Robinson, 1997; Gracia & García-Román, 2018). In addition, higher socioeconomic status (SES) is often linked to more active children who show a higher intensity and diversity of after-school participation in organized activities, contrarily to low SES which is a factor commonly associated with lower or non-participation (Covay & Carbonaro, 2010; Dumais, 2006; Mahoney & Eccles, 2008; Oberle et al., 2019). Socioeconomic variables clearly distinguish children who are provided with opportunities from those facing several barriers (Covay & Carbonaro, 2010; Schwartz et al., 2015). However, these structural factors do not provide the whole picture. Aspects related to parental beliefs and choices, family functioning, and family culture may provide significant inputs to the literature, as families greatly influence how children spend their time (see Ooi et al., 2020; Simpkins, 2006). Recently, several authors (Gracia et al., 2020; Lam & McHale, 2015b; Patočková et al., 2021) called for further attention to family and parenting cultures as critical influences in children´s participation profiles and as core elements of time use that further enlighten the influences of social background.

School- and community-level influences include, among others, the sociocultural characteristics of the settings in which daily activities are embedded (Eccles & Gootman, 2002; Lam & McHale, 2015a). In particular, the positive developmental influence of process quality in after-school programs and extracurricular activities (e.g., social climate, skill-building opportunities, emotional support, structure) has been established in previous literature (Mahoney et al., 2007; Smith et al., 2014; Wade, 2015). Nevertheless, less attention has been given to the impact of these quality factors on children´s participation in and engagement with activities. For example, Bohnert and colleagues (2008) have

found that higher levels of engagement and positive affect towards an activity were associated with more intensive participation in active, structured activities as opposed to passive, unstructured, or unstimulating activities. The process quality of environments is expected to contribute to a higher level of involvement, but very few studies have tested these influences.

Present Study

The present study encompasses multiple ecological influences shaping children's everyday lives during middle childhood (see Hunt & McKay, 2015; Simpkins et al., 2006). By combining variable- and person-centered approaches to the data, this research aimed to comprehensively describe how different portfolios (i.e., sets of activities in which children participate) and patterns (i.e., combinations) of activities that occur at home, at school, or in the community are influenced by child, family, and school/community factors, comparing two different samples of 3rd/4th Graders and 5th/6th Graders. We explored a wide scope of daily activities developed in several ecological settings, namely playing, studying, physical activity, family time, screen time, organized activity participation, and free time at school, adding to previous literature focused on adolescence and single domains of activities. Next, we built on the data provided in the previous step and integrated a person-centered approach. Here, we incorporated these daily activities and analyzed their reciprocal influences around significant patterns of participation. This may provide a better representation and understanding of children´s everyday lives. In a person-centered approach to data, cluster analysis is an emerging statistical technique of pattern recognition used for identifying groups of individuals that are analogous across time use variables (Ferrar et al., 2013). More than an analysis of quantitative variations, such an approach shows qualitative variations in daily participation that are relevant to child well-being and development (Zarrett et al., 2009). In addition, to better understand the ecological influences exerted on these patterns, we included several ecological factors that operate at three levels: child, family, and school/community. This in-depth, multilevel perspective of children´s participation profiles may help identify a variety of affordances and constraints, and in turn, these may have implications for well-being and development. Avenues for intervention strategies related to sub-optimal patterns of time use are needed, since time use gaps among social groups may help explain different health and developmental trajectories throughout middle childhood (Ferrar et al., 2013; Forneris et al., 2015; Lam & McHale, 2015a; Wong et al., 2017).

Methods

Participants and Procedures

The present study is based on cross-sectional data from two non-probabilistic samples of 3rd and 4th Graders (n = 209) (58% girls), aged between 8 and 10 years old (M = 8.76, SD = 0.61), and their parents (85% mothers), herein referred to as the younger sample, and a sample of 5th and 6th Graders (n = 153) (59% girls), aged between 10 and 13 years old (M = 10.99, SD = 0.70), and their parents (86% mothers), herein referred to as the older sample. In the younger sample, 9% of children had a chronic health condition and 8% had a learning disability. Ninety percent of parents were married or in a civil union, 52% had higher education, and 84% were employed full-time. About 80% of families were nuclear. In the older sample, 10% of the cases had a chronic health condition, and 9% had a learning disability. Parents were married/civil union in 84% of the cases, 41% had higher education, and 77% were employed full-time. About 67% of families were nuclear.

The families of students from 8 school clusters in Northern and Central Portugal, located in both rural and urban sites, received a letter inviting them to participate in a study of children´s time use and positive development. Participants provided informed consent (parents) and assent (children). According to their preference, both parents and children responded via an online survey or a paper and pencil version. In addition, schoolteachers were asked to provide additional information on children´s learning disability status through a questionnaire. Participation was informed, voluntary, and confidential, and data were anonymized through a code only accessible to the research team. This study followed the legal regulations in force and received the approval of the University´s Ethics Committee and the General Board of Education.

Measures

Children´s Daily Activities

In the Q25 questionnaire (Oliveira, Martins, & Carvalho, 2019) the parent–child dyad reports on children´s participation in 25 daily activities. This instrument uses a comprehensive approach to the measurement of children´s everyday lives, including a diverse set of daily activities that occur in diverse environmental settings. For each type of activity, respondents used Likert-type scales and categorical items assessing participation in recent weeks, specifically the frequency ("never" = 0 to "daily" = 6) and the time usually spent ("around 30 minutes" = 1 to "2 hours+" = 4). Using the previous items, a weighted score representing the *intensity of weekly participation* in hours was calculated for each type of activity. In addition, respondents used a Likert scale (from "none" = 0 to "totally" = 4) to assess the level of the child´s engagement with the activity (e.g., "During this activity, the child shows satisfaction, attention, effort or interest?"). In the present study, a total of 24 types of daily activities were included in the analyses (Table 3). From these, 17 were aggregated into seven larger categories according to

theoretical criteria (i.e., domains of activities commonly used in previous studies) and their intercorrelations (Table 4 and Table 5). For each category, the intensity of participation in daily activities (types) was summed (intensity) and standardized for analytical purposes. Accordingly, the operational categories used in this study are the following: *Play time*, *Family time*, *Screen time*, *Physical activity* (*PA*), *Organized activities* (*OA*), *Homework*, and *School free time*. The instrument provides satisfactorily valid scores of the intensity of weekly participation of children with estimates in line with previous research (Teixeira, 2009).

Child-Level Factors

A parent-reported sociodemographic questionnaire assessed child characteristics using categorical and ordinal items. Respondents provided information on *gender* (coded as girls = 1, boys = 2) and *chronic health condition* (no = 1, yes = 2) (e.g., asthma). In addition, parents assessed both the academic achievement and behavior of children in the previous school years in comparison with peers using two Likert scales (e.g., "In the previous school years and compared with peers, my child´s learning/behavior has been..."; from "a lot less" = 1 to "much more" = 5, "much worse" = 1 to "much better" = 5, respectively). These two items were averaged representing the level of *prior functioning* of the child (see Appendix 3) and dichotomized by the mean value indicating higher (better) and lower (worse) levels of behavioral functioning. Teachers were asked to provide additional information through a question on children´s *learning disability status* at school (coded as no = 1, yes = 2). Furthermore, an average score for children´s *engagement levels* across each category was calculated using the responses provided in the Q25 regarding the level of children´s engagement with daily activities (see Bohnert et al., 2010). Each score was dichotomized by the mean value (lower = 1; higher = 2) (see scores in Tables 4 and 5).

Family-Level Factors

Using the parent-reported sociodemographic questionnaire, family socioeconomic information was gathered on parent´s *marital status* (married/civil union = 1, other = 2), *educational status* (≤12th grade = 1, >12thgrade = 2), and *professional status* (employed full-time = 1, other = 2). In addition, parents assessed the *home environment* and *family cultural orientations* using the Family Environment Scale (FES) (Moos & Moos, 1986; Matos & Fontaine, 1992). The FES comprises dichotomous items (i.e., true, false) organized in subscales of 9 items each, measuring the respondents´ perceptions of their nuclear families´ social, environmental, and relational characteristics. In this study, one sub-scale from the relationship dimension, *cohesion* (i.e., level of support provided for one another), and one sub-scale related to the system maintenance dimension, *organization* (i.e., clear organization/structure in

planning family activities/responsibilities), were used as indicators of the home environment quality (i.e., family functioning). In addition, three sub-scales from the personal growth dimension were used as indicators of family *cultural orientations*, encompassing the *achievement orientation* (i.e., the extent to which activities are cast into a competitive framework towards achievement), the *intellectual-cultural orientation* (i.e., the degree of interest in social, cultural, and intellectual activities), and the *active-recreational orientation* (i.e., the extent of family participation in recreational and social activities). For each subscale, a score was computed by summing the nine items ("true" = 1, "false" = 0) with a higher score representing higher levels in each dimension of family functioning (see Appendix 2). For analytical purposes, these scores were dichotomized by the mean value (lower = 1; higher = 2). The FES has been used in several studies focused on how variations among family environments influence individual and family functioning (Moos & Moos, 1986). In addition, it has been used to predict child outcomes and activity participation levels (see Eisman et al., 2016; Harris et al., 2020; Larson et al., 1996).

School/Community-Level Factors

An additional module from the Q25 questionnaire assessed the quality of environments in school and community settings. The parent–child dyad used a 5-item measure (Likert scales ranging from "not at all" = 0 to "totally" = 4; e.g., "Are children provided with opportunities to develop new skills through stimulating and innovative activities?", "Is the physical and psychological well-being of children protected by rules, structure, and supervision?") to assess the process/quality features of the settings where school and community activities occur, in the domains of physical and psychological safety, structure, social support, positive and inclusive social norms, and stimulating skill-building experiences (see Bohnert et al., 2010; Eccles & Gootman, 2002; Schuepbach, 2015; Smith et al., 2017). A mean score was created for each of our environments of interest (see Appendix 2): *school environment*, *ECAs environment*, *sports environment*, *ASPs environment*, *EA environment*, *tutoring environment*, and *youth group environment*. Here, a higher score represents better developmental qualities of the environmental setting. In addition, an overall score of *OA environment* quality was calculated by averaging the respective scores within this category of activities. For analytical purposes, all scores were dichotomized by the mean representing different process quality levels (lower = 1; higher = 2).

Analytical Plan

Descriptive statistics (including bias-corrected accelerated 95% confidence intervals) were calculated to describe children´s intensity of participation and engagement levels per type and category

of daily activities, as well as child, family, and school/community characteristics (i.e., multilevel ecological factors). Pearson correlation coefficients were calculated among the *intensity* scores of the categories of daily activities (Tables 6 and 7). The analysis of missing values indicated that the proportions ranged from 0.5% (e.g., *play time*) to 14% (e.g., *marital status*), with daily activities with low prevalence rates not included. In addition, it was not possible to collect the *learning disability* status data from teachers in 23% of the cases in the younger sample and 43% in the older sample; however, given the relevance of this variable, it was included in the analyses. No treatment of missing values was applied in the present study (Dong & Peng, 2013).

Next, for each sample, a cluster analytical approach was conducted in three steps to identify heterogeneous groups of children who share meaningful and homogeneous patterns of daily activities. First, the participation scores in the seven categories of daily activities (*play time*, *PA*, *screen time*, *family time*, *OA*, *homework*, and *school free time*) were standardized and a hierarchical clustering technique was performed using *Ward´s method* with a *squared Euclidean distance measure*. The visual organization of the dendrograms and the coefficients in the agglomeration schedules indicated five to six cluster solutions for the younger sample (3rd/4th Graders) and a three to four cluster solution for the older sample (5th/6th Graders). Second, an iterative non-hierarchical *k*-means analysis was applied to the cluster solutions suggested in the first step. The *k*-means algorithm determines the clusters´ means and iteratively reclassifies each case based on its distance to the cluster center until the change between iterations becomes very small or null. At that point, cases are assigned to their cluster membership. This method tests for the stability and robustness of the cluster solution due to its iterative nature (Metzger et al., 2009; Morris & Kalil, 2006). For the younger sample, the tested six-cluster solution began to represent duplicate patterns and was dropped from further analysis. After 13 iterations, the five-cluster solution was stable and adequate for further analysis. For the older sample, after 9 iterations, the four-cluster solution was also stable and satisfactory for further analyses. Finally, benefiting from the previous hierarchical and non-hierarchical techniques, the validation of the cluster solutions was conducted through additional analytical procedures, following the recommendations by Clatworthy and colleagues (2005). Here, an analysis of variance with Bonferroni correction was run with the calculation of effect sizes (partial eta-squared) (see Tables 8 and 9), post-hoc tests were examined, and mean plots were visually inspected to confirm patterned differences across daily activity scores. Along with the theoretical relevance of the organization of the data observed in each cluster, these analyses confirmed that all scores contributed to and were significantly different across clusters, satisfactorily validating the cluster solutions.

Next, a set of Welch´s *t*-tests were used to examine the differences in the intensity of participation in daily activities according to child- (child characteristics, engagement), family- (SES, home environment, family cultural orientations), and school/community-level (quality of environments) factors. The Welch´s *t*-test is a robust test of the equality of means regarding the assumptions of normality and equality of variances, as well as the differences between group sizes (Delacre et al., 2019). In addition, for each statistically significant result, the corrected effect size (Cohen´s *d*) was calculated and reported, as well as for non-statistically significant results that presented small to moderate effect sizes (interpreted as a trend) (see Lenhard & Lenhard, 2016; Gignac & Szodorai, 2016). In addition, a set of Chi-square tests, with column proportion *z*-tests (adjusted *p*-values with the Bonferroni method), were used to assess the associations between daily activity patterns (cluster membership) and child, family, and school/community factors, with the calculation of the Cramér's *V* as an effect size indicator. All analyses were performed on IBM SPSS (Version 28).

Results

Description of Children´s Portfolios and Patterns of Daily Activities

Table 3 describes children´s types of daily activities per ecological setting, their participation rates, and the frequency of weekly participation for both samples. Participation rates are higher (≥ 85%) for a large proportion of activities, except for *inactivity*, *library/playroom*, *ECAs*, *sports*, *ASPs*, *tutoring*, *enrichment activities*, *youth group*, and also *cultural activities* (in the older sample). Daily activities with a higher frequency of weekly participation include *school*, *watching TV*, *gaming/internet*, *activity with a parent*, *family meals*, *homework*, *sleep*, *school sports*, and *household chores*. As reported by participants, for the younger sample, *ECAs* predominantly included English lessons, sports, and arts, *ASPs* included movement activities, studying/homework, group activities, playing, and arts, *EA* included music, English, and performative arts, and *sports* included football, swimming, gymnastics, martial arts, and ballet/dance. For the older sample, *ECAs* involved sports, arts, and school clubs (e.g., mathematics), *ASPs* involved studying/homework, group activities, playing and board games, cooking, and arts, *EA* music, dance, English, and other arts, and *sports* included football, swimming, athletics, and gymnastics.

Table 4 (younger sample) and Table 5 (older sample) describe children´s intensity of participation in daily activities, engagement levels, and social partners. The categories of activities with a higher intensity of weekly participation included *family time*, *screen time*, *PA*, and *OA*, as well as *homework* for the older sample. The types of activities with higher intensity of participation included *sleep*, *hours in school*, *family meals*, *watching TV*, and *activity with a parent*. Noteworthy, regarding the

range of weekly hours spent on activities, the highest values were observed in the *family time*, *OA*, *screen time*, and *play time* categories, as well as *PA* for the older sample. Overall, compared with their older counterparts, younger children spent on average more time per week in school (approximately 38 hours vs. 35 hours), had more hours of quality sleep (approximately 60 hours vs. 58 hours), but less time in out-of-school leisure time (approximately 45 hours vs. 47 hours). In addition, Tables 4 and 5 present the intensity estimates of participation for the full samples, however, in some activities with lower participation rates (e.g., *sports*, *organized activities*), the weekly participation estimates of participating children versus the full sample are different, as expected. Thus, for participating children in the younger sample, the intensity of weekly participation is the following: *sports* (*M* = 2.89, *SD* = 1.75), *ECAs* (*M* = 4.26, *SD* = 2.19), *ASPs* (*M* = 7.62, *SD* = 4.80), *EA* (*M* = 1.90, *SD* = 1.23), *tutoring* (*M* = 5.09, *SD* = 3.85), *YG* (*M* = 1.33, *SD* = 0.84). For the older sample, the estimates are the following: *sports* (*M* = 3.93, *SD* = 2.66), *ECAs* (*M* = 2.43, *SD* = 1.79), *ASPs* (*M* = 6.17, *SD* = 4.79), *EA* (*M* = 3.08, *SD* = 2.49), *tutoring* (*M* = 4.73, *SD* = 4.38), *YG* (*M* = 1.32, *SD* = 0.54).

Regarding the interrelationships among categories of daily activities, for the younger sample, positive associations were found between *play time* and *PA*, *family time*, and *homework*, between *family time* and *PA* and *homework*, between *homework* and *screen time* and *OA*, and between *school free time* and *PA*. For the older sample, positive associations were found between *family time* and *play time*, *PA*, *homework*, and *sleep*, between *homework* and *PA*, *sleep*, *school hours*, and *school free time*, and a negative association was found between *screen time* and *sleep*.

Furthermore, for both samples (Tables 4 and 5), children´s engagement with daily activities showed higher levels in the categories of *family time*, *screen time*, *PA*, and *school free time*, and in the specific types of *social participation*, *sports*, *gaming/internet*, and *cultural activities*. Lower engagement levels were observed in *homework*, *inactivity*, *household chores*, and going to *sleep*. Regarding the social partners of activities, the daily activities with a higher proportion of "alone" time included *creative leisure, gaming/internet*, *sleep*, and *inactivity*; "with children" included *active play* and *school* activities; "with adults" included *activity with a parent*, *family meals*, *homework*, and *household chores*; and, with "children and adults" included all *family time* activities, *watching TV*, all *OA*, and *cultural activities*.

Next, regarding the cluster analytical procedures, the small to moderate strength of correlations among categories of daily activities (see Tables 6 and 7) indicates the measurement of different constructs of daily life and thus the need to analyze these interrelations using a multidimensional, pattern-centered approach. Following the cluster analytical steps described previously, each child was assigned a specific cluster membership. Figures 4 and 5 describe the data organization in each cluster

and the different contributions of daily activities to the understanding of the overall patterns of activities (clusters) for both samples. Standardized cluster centers resulting from the *k*-means analysis were significantly different across these patterns, with effect sizes ranging from .13 (*screen time*) to .53 (*homework*) for the younger sample, and .19 (*school free time*) and .60 (*OA*) for the older sample (see Tables 8 and 9). The strongest contributors to the differences observed among clusters were *homework*, *play time*, and *PA* for the younger sample, and *OA*, *screen time*, and *family time* for the older sample. Subsequently, the clusters that emerged in the analysis were classified according to cluster-specific values (lower, moderate/average, higher), the observed co-occurring behaviors, and the findings from previous related literature (see Ferrar et al., 2013; Martins et al., 2018; Wong et al., 2017), making a total of five clusters for the younger sample, and a total of four clusters for the older sample. The 3rd and 4th Grade sample clusters are the following (see Figure 4):

Cluster 1 - "less-active studious" (accounting for 10% of the participants) encompassed children who were highly engaged in *homework* and *OA*, presented lower levels of *PA* and *school free time*, and were moderately engaged with activities developed in the home environment (*play time*, *screen time*, and *family time*).

Cluster 2 - "highly-engaged players" (5% of participants) were characterized by an overall high intensity of participation in daily activities, particularly *play time*, and a moderate level of *screen time*.

Cluster 3 - "less-involved after-schoolers" (40% of the participants) was characterized by overall below-average participation in daily activities, particularly *family time*, and moderate participation in *OA*.

Cluster 4 - "highly-active homies" (31% of the participants) encompassed highly active children (*PA* and *school free time*), who presented lower levels of *homework* and *OA*, and moderate levels of home activities (*screen time*, *play time*, and *family time*).

Cluster 5 – "sedentary home screeners" (15% of the participants) were characterized by a higher engagement with activities developed mainly in the home environment (*family time*, *screen time*, and *homework*), and lower levels of *PA*, *OA*, *school free time*, and *play time*.

For the 5th and 6th Grade sample, four clusters were identified (see Figure 5):

Cluster 1 – "active studious homies" (17% of the participants) were characterized by high levels of *family time* and *PA*, as well as *homework* and *school free time*, and average levels of *play time*, *screen time*, and *OA*.

Cluster 2 – "after-schoolers" (13% of the participants) included children who presented an overall high level of *OA* participation, average levels of *family time* and *homework*, and lower levels of *screen time*.

Cluster 3 – "less-engaged" (45% of the participants) presented an overall lower participation intensity in the activities compared with the remaining clusters of children.

Cluster 4 – "sedentary home players" (25% of the participants) were characterized by higher *screen time* and *play time*, average *family time*, and lower levels of *PA* and *OA*.

Ecological Factors Influencing Participation

Differences in the intensity of weekly participation in categories of daily activities according to the three-level ecological factors (child, family, and school/community) for both samples are displayed in Table 10 to Table 15. For the younger sample, gender differences were observed only in the case of the category *screen time*, with boys showing a higher intensity of weekly participation compared to girls, and a trend related to *PA*, with boys also showing higher levels of involvement. As a result of the few gendered differences found among categories of activities, we explored differences according to the types of activities incorporated in the categories, with girls presenting lower levels of *gaming/internet*, $F(1, 195) = 7.68$, $p = .006$, and *sports*, $F(1, 193) = 10.25$, $p = .002$. For the older sample, no gendered differences were found regarding the categories of activities.

However, a few differences were found in the types of activities, with boys presenting higher levels of active play, $F(1, 146) = 4.79$, $p = .03$, and girls showing a higher involvement with YG, $F(1, 144) = 4.92$, $p = .028$, and creative leisure, $F(1, 146) = 3.75$, $p = .055$ (approached significance).

In addition, no statistically significant differences were found concerning the chronic health condition of the child. However, children with learning disabilities spent more time in OA and less time in PA and school free time. Conversely, children with better prior functioning had a higher intensity of participation in PA, play time, and homework. For the older sample, better prior functioning of the child was linked to higher levels of homework and lower levels of play time. Here, a few trends were observed related to boys spending more time in PA, children with a chronic health condition spending less time in PA, and children with a learning disability showing lower levels of homework.

To better understand the influences of gender in participation, we also tested differences regarding the engagement levels in the activities. In the younger sample, girls showed higher levels of engagement in the categories *play time*, $F(1, 195) = 4.83$, $p = .029$, *OA*, $F(1, 185) = 8.57$, $p = .004$, and *homework*, $F(1, 192) = 4.00$, $p = .047$, and in the types *creative leisure*, $F(1, 190) = 8.00$, $p = .005$, *ECAs*, $F(1, 141) = 4.43$, $p = .038$, *YG*, $F(1, 119) = 7.57$, $p = .007$, and lower levels regarding *gaming/internet*, $F(1, 194) = 5.78$, $p = .017$. For the older sample, no differences were found regarding the categories of activities, but

in the types of activities boys were more engaged with *sports*, $F(1, 44) = 6.93$, $p = .012$, and girls with *creative leisure*, $F(1, 77) = 3.88$, $p = .054$ (approached significance).

Furthermore, regarding children´s engagement levels within each category of daily activities (see Tables 10 and 11), engagement with a specific activity was associated with variations in the intensity of the corresponding activity and, in some cases, with other categories. For the younger sample, a higher engagement with *play time* was associated with a higher intensity of *play time* and *school free time* as well as lower *screen time*. Additionally, a higher engagement with *PA* was associated with higher *PA* and *school free time*, a higher *family time* engagement was associated with higher levels of *play time*, *family time*, and *school free time*, and a higher engagement with *OA* was linked to higher weekly participation levels in *PA*, *family time*, and *school free time*. A higher *homework* engagement was linked to higher levels of *homework* and *PA*. For the older sample, the patterns of associations are similar, however, a few cases are noteworthy: higher *play time* engagement was associated with higher *play time* and *homework*, higher *family time* engagement was associated with higher *play time*, *PA*, *family time*, *OA*, and *homework*. Overall, effect sizes (Cohen´s *d*) of the child-level factors ranged from small (0.28) for *PA* engagement and *school free time* levels as well as *homework* engagement and *PA* levels, to large (0.90) for *PA* engagement and *PA* levels.

Table 3

Description of Children´s Daily Activities, Participation Rates, and Frequency of Weekly Participation at 3rd/4th and 5th/6th Grades

Ecological Setting	Type of Activity	Activity Description (*examples*)	Participation Rate (%) *3rd,4th / 5th,6th Grades*	Frequency (%) *3rd,4th / 5th,6th Grades*		
				≤ 1 per week	*2-3 times per week*	*≥4 times per week*
Home	Play	*board games, toys, pretend play*	99 / 91	35 / 62	31 / 18	34 / 20
	Active play	*running, ball games, bike, dancing*	99 / 99	23 / 24	34 / 32	42 / 44
	Creative leisure	*reading, writing, painting, playing*	98 / 93	22 / 37	24 / 30	54 / 33
	Watching TV	*television viewing (movies, shows)*	100 / 99	4 / 12	14 / 15	82 / 73
	Gaming/Internet	*computer, tablet/phone, console use*	99 / 97	26 / 9	27 / 13	47 / 78
	Activity w/ parent	*joint activity with parent*	99 / 99	4 / 7	11 / 12	85 / 81
	Family meals	*time spent on meals w/ parents*	98 / 100	1 / 0	2 / 1	95 / 99
	Household chores	*cleaning room, caring for a pet*	98 / 99	30 / 16	23 / 30	46 / 54
	Homework/study	*studying, doing homework for school*	100 / 99	7 / 6	18 / 9	75 / 85
	Sleep	*full nights of regular sleep (hours)*	98 / 99	2 / 2	1 / 3	95 / 95
	Inactivity	*time spent doing nothing, relaxing*	50 / 73	73 / 58	14 / 15	11 / 27
School	School free time	*free time / recess*	100 / 99	1 / 3	0 / 3	97 / 94
	Library/playroom	*activities in library/playroom*	84 / 80	51 / 48	32 / 36	16 / 16
	Lunch time	*time spent on school lunch*	95 / 91	6 / 11	2 / 55	91 / 34
	School sports	*sports and physical activities*	87 / 99	51 / 3	39 / 85	9 / 12
	ECAs	*extracurricular activities*	71 / 48	36 / 76	21 / 19	42 / 5
	Hours in school[a]	*time spent on school premises*	100 / 100	33 / 58 (*≤7h*)	48 / 34 (*8h*)	17 / 8 (*≥9h*)
Community	Sports	*sports activities at a gym/club*	70 / 53	47 / 55	44 / 37	9 / 8
	ASP	*after-school care program*	31 / 22	72 / 82	4 / 7	23 / 11
	Tutoring	*academic-oriented training/study*	27 / 45	76 / 68	8 / 20	13 / 12
	Enrichment activities	*lessons (music/arts/languages)*	47 / 38	75 / 80	18 / 14	4 / 6
	Youth group	*youth group/activity (e.g., Scouts)*	61 / 57	96 / 97	1 / 3	2 / 0
	Social participation	*visiting others, shopping, socializing*	96 / 94	41 / 52	42 / 35	16 / 13
	Cultural activities	*museums, shows, cultural events*	88 / 79	96 / 99	1 / 1	1 / 0

Note. Due to missing values, in some cases proportions may not add to 100; [a]= daily hours spent on school premises (i.e., classes, recess, lunch, ECAs)

Table 4

Description of the Weekly Intensity of Participation in Activities, Engagement Levels, and Social Partners at the 3rd/4th Grade

Activity Category Activity type	***Intensity***				***Engagement***		***Social Partners*** (%)			
	Range	*Mdn*	*M* (*SD*)	BCa 95%CI	*M* (*SD*)	BCa 95%CI	*alone*	*children*	*adults*	*ch + ad*
Play time	0.25 – 28	5.38	6.67 (4.85)	[6.07, 7.27]	3.03 (0.65)	[2.94, 3.12]	–	–	–	–
Play	0 – 14	2.50	3.03 (3.04)	[2.64, 3.43]	3.09 (0.71)	[3.00, 3.20]	18	35	18	28
Creative leisure	0 – 14	2.50	3.67 (3.11)	[3.28, 4.11]	2.97 (0.82)	[2.85, 3.08]	48	7	16	29
Family time	1.25 – 42	14.13	15.14 (5.86)	[14.31, 15.98]	3.15 (0.54)	[3.08, 3.21]	–	–	–	–
Activity with parent	0 – 14	3.50	5.43 (3.38)	[4.96, 5.90]	2.98 (0.77)	[2.88, 3.08]	0	0	47	53
Family meals	1.25 – 14	7.00	6.35 (2.49)	[6.04, 6.66]	3.12 (0.72)	[3.01, 3.24]	1	0	30	69
Social participation	0 – 14	2.50	3.42 (2.61)	[3.10, 3.80]	3.40 (0.65)	[3.31, 3.48]	0	0	14	86
Screen time	1.50 – 28	8.50	9.51 (5.42)	[8.78, 10.29]	3.18 (0.68)	[3.09, 3.27]	–	–	–	–
Watching TV	1 – 14	7.00	5.77 (3.25)	[5.31, 6.16]	3.07 (0.73)	[2.97, 3.17]	24	16	20	40
Gaming/Internet	0 – 14	2.50	3.81 (3.56)	[3.37, 4.26]	3.26 (0.80)	[3.15, 3.37]	45	19	13	23
Physical activity[a]	0 – 21	8.00	8.49 (4.70)	[7.80, 9.17]	3.30 (0.57)	[3.21, 3.38]	–	–	–	–
Active play	0 – 14	2.50	3.83 (3.30)	[3.40, 4.27]	3.18 (0.72)	[3.08, 3.28]	8	38	11	43
School sports	0 – 8	1.50	1.78 (1.48)	[1.59, 2.01]	3.38 (0.69)	[3.28, 3.48]	0	33	0	66
Sports (gym/club)	0 – 10	2.50	2.05 (2.02)	[1.81, 2.31]	3.48 (0.69)	[3.37, 3.59]	0	28	1	71
Organized activities	0.50 – 30.50	7.00	8.83 (6.10)	[7.91, 9.69]	3.03 (0.70)	[2.93, 3.13]	–	–	–	–
ECAs	0 – 10	3.00	3.02 (2.63)	[2.66, 3.39]	3.13 (0.72)	[3.01, 3.24]	0	22	1	76
ASP	0 – 14	0.00	2.22 (4.33)	[1.66, 2.80]	3.11 (1.02)	[2.87, 3.31]	6	11	3	80
Enrichment activities	0 – 5	0.00	0.91 (1.29)	[0.74, 1.09]	3.16 (0.69)	[3.02, 3.28]	3	20	15	62
Tutoring	0 – 14	0.00	1.24 (2.76)	[0.85, 1.64]	2.86 (0.82)	[2.64, 3.08]	9	9	20	62
Youth group	0 – 7	1.00	0.80 (0.91)	[0.68, 0.92]	2.90 (0.88)	[2.75, 3.06]	0	16	2	83
Homework	0.25 – 14	4.38	5.04 (3.41)	[4.57, 5.54]	2.74 (0.83)	[2.62, 2.85]	20	3	55	22
School free time	0.50 – 10	7.50	6.53 (2.58)	[6.14, 6.92]	3.54 (0.60)	[3.45, 3.62]	1	81	2	16
Sleep	0 – 70	63.00	59.86 (12.08)	[57.97, 61.51]	2.53 (1.01)	[2.39, 2.67]	60	28	8	4
Inactivity	0 – 10.50	0.25	0.94 (1.78)	[0.69, 1.17]	2.17 (1.13)	[1.97, 2.38]	64	5	14	17
Household chores	0 – 10.50	1.25	2.36 (2.17)	[2.08, 2.66]	2.35 (0.93)	[2.22, 2.48]	18	2	48	32
Hours in school	18 – 45	40.00	38.01 (4.90)	[37.32, 38.69]	3.01 (0.70)	[2.92, 3.11]	0	50	0	50
Lunch time (school)	0 – 10	5.00	4.41 (2.29)	[4.10, 4.73]	2.70 (0.92)	[2.56, 2.83]	0	39	0	61
Library/Playroom	0 – 10	1.00	1.48 (1.68)	[1.25, 1.72]	3.12 (0.74)	[2.99, 3.22]	7	63	1	29
Cultural activities	0 – 5	0.75	0.78 (0.63)	[0.70, 0.86]	3.36 (0.66)	[3.26, 3.46]	0	1	12	87

Note. intensity = number of hours per week (approx.); BCa = bias-corrected accelerated; ch + ad = children plus adults; ECAs = Extracurricular Activities (school-based); ASPs = After-School Programs; [a]= includes 1.5 hours extra for children attending school ECAs encompassing physical activities in addition to school sports (as reported on the Q25)

Table 5

Description of the Weekly Intensity of Participation in Activities, Engagement Levels, and Social Partners at the 5th/6th Grade

Activity Category Activity type	***Intensity***				***Engagement***		***Social Partners*** (%)			
	Range	*Mdn*	*M* (*SD*)	BCa 95%CI	*M* (*SD*)	BCa 95%CI	*alone*	*children*	*adults*	*ch + ad*
Play time	0 – 18	3.38	5.03 (4.53)	[4.31, 5.85]	2.79 (0.65)	[2.69, 2.89]	–	–	–	–
Play	0 – 14	1.00	2.15 (2.86)	[1.66, 2.63]	2.88 (0.81)	[2.76, 3.02]	18	35	18	28
Creative leisure	0 – 14	2.50	2.98 (3.07)	[2.45, 3.54]	2.72 (0.85)	[2.58, 2.86]	48	7	16	29
Family time	3.75 – 31.50	13.13	14.49 (6.33)	[13.38, 15.57]	3.07 (0.61)	[2.96, 3.16]	–	–	–	–
Activity with parent	0 – 14	3.50	5.31 (3.68)	[4.69, 6.01]	2.72 (0.76)	[2.61, 2.85]	0	0	47	53
Family meals	2.50 – 14	7.00	6.48 (2.87)	[5.99, 6.95]	3.14 (0.87)	[2.99, 3.28]	1	0	30	69
Social participation	0 – 14	2.00	2.92 (2.75)	[2.45, 3.38]	3.27 (0.78)	[3.13, 3.40]	0	0	14	86
Screen time	0 – 28	13.00	13.23 (6.77)	[12.17, 14.30]	3.15 (0.65)	[3.05, 3.24]	–	–	–	–
Watching TV	0 – 14	5.00	6.16 (4.17)	[5.49, 6.90]	3.00 (0.83)	[2.88, 3.13]	24	16	20	40
Gaming/Internet	0 – 14	7.50	7.16 (4.49)	[6.46, 7.87]	3.30 (0.71)	[3.18, 3.41]	45	19	13	23
Physical activity[a]	1.75 – 38	9.50	9.81 (5.78)	[8.89, 10.79]	3.24 (0.64)	[3.13, 3.34]	–	–	–	–
Active play	0 – 14.50	3.50	4.56 (3.59)	[4.02, 5.16]	3.25 (0.77)	[3.12, 3.36]	8	38	11	43
School sports	0 – 10	3.00	3.36 (1.62)	[3.11, 3.61]	3.13 (0.82)	[3.00, 3.26]	0	33	0	66
Sports (gym/club)	0 – 14	1.00	2.14 (2.79)	[1.71, 2.59]	3.42 (0.61)	[3.30, 3.53]	0	28	1	71
Organized activities	0 – 31	4.50	6.50 (6.38)	[5.50, 7.54]	2.95 (0.70)	[2.84, 3.06]	–	–	–	–
ECAs	0 – 8	0.50	1.23 (1.77)	[0.97, 1.52]	2.99 (0.85)	[2.80, 3.14]	0	22	1	76
ASP	0 – 14	0.00	1.45 (3.48)	[0.95, 2.04]	2.83 (1.07)	[2.49, 3.14]	6	11	3	80
Enrichment activities	0 – 14	0.00	1.22 (2.18)	[0.91, 1.57]	2.98 (0.86)	[2.77, 3.19]	3	20	15	62
Tutoring	0 – 14	0.00	2.17 (3.82)	[1.57, 2.83]	2.74 (0.92)	[2.52, 3.93]	9	9	20	62
Youth group	0 – 3.75	1.00	0.78 (0.77)	[0.67, 0.90]	2.87 (0.85)	[2.71, 3.03]	0	16	2	83
Homework	0 – 14	7.00	7.17 (3.87)	[6.57, 7.90]	2.59 (0.79)	[2.46, 2.71]	20	3	55	22
School free time	0 – 10	2.50	4.29 (2.49)	[3.88, 4.71]	3.32 (0.70)	[3.22, 3.43]	1	81	2	16
Sleep	0 – 70	63.00	57.72 (12.58)	[55.38, 59.73]	2.81 (1.04)	[2.64, 2.97]	60	28	8	4
Inactivity	0 – 14	0.50	2.19 (3.40)	[1.68, 2.69]	2.43 (1.15)	[2.23, 2.62]	64	5	14	17
Household chores	0 – 14	2.50	3.20 (2.86)	[2.74, 3.66]	2.12 (0.96)	[1.97, 2.27]	18	2	48	32
Hours in school	24 – 45	35.00	35.32 (5.25)	[34.39, 36.23]	2.61 (0.83)	[2.47, 2.74]	0	50	0	50
Lunch time (school)	0 – 10	2.00	2.46 (1.87)	[2.18, 2.74]	2.73 (0.90)	[2.57, 2.88]	0	39	0	61
Library/Playroom	0 – 10	1.00	1.45 (1.60)	[1.20, 1.73]	2.80 (0.80)	[2.66, 2.93]	7	63	1	29
Cultural activities	0 – 5	0.75	0.63 (0.54)	[0.55, 0.71]	3.09 (0.80)	[2.94, 3.23]	0	1	12	87

Note. intensity = number of hours per week (approx.); BCa = bias-corrected accelerated; ch + ad = children plus adults; ECAs = Extracurricular Activities (school-based); ASPs = After-School Programs;
[a]= includes 1.5 hours extra for children attending school ECAs encompassing physical activities in addition to school sports (as reported on the Q25)

Table 6

Correlation Coefficients among Weekly Intensity Scores for Categories of Daily Activities at the 3rd and 4th Grade

	1	2	3	4	5	6	7	8	9
1.Play time	–								
2.Family time	.27**	–							
3.Screen time	-.02	.06	–						
4.PA	.25**	.19**	-.03	–					
5.OA	.10	-.03	-.04	-.06	–				
6.Homework	.26**	.31**	.18*	.06	.19**	–			
7.School free time	.12	-.05	-.03	.23**	-.08	-.10	–		
8.Sleep	-.11	.05	-.11	-.07	-.02	-.09	-.11	–	
9.Hours in school	.03	.01	-.11	-.10	.10	-.11	.23**	.04	–

Note. Statistically significant results on bold. Effect size parameters as defined by Gignac and Szodorai (2016) for *r*: 0.1 < *r* < 0.2 – small, 0.2 < *r* < 0.3 – moderate, *r* > 0.3 – large. **p* < .05, ***p* < .01.

Table 7

Correlation Coefficients among Weekly Intensity Scores for Categories of Daily Activities at the 5th and 6th Grade

	1	2	3	4	5	6	7	8	9
1.Play time	–								
2.Family time	.23**	–							
3.Screen time	.12	.03	–						
4.PA	.09	.27**	-.05	–					
5.OA	.10	.09	-.07	.07	–				
6.Homework	.12	.31**	-.05	.21*	.09	–			
7.School free time	.07	.23**	.10	.16	.00	.18*	–		
8.Sleep	.15	.24**	-.17*	.13	-.14	.17*	.15	–	
9.Hours in school	.19*	.06	.09	-.07	-.01	.17*	.20*	.09	–

Note. Statistically significant results on bold. Effect size parameters as defined by Gignac and Szodorai (2016) for *r*: 0.1 < *r* < 0.2 – small, 0.2 < *r* < 0.3 – moderate, *r* > 0.3 – large. **p* < .05, ***p* < .01.

Figure 4

Standardized Cluster Centers for Children´s Daily Activity Patterns at the 3rd and 4th Grade

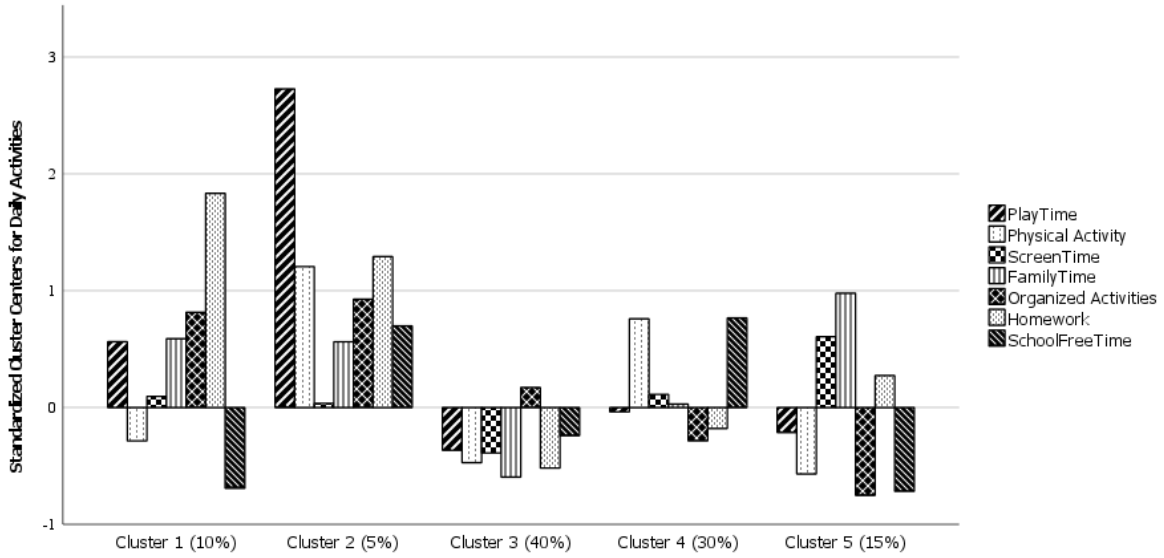


Figure 5

Standardized Cluster Centers for Children´s Daily Activity Patterns at the 5th and 6th Grade

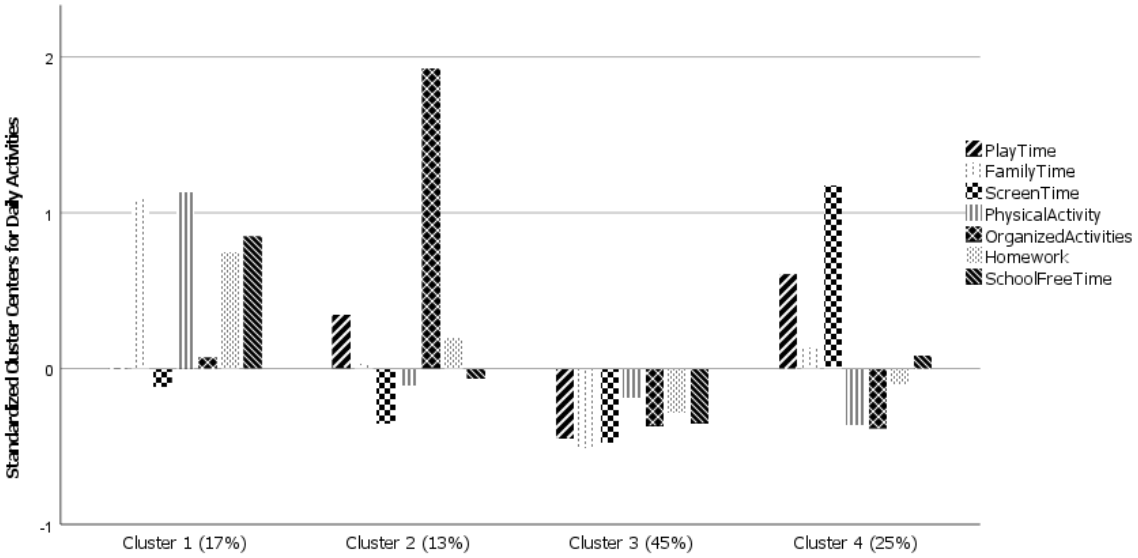


Table 8

Descriptive Statistics and Analysis of Variance for Cluster Centers at the 3rd and 4th Grade

	Cluster 1 (10%) *M*(*SD*)	Cluster 2 (5%) *M*(*SD*)	Cluster 3 (40%) *M*(*SD*)	Cluster 4 (30%) *M*(*SD*)	Cluster 5 (15%) *M*(*SD*)	Test statistic	Partial η^2
Play time	0.56(0.82)	2.73(1.18)	-0.37(0.72)	-0.04(0.74)	-0.21(0.77)	*F*(4, 197) = 36.03***	.42
PA	-0.29(0.83)	1.21(0.77)	-0.47(0.59)	0.76(0.87)	-0.57(0.94)	*F*(4, 197) = 32.73***	.40
Screen time	0.10(1.25)	0.04(0.86)	-0.39(0.79)	0.11(0.95)	0.61(0.96)	*F*(4, 197) = 7.08***	.13
Family time	0.59(0.77)	0.56(1.08)	-0.60(0.63)	0.03(0.83)	0.98(1.23)	*F*(4, 197) = 23.86***	.33
OA	0.82(1.07)	0.93(1.11)	0.17(0.96)	-0.29(0.74)	-0.75(0.51)	*F*(4, 197) = 15.32***	.24
Homework	1.83(0.62)	1.29(1.25)	-0.52(0.58)	-0.18(0.69)	0.27(0.81)	*F*(4, 197) = 56.45***	.53
School free time	-0.69(0.94)	0.70(0.69)	-0.24(0.81)	0.77(0.73)	-0.72(0.93)	*F*(4, 197) = 26.90***	.35

Note. *p < .05, **p < .01, ***p < .001; effect size = partial η^2 (eta-squared).

Table 9

Descriptive Statistics and Analysis of Variance for Cluster Centers at the 5th and 6th Grade

	Cluster 1 (17%) *M*(*SD*)	Cluster 2 (13%) *M*(*SD*)	Cluster 3 (45%) *M*(*SD*)	Cluster 4 (25%) *M*(*SD*)	Test statistic	Partial η^2
Play time	0.00(0.91)	0.35(1.18)	-0.45(0.53)	0.61(1.24)	*F*(3, 146) = 11.98***	.20
PA	1.13(1.17)	-0.11(0.89)	-0.19(0.82)	-0.37(0.66)	*F*(3, 146) = 18.23***	.27
Screen time	-0.12(0.79)	-0.36(0.71)	-0.48(0.76)	1.17(0.72)	*F*(3, 146) = 41.39***	.46
Family time	1.09(0.89)	0.03(0.75)	-0.51(0.59)	0.14(1.15)	*F*(3, 146) = 23.78***	.33
OA	0.07(0.57)	1.93(0.93)	-0.38(0.53)	-0.39(0.68)	*F*(3, 146) = 73.05***	.60
Homework	0.74(0.85)	0.19(1.13)	-0.29(0.82)	-0.11(1.09)	*F*(3, 146) = 7.87***	.14
School free time	0.85(1.07)	-0.07(1.18)	-0.36(0.76)	0.08(0.88)	*F*(3, 146) = 11.06***	.19

Note. *p < .05, **p < .01, ***p < .001; effect size = partial η^2 (eta-squared).

Regarding the SES of the family, for the younger sample, no statistically significant differences were found concerning the parents´ marital and professional status, but trends were observed for married/civil union status and lower *OA* and for full-time professional status and higher *PA* and lower *homework*. In addition, a higher educational status was linked to a lower intensity of participation in *screen time*, *OA*, and *homework*, and as a trend to a higher intensity of *school free time* and *PA*. For the home environment, no statistically significant differences were found concerning family cohesion; however, a higher level of family organization was associated with more time dedicated to *homework,* and, in the case of *family time* and *OA*, these positive associations approached statistical significance. Finally, regarding family culture, a higher achievement orientation was associated with more time spent on *homework*; a higher intellectual-cultural orientation was linked with a higher intensity of *play time* and *PA* (and a trend for higher *family time*) and lower *screen time*; and a higher active-recreational orientation was associated with a higher intensity of *play time*, *PA*, and *school free time*, and lower *screen time*.

For the older sample, the higher educational status of the parent was associated with higher levels of *PA*, *school free time*, and lower levels of *screen time* and *homework*. Trends were also observed for family SES variables, with the full-time professional status being linked to higher *OA* and the married/civil union marital status being linked to lower *screen time*. Moreover, higher levels of cohesion were associated with higher *family time* and *homework* and with lower *PA* and *school free time* (as a trend), and higher family organization was linked to higher levels of *homework* and lower *PA* (also as a trend). Considering family culture, higher achievement orientation was linked to lower *family time* and *homework* (trends); higher intellectual-cultural orientation was linked to higher levels of *play time*, *PA*, and *family time*, and to lower levels of *screen time* and *school free time* (as trends); higher active-recreational orientation was associated with higher levels of *PA* and *family time*. Effect sizes of the family-level factors ranged from small (0.31) for *educational status* and *school free time*, to large (0.81) for educational status and *OA* levels of participation.

School and community quality of environments was also linked with the intensity of participation in daily activities. For the younger sample, a better school environment was associated with a higher intensity of *play time* and *school free time*. A higher quality of the sports environment was linked to higher *play time*, *PA*, and *school free time*. For both ASPs and EAs, environment quality was associated with higher *school free time*. Finally, a higher OA overall environment quality was related to higher *play time*, *PA*, and *school free time*, and a trend was observed for lower *homework*. Associations approached significance in the case of the ECAs and ASPs environment and *play time*, for the EA

environment and *OA* participation, and for the YG environment and *family time*. For the older sample, a better school environment was linked to higher *PA*; higher ECAs quality was linked to higher *play time*, *PA*, and *school free time* (as trends); sports environment quality was associated with higher *play time*, *PA*, and *family time* (as trends); EA quality was linked to higher levels of *play time*, *family time*, and *homework* as well as to higher levels of *PA*, *OA*, and *school free time* (as trends); and YG quality was associated with higher *PA* and *family time*, as well as higher levels of *play time* and *school free time* (also as trends). The OA overall quality was linked to higher levels of *PA* and *family time* as well as higher *play time* and *school free time* (as trends). Effect sizes of the school/community-level factors ranged from small (0.30) for the school environment and *school free time*, to moderate (0.90) for EA environment and *play time*.

Children´s daily activity patterns (cluster membership) as a function of child- and family-level factors are displayed in Table 16, Table 17, and Table 18. In the younger sample, compared to boys, girls were overrepresented in the "less-involved after-schoolers" cluster. Additionally, no significant association was found regarding the child´s chronic health condition, whereas children with a learning disability were overrepresented in the "less-active studious" cluster. Furthermore, children with better prior functioning levels were overrepresented in the "highly-engaged players" cluster compared to children with worse prior functioning who were overrepresented in the "less-involved after-schoolers" cluster. Overall, engagement levels were also linked to cluster membership. Children that presented higher play time engagement were overrepresented in the "highly-active homies" cluster and those with higher PA engagement were overrepresented in the "highly-engaged players" and "highly-active homies" clusters. In contrast, lower PA engagement was associated with the "less-active studious" cluster membership. Also, higher homework engagement was linked to an overrepresentation in the "less-active studious" and "highly-engaged players" clusters, compared with children with lower homework engagement that were overrepresented in the "less-involved after-schoolers" cluster. In the older sample, no statistically significant differences were found related to gender, chronic condition, prior functioning, and OA and homework engagement levels. However, a learning disability status was linked to an overrepresentation of children in the "afterschoolers" and "sedentary home players" clusters. Concerning the engagement levels, higher play time engagement was associated with an overrepresentation in the "active studious homies" cluster and an underrepresentation in the "less-engaged" cluster. Higher PA engagement predicted a higher representation of children in the "active studious homies" cluster. Higher screen time engagement was linked to an overrepresentation in the "sedentary home players" cluster and underrepresentation in the "less-engaged" cluster. Higher family

time engagement was associated with an overrepresentation of children in the "active studious homies" and "sedentary home players" clusters and with an underrepresentation in the "less-engaged" cluster. Finally, higher school free time engagement was linked to an overrepresentation of children in the "active studious homies" cluster and an underrepresentation in the "less-engaged" cluster.

Regarding the SES of the family, for the younger sample, the marital and professional status of parents were not significantly associated with cluster membership (see Table 18). However, a higher educational status was linked with an overrepresentation of children in the "highly-active homies" cluster and a lower educational status was linked with an overrepresentation of children in the "less-active studious" and "highly-engaged players" clusters. About the home environment, family cohesion was not significantly associated with cluster membership, but a higher family organization was associated with an overrepresentation of children in the "less-active studious" cluster. Concerning family culture, the intellectual-cultural orientation was not associated with cluster membership, however, a higher achievement orientation of the family was linked to an overrepresentation of children in the "highly-engaged players" cluster and a higher active-recreational orientation was associated with an underrepresentation of children in the "sedentary home screeners" cluster. In the older sample, a trend was observed related to the home environment variables which were associated with cluster membership: a higher cohesion and organization of the family was linked to an overrepresentation of children in the "active studious homies" cluster (in *z*-tests column proportions), χ^2 (3, N = 141) = 4.93, p = .177, ϕ = .19, and, χ^2 (3, N = 141) = 6.14, p = .105, ϕ = .21, respectively.

Concerning the influences of the environment quality in school and community settings, for the 3rd and 4th Grade sample, the *OA overall* environment quality was associated with cluster membership: a higher quality was linked with an overrepresentation of children in the "highly-engaged players" and "highly-active homies" clusters, whereas a lower quality was linked to an overrepresentation in the "less-active studious" cluster, χ^2 (4, N = 194) = 18.01, p = .001, ϕ = .31. Noteworthy, a higher environmental quality of EA was specifically linked to an overrepresentation of children in the "highly-active homies" cluster, χ^2 (4, N = 93) = 7.21, p = .13, ϕ = .28 (column proportion *z*-test). Also, a higher quality of the ASPs environment was associated (approached significance) with an overrepresentation of children in the "highly-engaged players" and "highly-active homies" clusters. In contrast, lower quality was associated with an overrepresentation in the "less-active studious" and "sedentary home screeners" clusters. The school, ECAs, sports, tutoring, and YG quality of environments were not associated with cluster membership. For the 5th and 6th Grade sample, the *school*, *ASP*, *sports*, and tutoring quality of environments was not significantly associated with cluster

membership. However, a lower OA overall quality was linked to an overrepresentation of children in the "less-engaged" cluster, χ^2 (3, N = 134) = 10.30, p = .016, ϕ = .28. A lower quality of the school ECAs was also associated with an overrepresentation of children in the "less-engaged" cluster and, comparatively, a higher quality with an overrepresentation in the "sedentary home players" cluster, χ^2 (3, N = 69) = 8.85, p = .031, ϕ = .36. Similarly, a lower environmental quality of EA was linked to an overrepresentation of children in the "less-engaged" cluster, χ^2 (3, N = 57) = 9.04, p = .029, ϕ = .40. In addition, a lower environmental quality of YG was also linked to an overrepresentation of children in the "less-engaged" cluster and a higher quality to an overrepresentation in the "active studious homies" cluster, χ^2 (3, N = 82) = 9.63, p = .022, ϕ = .34. A higher quality of the sports environment was associated with an overrepresentation of children in the "active studious homies" cluster (column proportion z-tests), χ^2 (3, N = 77) = 5.68, p = .128, ϕ = .27. Noteworthy, a higher quality of the school environment was associated (approached significance) with an overrepresentation of children in the "active studious homies" and "sedentary home players" clusters.

Table 10

Differences in the Intensity of Weekly Participation at the 3rd and 4th Grade According to Child Factors

	Play time	PA	Screen time	Family time	OA	Homework	School free time
	M(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic
Gender							
girls	6.95(5.43)	8.09(4.62)	8.85(4.92)	14.84(5.48)	8.70(6.14)	4.85(3.38)	6.42(2.59)
boys	6.32(4.04)	9.04(5.00)	10.59(6.02)	15.79(6.26)	8.27(6.43)	5.17(3.53)	6.57(2.67)
	0.87$^{n.s.}$	1.82$^{n.s.}$	4.60*/0.32	1.22$^{n.s.}$	0.22$^{n.s}$	0.40$^{n.s.}$	0.15$^{n.s.}$
Chronic condition							
no	6.72(5.02)	8.64(4.79)	9.40(5.41)	15.27(5.82)	8.53(6.16)	4.92(3.46)	6.57(2.61)
yes	6.32(4.07)	7.58(4.65)	10.35(5.68)	14.13(4.74)	9.04(7.71)	5.39(3.36)	5.92(2.16)
	0.15$^{n.s.}$	0.83$^{n.s.}$	0.46$^{n.s.}$	0.90$^{n.s.}$	0.07$^{n.s.}$	0.32$^{n.s.}$	1.41$^{n.s.}$
Learning disability							
no	6.58(4.95)	8.64(4.87)	9.06(4.81)	15.22(5.55)	7.80(5.70)	4.73(3.28)	6.81(2.51)
yes	8.33(4.67)	4.94(2.53)	13.83(10.54)	16.85(7.55)	15.34(10.90)	6.42(4.82)	4.75(2.49)
	1.56$^{n.s.}$	19.65***/0.78	2.42$^{n.s.}$/0.47	0.54$^{n.s.}$	5.16*/0.71	1.42$^{n.s.}$	6.40*/0.83
Prior functioning							
worse	5.82(3.92)	7.82(4.66)	9.23(5.14)	14.73(5.15)	8.71(6.01)	4.19(3.18)	6.34(2.51)
better	7.62(5.66)	9.37(4.76)	9.80(5.74)	15.70(6.25)	8.27(6.36)	5.69(3.59)	6.78(2.63)
	6.42*/0.37	5.12*/0.33	0.52$^{n.s.}$	1.34$^{n.s.}$	0.24$^{n.s.}$	9.28**/0.44	1.40$^{n.s.}$
Engagement levels							
Play time							
lower	6.12(4.82)	7.99(4.25)	10.24(5.65)	15.13(6.45)	8.73(6.52)	5.14(3.48)	6.18(2.60)
higher	7.68(4.76)	9.42(5.35)	8.22(4.73)	15.18(4.62)	7.93(5.67)	4.76(3.23)	7.20(2.41)
	5.01*/0.33	3.87$^{n.s.}$	7.59**/0.38	0.01$^{n.s.}$	0.85$^{n.s.}$	0.59$^{n.s.}$	7.77**/0.40
PA							
lower	6.31(4.44)	6.39(3.86)	9.85(5.67)	14.69(6.11)	8.62(6.40)	5.34(3.69)	6.14(2.54)
higher	7.01(5.14)	10.25(4.58)	9.29(5.25)	15.51(5.69)	8.38(6.10)	4.72(3.13)	6.86(2.59)
	1.10$^{n.s.}$	43.25***/0.90	0.54$^{n.s.}$	0.99$^{n.s.}$	0.08$^{n.s.}$	1.65$^{n.s.}$	3.89*/0.28
Screen time							
lower	6.96(5.18)	8.07(4.45)	8.34(4.90)	14.71(6.13)	8.36(5.92)	5.33(3.61)	6.21(2.52)
higher	6.31(4.41)	9.01(4.98)	11.01(5.69)	15.68(5.51)	8.54(6.63)	4.61(3.08)	6.94(2.60)
	0.97$^{n.s.}$	1.99$^{n.s.}$	12.90***/0.51	1.44$^{n.s.}$	0.04$^{n.s.}$	2.43$^{n.s.}$	3.98*/0.29
Family time							
lower	5.90(4.58)	8.09(4.29)	9.94(5.50)	13.40(4.95)	8.54(6.03)	4.63(3.24)	6.15(2.62)
higher	7.52(5.02)	8.93(5.11)	9.08(5.32)	17.06(6.21)	8.34(6.47)	5.42(3.52)	6.96(2.48)
	5.85*/0.39	1.63$^{n.s.}$	1.30$^{n.s.}$	21.84***/0.66	0.05$^{n.s.}$	2.79$^{n.s.}$	5.13*/0.32
OA							
lower	6.22(4.25)	7.95(4.21)	9.04(4.99)	14.31(5.67)	8.32(5.86)	4.91(3.29)	6.13(2.69)
higher	7.52(5.58)	9.49(5.25)	9.93(6.06)	15.91(5.33)	9.60(6.41)	5.15(3.52)	7.19(2.28)
	3.09$^{n.s.}$	4.75*/0.33	1.16$^{n.s.}$	4.07*/0.29	2.01$^{n.s.}$	0.24$^{n.s.}$	8.75**/0.42
Homework							
lower	6.01(4.52)	7.69(4.28)	9.71(5.84)	14.58(6.05)	7.86(5.64)	4.09(3.27)	6.52(2.65)
higher	7.20(5.08)	8.97(4.87)	9.36(5.12)	15.65(5.74)	8.98(6.64)	5.68(3.37)	6.51(2.54)
	3.10$^{n.s.}$	3.97*/0.28	0.21$^{n.s.}$	1.64$^{n.s.}$	1.71$^{n.s.}$	11.56***/0.48	0.00$^{n.s.}$
School free time							
lower	6.51(4.37)	7.81(4.29)	9.32(5.13)	14.63(5.73)	8.62(5.96)	4.84(3.18)	6.02(2.59)
higher	6.78(5.17)	8.91(4.85)	9.66(5.61)	15.52(5.90)	8.45(6.41)	5.19(3.54)	6.88(2.52)
	0.17$^{n.s.}$	2.93$^{n.s.}$	0.19$^{n.s.}$	1.15$^{n.s.}$	0.04$^{n.s.}$	0.56$^{n.s.}$	5.56*/0.34

Note. *p < .05, **p < .01, ***p < .001; Statistic = Welch´s t-test/d = effect size (Cohen´s d); effect size parameters as defined by Gignac and Szodorai (2016): d < 0.20 – very small, 0.21 < d < 0.40 – small, 0.41 < d < 0.62 – moderate, d > 0.63 – large; statistically significant results on bold; PA= Physical activity; OA= Organized activities.

Table 11

Differences in the Intensity of Weekly Participation at the 5th and 6th Grade According to Child Factors

	Play time	PA	Screen time	Family time	OA	Homework	School free time
	M(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic
Gender							
girls	5.22(4.01)	9.14(6.36)	12.96(6.53)	14.49(6.33)	6.52(6.14)	7.54(3.58)	4.09(2.37)
boys	4.73(5.00)	10.89(4.71)	13.50(7.15)	14.53(6.36)	6.18(6.61)	6.66(4.16)	4.62(2.69)
	0.41$^{n.s.}$	3.71$^{n.s.}$/0.30	0.22$^{n.s.}$	0.00$^{n.s.}$	0.10$^{n.s.}$	1.79$^{n.s.}$	1.51$^{n.s.}$
Chronic condition							
no	5.11(4.52)	10.19(5.95)	13.29(6.73)	14.42(6.39)	6.32(5.93)	7.24(3.91)	4.36(2.54)
yes	3.80(4.05)	7.96(4.29)	12.70(7.82)	14.38(5.93)	8.64(9.67)	6.11(3.92)	3.71(2.57)
	1.27$^{n.s.}$	3.10$^{n.s.}$/0.23	0.08$^{n.s.}$	0.00$^{n.s.}$	0.77$^{n.s.}$	1.05$^{n.s.}$	0.80$^{n.s.}$
Learning disability							
no	4.29(4.18)	10.32(6.30)	13.40(6.53)	13.17(6.06)	5.92(5.93)	7.28(3.79)	4.18(2.46)
yes	4.56(5.57)	8.09(4.55)	16.44(10.36)	15.06(7.35)	11.94(12.44)	5.56(3.77)	3.75(2.67)
	0.02$^{n.s.}$	1.60$^{n.s.}$	0.66$^{n.s.}$	0.50$^{n.s.}$	1.83$^{n.s.}$/0.53	1.51$^{n.s.}$/0.26	0.19$^{n.s.}$
Prior functioning							
worse	5.45(4.80)	9.77(5.80)	13.71(6.59)	14.65(6.61)	7.14(7.06)	6.56(3.78)	4.31(2.59)
better	4.27(3.97)	10.09(5.86)	12.75(7.05)	14.13(5.99)	5.83(5.33)	7.97(3.98)	4.28(2.52)
	2.53$^{n.s.}$/0.26	0.10$^{n.s.}$	0.67$^{n.s.}$	0.23$^{n.s.}$	1.55$^{n.s.}$	4.44*/0.36	0.01$^{n.s.}$
Engagement levels							
Play time							
lower	3.65(3.80)	9.16(5.06)	12.52(6.34)	13.68(5.86)	7.05(7.21)	6.52(3.84)	4.33(2.59)
higher	6.57(4.67)	10.44(6.37)	13.34(6.74)	15.39(6.73)	5.90(5.50)	7.90(3.64)	4.25(2.42)
	17.67***/0.69	1.85$^{n.s.}$	0.59$^{n.s.}$	2.75$^{n.s.}$/0.27	1.19$^{n.s.}$	5.09*/0.38	0.04$^{n.s.}$
PA							
lower	4.40(4.25)	7.82(4.66)	12.68(6.69)	14.14(6.08)	5.91(6.83)	6.97(3.81)	3.83(2.29)
higher	5.64(4.69)	11.54(6.10)	13.65(6.78)	14.84(6.559	6.96(5.93)	7.34(3.88)	4.71(2.61)
	2.92$^{n.s.}$	18.12***/0.69	0.79$^{n.s.}$	0.46$^{n.s.}$	1.00$^{n.s.}$	0.35$^{n.s.}$	4.83*/0.36
Screen time							
lower	4.58(4.04)	9.71(6.23)	11.86(6.01)	14.56(6.09)	6.95(7.05)	7.24(3.70)	3.93(2.17)
higher	5.70(4.99)	9.95(5.16)	15.02(7.06)	14.50(6.67)	5.95(5.45)	7.17(3.98)	4.76(2.79)
	2.22$^{n.s.}$/0.25	0.07$^{n.s.}$	8.59**/0.49	0.00$^{n.s.}$	0.96$^{n.s.}$	0.01$^{n.s.}$	4.01*/0.34
Family time							
lower	3.90(3.63)	8.54(4.95)	12.73(6.48)	12.60(5.23)	6.35(6.80)	6.46(3.77)	4.18(2.62)
higher	6.52(5.09)	11.34(6.35)	13.78(7.05)	16.93(6.78)	6.60(5.84)	8.07(3.77)	4.43(2.33)
	12.73***/0.61	8.81**/0.50	0.90$^{n.s.}$	18.53***/0.73	0.06$^{n.s.}$	6.85**/0.43	0.39$^{n.s.}$
OA							
lower	4.53(4.50)	9.56(6.21)	13.47(6.49)	12.96(5.94)	7.34(6.63)	7.22(3.83)	4.63(2.72)
higher	5.29(4.55)	10.42(5.70)	12.89(6.66)	15.22(6.43)	7.15(6.16)	7.37(3.83)	4.26(2.48)
	0.88$^{n.s.}$	0.64$^{n.s.}$	0.24$^{n.s.}$	4.32*/0.35	0.03$^{n.s.}$	0.05$^{n.s.}$	0.63$^{n.s.}$
Homework							
lower	4.41(4.23)	9.09(4.87)	13.08(6.96)	13.01(5.67)	6.07(6.89)	6.05(3.69)	4.52(2.83)
higher	5.81(4.71)	10.56(6.55)	13.16(6.45)	16.23(6.55)	6.91(5.84)	8.46(3.56)	4.07(2.06)
	3.70$^{n.s.}$/0.31	2.42$^{n.s.}$	0.01$^{n.s.}$	10.37**/0.53	0.65$^{n.s.}$	16.83***/0.67	1.24$^{n.s.}$
School free time							
lower	4.75(4.54)	9.42(5.77)	12.99(6.41)	14.08(6.37)	5.96(6.28)	7.32(3.90)	3.85(2.13)
higher	5.54(4.53)	10.33(5.88)	13.70(7.26)	15.16(6.32)	6.92(5.79)	7.14(3.78)	5.02(2.71)
	1.09$^{n.s.}$	0.88$^{n.s.}$	0.39$^{n.s.}$	1.05$^{n.s.}$	0.93$^{n.s.}$	0.09$^{n.s.}$	8.15**/0.49

Note. *p < .05, **p < .01, ***p < .001; Statistic = Welch´s t-test/d = effect size (Cohen´s d); effect size parameters as defined by Gignac and Szodorai (2016): d < 0.20 – very small, 0.21 < d < 0.40 – small, 0.41 < d < 0.62 – moderate, d > 0.63 – large; statistically significant results on bold; PA= Physical activity; OA= Organized activities.

Table 12

Differences in the Intensity of Weekly Participation at the 3rd and 4th Grade According to Family Factors

	Play time	PA	Screen time	Family time	OA	Homework	School free time
	M(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic
SES							
Marital status							
married/civil union	6.52(4.68)	8.66(4.84)	9.23(5.05)	15.22(5.64)	8.03(5.79)	4.90(3.35)	6.55(2.52)
other	6.75(4.80)	8.92(4.14)	10.32(6.97)	15.26(6.62)	10.89(7.51)	5.43(4.16)	6.11(3.12)
	0.04$^{n.s.}$	0.06$^{n.s.}$	0.42$^{n.s.}$	0.00$^{n.s.}$	2.44$^{n.s.}$/0.39	0.27$^{n.s.}$	0.33$^{n.s.}$
Educational status							
≤12th grade	6.64(5.70)	7.94(4.78)	10.82(6.22)	15.04(5.73)	10.82(6.73)	5.66(3.69)	6.15(2.59)
>12th grade	6.70(3.95)	9.25(4.68)	8.33(4.18)	15.08(5.03)	6.22(4.53)	4.09(2.85)	6.93(2.49)
	0.01$^{n.s.}$	3.64$^{n.s.}$/0.28	10.38**/0.47	0.003$^{n.s.}$	29.91***/0.81	10.66**/0.48	4.25*/0.31
Professional status							
full-time	6.78(4.94)	8.97(4.53)	9.57(5.26)	15.09(5.47)	8.34(6.22)	4.72(3.41)	6.60(2.55)
other	5.58(4.08)	6.82(5.63)	9.88(6.23)	15.82(6.97)	8.85(6.00)	5.88(3.41)	6.22(2.66)
	2.01$^{n.s.}$	3.90$^{n.s.}$/0.40	0.07$^{n.s.}$	0.30$^{n.s.}$	0.18$^{n.s.}$	2.89$^{n.s.}$/0.34	0.53$^{n.s.}$
Home Environment							
Cohesion							
lower	6.87(5.04)	8.61(4.48)	10.04(5.94)	14.62(5.77)	8.95(6.47)	4.94(3.66)	6.32(2.74)
higher	6.56(4.85)	8.49(4.98)	9.08(4.94)	15.57(5.74)	7.94(5.83)	4.92(3.21)	6.77(2.46)
	0.19$^{n.s.}$	0.03$^{n.s.}$	1.50$^{n.s.}$	1.31$^{n.s.}$	1.29$^{n.s.}$	0.00$^{n.s.}$	1.43$^{n.s.}$
Organization							
lower	7.05(5.17)	9.01(4.55)	9.79(5.83)	14.37(5.48)	7.60(5.94)	4.22(3.17)	6.76(2.70)
higher	6.40(4.71)	8.14(4.88)	9.31(5.10)	15.78(5.94)	9.16(6.26)	5.55(3.52)	6.37(2.51)
	0.83$^{n.s.}$	1.67$^{n.s.}$	0.38$^{n.s.}$	2.95$^{n.s.}$/0.25	3.14$^{n.s.}$/0.26	7.67**/0.40	1.05$^{n.s.}$
Family Culture							
Achievement[a]							
lower	6.74(3.86)	8.25(4.57)	9.58(6.15)	15.04(5.55)	8.07(6.05)	4.23(3.24)	6.71(2.59)
higher	6.67(5.87)	8.86(4.91)	9.48(4.64)	15.21(6.00)	8.78(6.25)	5.66(3.46)	6.39(2.61)
	0.01$^{n.s.}$	0.80$^{n.s.}$	0.02$^{n.s.}$	0.04$^{n.s.}$	0.65$^{n.s.}$	8.71**/0.43	0.71$^{n.s.}$
Intellectual-Cultural[a]							
lower	5.33(4.56)	7.50(4.27)	10.89(5.75)	14.43(6.05)	8.77(6.32)	5.18(3.59)	6.46(2.65)
higher	8.02(4.94)	9.55(4.97)	8.24(4.82)	15.78(5.41)	8.10(6.00)	4.69(3.25)	6.65(2.56)
	15.47***/0.57	9.54**/0.44	12.10**/0.50	2.66$^{n.s.}$/0.24	0.57$^{n.s.}$	1.01$^{n.s.}$	0.25$^{n.s.}$
Active-Recreational[a]							
lower	5.62(5.10)	7.54(4.55)	10.63(5.03)	15.30(6.59)	8.38(6.29)	5.01(3.22)	5.98(2.51)
higher	7.59(4.63)	9.37(4.75)	8.65(5.63)	14.97(5.01)	8.46(6.06)	4.86(3.59)	7.01(2.59)
	7.80**/0.41	7.41**/0.39	6.68*/0.37	0.15$^{n.s.}$	0.01$^{n.s.}$	0.10$^{n.s.}$	7.64**/0.40

Note. *p < .05, **p < .01, ***p < .001; Statistic = Welch´s t-test/d = effect size (Cohen´s d); effect size parameters as defined by Gignac and Szodorai (2016): d < 0.20 – very small, 0.21 < d < 0.40 – small, 0.41 < d < 0.62 – moderate, d > 0.63 – large; statistically significant results on bold; [a] = orientation; PA= Physical activity; OA= Organized activities.

Table 13

Differences in the Intensity of Weekly Participation at the 5th and 6th Grade According to Family Factors

	Play time	PA	Screen time	Family time	OA	Homework	School free time
	M(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic
SES							
Marital status							
married/civil union	4.87(4.38)	9.94(5.41)	12.77(6.87)	14.44(6.38)	6.74(6.70)	6.80(3.97)	4.21(2.53)
other	4.18(3.55)	9.37(7.91)	15.68(5.90)	15.06(5.76)	6.20(5.27)	8.33(3.43)	4.28(2.54)
	0.62 n.s.	0.10 n.s.	4.05 n.s./0.32	0.20 n.s.	0.16 n.s.	3.34 n.s./0.29	0.01 n.s.
Educational status							
≤12th grade	5.02(4.81)	8.97(5.32)	14.42(6.68)	13.89(6.49)	6.73(6.31)	7.61(4.11)	3.91(2.34)
>12th grade	4.87(4.04)	11.25(6.24)	11.72(6.66)	15.20(6.10)	6.40(6.58)	6.49(3.55)	4.85(2.75)
	0.04 n.s.	5.04*/0.39	5.48*/0.40	1.46 n.s.	0.09 n.s.	2.97 n.s./0.29	4.44*/0.37
Professional status							
full-time	4.64(4.10)	10.16(6.17)	13.24(6.59)	14.57(5.98)	7.14(6.90)	7.15(3.90)	4.40(2.61)
other	5.66(5.28)	9.72(4.54)	14.13(7.31)	14.57(7.54)	5.04(4.69)	7.00(4.07)	3.83(2.23)
	0.99 n.s.	0.19 n.s.	0.37 n.s.	0.00 n.s.	3.65 n.s./0.27	0.03 n.s.	1.37 n.s.
Home Environment							
Cohesion							
lower	4.89(4.79)	9.05(5.27)	13.52(6.75)	12.57(5.26)	6.26(5.93)	6.09(3.92)	3.91(2.27)
higher	5.19(4.31)	10.75(6.11)	13.14(6.88)	15.78(6.67)	6.76(6.69)	7.99(3.71)	4.57(2.69)
	0.15 n.s.	3.17 n.s./0.29	0.11 n.s.	10.30**/0.52	0.22 n.s.	8.53**/0.50	2.49 n.s./0.26
Organization							
lower	4.53(4.27)	9.20(5.35)	14.22(6.90)	14.10(6.73)	6.80(6.02)	6.13(3.70)	4.20(2.38)
higher	5.47(4.67)	10.66(6.10)	12.59(6.68)	14.63(5.96)	6.35(6.64)	7.98(3.89)	4.36(2.65)
	1.56 n.s.	2.31 n.s./0.26	1.99 n.s.	0.24 n.s.	0.17 n.s.	8.37**/0.49	0.14 n.s.
Family Culture							
Achievement[a]							
lower	5.34(4.43)	9.79(6.35)	13.32(6.19)	15.34(6.72)	6.02(7.01)	7.83(3.72)	4.53(2.44)
higher	4.84(4.59)	10.20(5.39)	13.29(7.28)	13.67(5.87)	6.96(5.80)	6.66(3.99)	4.10(2.60)
	0.44 n.s.	0.16 n.s.	0.00 n.s.	2.43 n.s./0.22	0.73 n.s.	3.23 n.s./0.30	1.05 n.s.
Intellectual-Cultural[a]							
lower	3.88(4.25)	8.94(5.61)	14.33(7.26)	12.99(5.79)	6.51(6.70)	7.22(4.30)	3.93(2.33)
higher	6.30(4.47)	11.17(5.83)	12.22(6.15)	15.89(6.49)	6.59(6.03)	7.12(3.47)	4.66(2.69)
	10.89**/0.56	5.37*/0.39	3.49 n.s./0.31	7.89**/0.48	0.01 n.s.	0.03 n.s.	2.95 n.s./0.29
Active-Recreational[a]							
lower	4.50(4.52)	8.00(4.42)	14.20(7.21)	12.72(5.49)	6.44(7.06)	6.78(4.19)	4.33(2.65)
higher	5.37(4.50)	11.15(6.20)	12.80(6.55)	15.34(6.54)	6.61(5.96)	7.39(3.74)	4.26(2.48)
	1.22 n.s.	12.35***/0.54	1.30 n.s.	6.46*/0.41	0.02 n.s.	0.74 n.s.	0.03 n.s.

Note. *$p < .05$, **$p < .01$, ***$p < .001$; Statistic = Welch´s t-test/d = effect size (Cohen´s d); effect size parameters as defined by Gignac and Szodorai (2016): $d < 0.20$ – very small, $0.21 < d < 0.40$ – small, $0.41 < d < 0.62$ – moderate, $d > 0.63$ – large; statistically significant results on bold; [a] = orientation; PA= Physical activity; OA= Organized activities.

Table 14

Differences in the Intensity of Weekly Participation at 3rd and 4th Grade According to School/Community Factors

	Play time	PA	Screen time	Family time	OA	Homework	School free time
	M(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic
School							
School environment							
lower quality	5.97(4.42)	8.30(4.60)	9.02(4.72)	14.69(6.10)	8.11(5.66)	4.90(3.02)	6.16(2.64)
higher quality	7.44(5.17)	8.72(4.79)	9.98(6.07)	15.65(5.63)	8.89(6.77)	5.17(3.76)	6.92(2.46)
	4.79*/0.31	0.40 n.s.	1.61 n.s.	1.37 n.s.	0.79 n.s.	0.32 n.s.	4.48*/0.30
ECAs environment							
lower quality	5.62(3.89)	8.36(4.19)	9.65(4.96)	14.68(6.17)	8.88(5.51)	4.74(2.96)	6.42(2.75)
higher quality	7.18(5.81)	9.31(4.99)	9.28(5.34)	14.66(5.09)	9.90(6.13)	5.16(3.75)	6.91(2.50)
	3.73 n.s./0.32	1.61 n.s.	0.19 n.s.	0.00 n.s.	1.12 n.s.	0.60 n.s.	1.26 n.s.
Community							
Sports environment							
lower quality	6.37(4.52)	9.21(4.21)	9.31(4.89)	14.63(5.64)	8.51(6.39)	5.21(3.66)	6.29(2.61)
higher quality	8.23(5.58)	11.18(4.52)	8.41(4.61)	15.15(4.96)	8.05(5.88)	4.63(3.10)	7.22(2.43)
	4.50*/0.37	7.00**/0.45	1.26 n.s.	0.34 n.s.	0.20 n.s.	1.08 n.s.	4.76*/0.37
ASPs environment							
lower quality	6.07(4.28)	7.80(4.24)	9.56(4.78)	14.75(5.45)	12.88(6.95)	6.06(3.47)	5.55(2.59)
higher quality	8.45(7.28)	9.24(5.28)	10.42(6.93)	15.57(4.70)	13.77(6.68)	5.55(4.05)	6.97(2.83)
	2.72 n.s./0.40	1.59 n.s.	0.36 n.s.	0.47 n.s.	0.30 n.s.	0.33 n.s.	4.70*/0.53
EA environment							
lower quality	6.56(5.13)	8.02(4.50)	8.22(5.25)	14.87(5.65)	11.23(6.65)	5.51(3.97)	6.06(2.65)
higher quality	7.67(4.78)	8.89(4.35)	9.13(4.84)	14.80(4.53)	8.98(5.83)	4.44(3.26)	7.47(2.11)
	1.16 n.s.	0.88 n.s.	0.74 n.s.	0.00 n.s.	3.01 n.s./0.37	2.05 n.s.	8.11**/0.58
Tutoring environment							
lower quality	6.70(4.77)	7.75(4.63)	9.72(5.01)	13.51(6.38)	10.39(6.45)	5.37(3.06)	5.59(2.99)
higher quality	6.27(4.73)	8.00(4,34)	9.61(6.72)	13.81(3.92)	12.49(6.49)	5.49(3.65)	6.59(2.56)
	0.11 n.s.	0.04 n.s.	0.01 n.s.	0.04 n.s.	1.45 n.s.	0.02 n.s.	1.72 n.s.
YG environment							
lower quality	6.74(5.17)	8.34(4.99)	9.17(5.33)	14.56(5.61)	8.49(5.87)	5.67(3.80)	6.47(2.65)
higher quality	7.67(5.05)	9.17(4.65)	8.96(5.15)	16.21(5.76)	9.87(6.31)	4.90(3.38)	7.09(2.50)
	0.94 n.s.	0.85 n.s.	0.05 n.s.	2.32 n.s./0.29	1.39 n.s.	1.34 n.s.	1.59 n.s.
OA overall environment[a]							
lower quality							
higher quality	6.13(4.01)	7.63(4.29)	9.14(4.88)	14.88(6.09)	8.28(6.01)	5.35(3.40)	5.87(2.60)
	7.60(5.55)	9.70(5.00)	9.97(6.09)	15.24(4.95)	8.96(6.48)	4.62(3.30)	7.30(2.35)
	4.44*/0.31	9.58**/0.45	1.09 n.s.	0.21 n.s.	0.58 n.s.	2.33 n.s./0.22	15.99***/0.57

Note. *p < .05, **p < .01, ***p < .001; Statistic = Welch´s t-test/d = effect size (Cohen´s d); effect size parameters as defined by Gignac and Szodorai (2016): d < 0.20 – very small, 0.21 < d < 0.40 – small, 0.41 < d < 0.62 – moderate, d > 0.63 – large; statistically significant results on bold; PA= Physical activity; OA= Organized activities; EA = Enrichment activities; YG = Youth group; [a]= overall environmental quality of OA (school ECAs, Sports, ASPs, EA, Tutoring, YG).

Table 15

Differences in the Intensity of Weekly Participation at the 5th and 6th Grade According to School/Community Factors

	Play time	PA	Screen time	Family time	OA	Homework	School free time
	M(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic	*M*(*SD*) Statistic
School							
School environment							
lower quality	4.47(4.49)	8.70(4.71)	12.79(6.17)	13.90(5.57)	7.25(7.44)	7.13(3.90)	3.98(2.33)
higher quality	5.58(4.62)	10.70(6.37)	13.66(7.12)	14.93(6.77)	6.00(5.52)	7.15(3.94)	4.58(2.63)
	2.12$^{n.s.}$/0.25	4.74*/0.35	0.62$^{n.s.}$	1.01$^{n.s.}$	1.24$^{n.s.}$	0.00$^{n.s.}$	2.07$^{n.s.}$/0.24
ECAs environment							
lower quality	4.58(4.24)	9.67(6.29)	12.51(5.86)	13.77(6.92)	8.49(6.80)	7.02(3.61)	4.13(2.65)
higher quality	6.53(5.66)	11.08(5.21)	13.37(6.88)	15.77(6.71)	7.64(5.58)	6.96(3.41)	5.31(2.23)
	2.30$^{n.s.}$/0.40	1.01$^{n.s.}$/0.24	0.28$^{n.s.}$	1.40$^{n.s.}$	0.32$^{n.s.}$	0.01$^{n.s.}$	3.92$^{n.s.}$/0.46
Community							
Sports environment							
lower quality	4.07(3.85)	12.16(5.17)	12.86(5.88)	14.00(7.06)	7.47(6.53)	7.02(3.77)	4.41(2.74)
higher quality	5.25(4.52)	13.84(6.35)	11.94(6.48)	16.37(6.59)	6.59(5.81)	7.64(3.96)	5.00(2.60)
	1.44$^{n.s.}$/0.29	1.52$^{n.s.}$/0.29	0.41$^{n.s.}$	2.27$^{n.s.}$/0.35	0.39$^{n.s.}$	0.47$^{n.s.}$	0.92$^{n.s.}$
ASPs environment							
lower quality	4.10(4.72)	9.92(8.39)	11.51(6.23)	13.79(4.77)	12.75(8.58)	7.45(3.93)	4.12(2.45)
higher quality	5.41(4.32)	10.39(7.96)	11.75(3.91)	14.32(5.99)	12.46(5.45)	7.59(3.33)	5.36(3.18)
	0.63$^{n.s.}$	0.02$^{n.s.}$	0.02$^{n.s.}$	0.07$^{n.s.}$	0.01$^{n.s.}$	0.01$^{n.s.}$	1.29$^{n.s.}$/0.45
EA environment							
lower quality	4.23(3.30)	10.18(6.54)	13.06(6.30)	14.03(6.16)	8.51(4.71)	6.79(3.58)	4.14(2.67)
higher quality	7.94(4.97)	13.72(6.24)	13.72(6.63)	18.63(6.28)	10.49(7.19)	8.89(3.52)	5.03(2.62)
	8.35**/0.90	3.85$^{n.s.}$/0.52	0.13$^{n.s.}$	6.68*/0.70	1.13$^{n.s.}$/0.33	4.34*/0.56	1.40$^{n.s.}$/0.31
Tutoring environment							
lower quality	5.72(5.36)	9.04(6.77)	14.57(7.09)	13.36(6.46)	9.10(7.31)	7.55(4.24)	4.22(2.36)
higher quality	4.68(4.39)	11.77(5.13)	13.48(5.11)	15.33(7.05)	9.06(5.78)	7.86(3.89)	4.43(3.22)
	0.77$^{n.s.}$	3.51$^{n.s.}$/0.45	0.53$^{n.s.}$	1.40$^{n.s.}$/0.30	0.00$^{n.s.}$	0.10$^{n.s.}$	0.10$^{n.s.}$
YG environment							
lower quality	4.47(3.66)	9.30(4.61)	12.50(6.43)	13.76(5.60)	6.64(6.24)	7.23(3.70)	4.00(2.68)
higher quality	6.07(5.14)	12.53(6.20)	13.00(5.88)	16.53(7.83)	9.65(7.02)	7.68(3.55)	4.75(2.75)
	2.24$^{n.s.}$/0.36	6.15*/0.60	0.13$^{n.s.}$	2.92$^{n.s.}$/0.42	3.81$^{n.s.}$/0.45	0.30$^{n.s.}$	1.44$^{n.s.}$/0.27
OA overall environment[a]							
lower quality							
higher quality	4.52(4.15)	9.04(5.92)	12.72(6.37)	13.32(5.73)	6.81(6.26)	7.13(3.89)	4.03(2.47)
	5.85(4.97)	11.70(5.53)	13.68(6.86)	16.05(7.00)	7.71(6.51)	7.48(3.64)	4.86(2.60)
	2.78$^{n.s.}$/0.29	7.17**/0.46	0.69$^{n.s.}$	5.93*/0.43	0.65$^{n.s.}$	0.28$^{n.s.}$	3.48$^{n.s.}$/0.33

Note. *p < .05, **p < .01, ***p < .001; Statistic = Welch´s t-test/ d = effect size (Cohen´s d); effect size parameters as defined by Gignac and Szodorai (2016): d < 0.20 – very small, 0.21 < d < 0.40 – small, 0.41 < d < 0.62 – moderate, d > 0.63 – large; statistically significant results on bold; PA= Physical activity; OA= Organized activities; EA = Enrichment activities; YG = Youth group; [a]= overall environmental quality of OA (school ECAs, Sports, ASPs, EA, Tutoring, YG).

Table 16

Children´s Daily Activity Patterns (Cluster Membership) at the 3rd and 4th Grade as a Function of Child Factors

	Cluster 1	*Cluster 2*	*Cluster 3*	*Cluster 4*	*Cluster 5*		
	Less-Active Studious	**Highly-Engaged Players**	**Less-Involved After-schoolers**	**Highly-Active Homies**	**Sedentary Home Screeners**	χ^2 ϕ	Diff.
Gender							
girls	53	88	**69**	50	50	9.04	C3
boys	47	12	**31**	50	50	.22	
Chronic condition							
no	84	100	88	92	96	3.41	–
yes	16	0	12	8	4	.14	
Learning disability							
no	**69**	100	95	98	92	**14.89****	C1
yes	**31**	0	5	2	8	**.31****	
Prior functioning							
worse	44	**0**	**66**	43	48	**16.53****	C2, C3
better	56	**100**	**34**	57	52	**.30****	
Engagement levels							
Play time							
lower	75	56	69	**54**	77	6.91	C4
higher	25	44	31	**46**	23	.19	
PA							
lower	**75**	**11**	49	**29**	44	**20.01*****	C1, C2,
higher	**25**	**89**	51	**71**	56	**.32*****	C4
Screen time							
lower	75	78	**65**	**41**	43	**14.79****	C3, C4
higher	25	22	**35**	**59**	57	**.27****	
Family time							
lower	50	44	**61**	49	40	4.89	C3
higher	50	56	**39**	51	60	.16	
OA							
lower	65	33	67	54	64	5.57	–
higher	35	67	33	46	36	.17	
Homework							
lower	30	22	**54**	33	43	**9.77***	C3
higher	70	78	**46**	67	57	**.22***	
School free time							
lower	40	33	45	**29**	57	7.83	C4
higher	60	67	55	**71**	43	.20	

Note. values = % per cluster membership; *$p < .05$, **$p < .01$, ***$p < .001$; statistically significant results on bold; Diff = identification of clusters (C) where differences in proportions are statistically significant (column proportion *z*-tests with adjusted *p*-values by the Bonferroni method); ϕ = Cramer´s V; PA= Physical activity; OA= Organized activities.

Table 17

Children´s Daily Activity Patterns (Cluster Membership) at 5th and 6th Grade as a Function of Child Factors

	Cluster 1	*Cluster 2*	*Cluster 3*	*Cluster 4*		
	Active Studious Homies	**After-schoolers**	**Less-Engaged**	**Sedentary Home Players**	χ^2 ϕ	Diff.
Gender						
girls	54	58	60	61	0.39	–
boys	46	42	40	39	.05	
Chronic condition						
no	92	84	92	88	1.23	–
yes	8	16	8	12	.09	
Learning disability						
no	100	**75**	**98**	**75**	**11.96****	C2, C3,
yes	0	**25**	**2**	**25**	**.38****	C4
Prior functioning						
worse	60	58	54	64	0.85	–
better	40	42	46	36	0.08	
Engagement levels						
Play time						
lower	**27**	60	**60**	38	**10.69***	C1, C3
higher	**73**	40	**40**	62	**.27***	
PA						
lower	**23**	55	55	49	**8.27***	C1
higher	**77**	45	45	51	**.24***	
Screen time						
lower	39	65	**68**	**38**	**12.72****	C3, C4
higher	61	35	**32**	**62**	**.29****	
Family time						
lower	**31**	65	**72**	**41**	**17.62*****	C1, C3,
higher	**69**	35	**28**	**59**	**.34*****	C4
OA						
lower	23	45	40	41	3.12	–
higher	77	55	60	59	.15	
Homework						
lower	35	50	61	49	5.30	–
higher	65	50	39	51	.19	
School free time						
lower	**39**	47	**67**	60	6.98	C1, C3
higher	**61**	53	**33**	40	.22	

Note. values = % per cluster membership; *$p < .05$, **$p < .01$, ***$p < .001$; statistically significant results on bold; Diff = identification of clusters (C) where differences in proportions are statistically significant (column proportion *z*-tests with adjusted *p*-values by the Bonferroni method); ϕ = Cramer´s V; PA= Physical activity; OA= Organized activities.

Table 18

Children´s Daily Activity Patterns (Cluster Membership) at 3rd and 4th Grade as a Function of Family Factors

	Cluster 1	*Cluster 2*	*Cluster 3*	*Cluster 4*	*Cluster 5*		
	Less-Active Studious	**Highly-Engaged Players**	**Less-Involved After-schoolers**	**Highly-Active Homies**	**Sedentary Home Screeners**	χ^2 ϕ	Diff.
SES							
Marital status							
married/civil union	82	86	92	88	96	2.79	–
other	18	14	8	12	4	.13	
Educational status							
≤12th grade	**72**	**86**	51	**32**	50	**14.89****	C1, C2,
>12th grade	**28**	**14**	49	**68**	50	**.28****	C4
Professional status							
full-time	78	100	83	88	74	4.50	–
other	22	0	17	12	26	.16	
Home Environment							
Cohesion							
lower	61	56	45	51	43	2.26	–
higher	39	44	55	49	57	.11	
Organization							
lower	**22**	56	46	54	46	5.98	C1
higher	**78**	44	54	46	54	.18	
Family Culture							
Achievement[a]							
lower	44	**11**	54	53	50	6.31	C2
higher	56	**89**	46	47	50	.18	
Intellectual-Cultural[a]							
lower	61	33	53	41	57	4.71	–
higher	39	67	47	59	43	.16	
Active-Recreational[a]							
lower	28	33	46	36	**75**	**14.98****	C5
higher	72	67	54	64	**25**	**.28****	

Note. values = % per cluster membership; *$p < .05$, **$p < .01$, ***$p < .001$; statistically significant results on bold; [a] = orientation; Diff = identification of clusters (C) where differences in proportions are statistically significant (column proportion z-tests with adjusted p-values by the Bonferroni method); ϕ = Cramer´s V.

Discussion

The present study aimed at describing children´s everyday lives in contemporary middle childhood. We investigated children´s participation in daily activities and examined how portfolios and patterns of activities occurring at home, at school, or in the community are influenced by multiple ecological factors. Overall, our findings indicate that children´s everyday lives are characterized by multidimensional, heterogeneous, and qualitatively different participation portfolios and patterns. Both portfolios and patterns of activities significantly vary as a function of child characteristics, parental education, family functioning and culture, and the quality of the environments where activities are developed. These variations may represent different levels of exposure to developmental opportunities which indicates the existence of ecological affordances and constraints linked with children´s time use.

Concerning children´s portfolios of daily activities, the 95% CIs indicated a good precision of the weekly intensity of participation estimates in our sample, suggesting, as expected, that before and after classroom hours children spend their time in a variety of activities developed in several ecological settings. Overall, children showed lower levels of play and organized activity participation compared to higher levels of time spent in school, with the family, and in screen time. The weekly estimates related to the portfolios of activities are generally in line with previous research using similar age samples (Barker et al., 2014; Huang & Wong, 2016; Teixeira, 2009; Zhang et al., 2017), except for play time which was considerably lower in our sample compared to previous research (Barker et al., 2014; Yelland et al., 2021).

Differences in estimates between the younger and older samples were also observed. From the younger to the older sample, we reported an overall increase in the time spent in home activities, such as inactivity, screen time, and homework, as well as out-of-home time spent on sports and tutoring, and a decrease in play, organized activities, and free time at school This indicates that a specialization effect might occur at early adolescence related to an investment in academic-oriented activities and enhanced opportunities to engage in physical activities (particularly at school). Behavioral change in the interrelationships among daily activities in both samples reflect this reorganization of time use at the end of middle childhood. For example, while family time continues to predict higher sleep, play, physical activity, and homework, in the older sample higher screen time was associated with lower levels of sleep but was not linked to time spent on homework.

In addition, children showed different levels of engagement when participating in a diversity of activities suggesting that different individual preferences and motivations are important elements of time use. The engagement levels reported were generally in line with previous research (Yelland et al., 2021)

with children preferring physical activity, screen time, and socializing to homework and household chores. Also, companionship during the activities emerged as a relevant dimension of participation, helping to validate the estimates in our samples. The proportion of activities developed alone, with children, and with adults was distributed as expected and showed the different social contexts of daily activities that may constitute the vehicle through which activities gain their developmental significance (Lam & McHale, 2015a).

Findings also indicated the existence of significant variability in children´s profiles of participation, which we expected to be embodied in the diverse patterns that were subsequently found. As a result of the person-centered approach adopted in this research, for the younger sample, a total of five different clusters emerged, and, for the older sample, a total of four clusters. Our findings indicate that these clusters constitute a comprehensive and meaningful description of the diversity of children´s everyday lives and that each of the patterns they represent provides a more in-depth characterization of the time use of different groups of the population. Clusters were found to be multidimensional and organized in such a way that revealed varied patterns of organization and breadth of involvement with activities (see Ferrar et al., 2013; Oberle et al., 2019), suggesting the existence of distinct participation profiles both in terms of intra-cluster homogeneity and inter-cluster heterogeneity. These are expected to be qualitatively different and moderately stable across middle childhood years into early adolescence. For example, clusters from the younger and older samples shared commonalities in their patterns of organization: the "highly-active homies" was similar to the "active studious homies" cluster, the "sedentary home screeners" was similar to the "sedentary home players" cluster", and the "less-involved after-schoolers" was similar to the "less-engaged" cluster. Patterns of daily participation that are structured early in middle childhood might influence the way children spend their time later in adolescence with lasting implications for well-being and development (see Denault & Poulin, 2009; Oberle et al., 2019). Also, cluster sizes varied between 5% (i.e., "highly-engaged players") and 40% of the younger sample (i.e., "less-involved after-schoolers"), and between 13% (i.e., "after-schoolers") and 45% of the older sample (i.e., "less-engaged"), indicating high variability in time use arrangements for children and a high proportion of less active/participative children. These could constitute sub-optimal time use patterns with negative effects on children that warrant further investigation.

Previous studies using related categories of activities have reported groups of children who share similar participation patterns. Huang and Wong (2016) found profiles of children labeled as "actives", "uninvolved inactives", or "sedentary game players", and Wong and colleagues (2017) described clusters labeled as "studious actives", "techno-actives", "stay home screenies", and

"potterers", who share many patterned characteristics with our samples. In addition, Sauerwein et al. (2016) identified five patterns, namely, "out-of-school", "highly active", "culturally-oriented", "jocks", and "less active", and Morris and Kalil (2006) found clusters labeled as "low sports, lessons and clubs", "high sports", or "high sports, lessons and clubs", which are similar to our clusters of children. This suggests commonalities among patterns of time use and child leisure across cultures. Future research should investigate cross-cultural differences and the developmental implications for different patterns of time use, and, particularly, if optimal/suboptimal time use patterns exist in what concerns positive and healthy child outcomes.

Our findings further suggest a key influence of child characteristics in the intensity and patterns of participation observed. Children who showed higher levels of engagement were more active at home, school, and community settings. Levels of engagement with an activity in a given context may serve as an indicator of the child´s developmental status and agency. Ramey and colleagues (2015) have found that greater psychological engagement was linked to better features of activity settings and with higher levels of perceived impact. Additionally, as expected, children with better prior functioning were more engaged, active, and playful, and dedicated more time to academically-oriented activities, compared to children with worse pre-adjustment. Thus, a child´s internal resources linked with competence and agency may exert an important influence, as children with better functioning tend to be more participative (i.e., intensity, breadth) and become more involved with adaptive activities over time (Denault & Poulin, 2009; McHale et al., 2001; Simpkins et al., 2006). Long-term implications include the fact that more involved and engaged children remain so across middle childhood and adolescent years (see Denault & Poulin, 2009). Conversely, a learning disability status was associated with passive leisure and more time spent in after-school activities, thus being overrepresented in less active clusters. Usually, organized activities (specifically after-school programs and tutoring) integrate an academically-oriented component and families may invest in these types of activities as a way to compensate for the learning difficulties experienced by the child. It may happen at the cost of time spent in other relevant activities such as physical activity, socializing, and play. Thus, a learning disability may predict passive/sedentary participation patterns which constitutes a risk factor for children experiencing difficulties at school.

Contrarily to previous research (Hillbrecht, Zuzanek, & Mandell, 2008; Huang & Wong, 2015; Sauerwein et al., 2016; Teixeira et al., 2008; Vleioras, 2010), gender differences in daily participation were less evident in our samples, except for higher screen time for boys (Gracia et al., 2021; Huang & Wong, 2015) and the membership in the less-involved after-school cluster (higher for girls) (see Oberle

et al., 2019). In addition, a trend related to boys spending more time in physical activities and gaming/internet and girls investing more in YG and creative leisure was found, but no consistent pattern of gendered differences was evident beyond these dimensions of participation. Noteworthy, gendered differences were more pronounced regarding the engagement with activities rather than the intensity of participation, with girls being more engaged with play/creative leisure, homework, and organized activities, and boys showing higher engagement with media devices and sports. Other authors (Hofferth & Curtin, 2005; Yelland et al., 2021) also found more similarities than differences between genders. Also, in the cluster solution reported by Wong and colleagues (2017), the organization of the clusters was similar for boys and girls, which is aligned with our findings. The role of gender may be more important in the relationship between children´s motivations/interests and daily activities and less relevant in the determination of participation levels. Notwithstanding, these findings may indicate relatively equal opportunities for girls and boys to participate in daily activities and that differences could become more pronounced during adolescence (see Hunt et al., 2015). We also acknowledge that the measures of activities used in the present study were broad and did not include dimensions such as the content of activities which may provide a better depiction of the gendered preferences for activities (see McHale et al., 2004; Metsäpelto & Pulkkinen, 2014).

Our findings related to family factors indicated that parents´ higher education was linked to more active children who participated less in screen time and homework (Bianchi & Robinson, 1997; Raley, 2014). Children from highly educated parents also showed a lower intensity of participation in organized activities (i.e., weekly hours), a fact associated with a higher prevalence in the "highly-active homies" cluster. This indicates an investment in moderate participation levels in a variety of activities occurring in different developmental settings. In addition, both the intellectual-cultural and the active-recreational family orientations were associated with more active and healthy activity patterns (i.e., higher play and physical activity and lower screen time), and, for the older children, with more time spent with the family. On a different tendency, a higher family organization was linked to more time devoted to homework, family time, and organized activities as well as to the "less-active studious" and the "active studious homies" clusters. This was similar to the family achievement orientation which was linked to a focus on homework and study. Two different trends can be discerned here, one focused on providing a more stimulating, active, and diverse (but not intensive) portfolio of activities in different settings, usually associated with well-being and growth, and the other focused on the intensity of academically-oriented activities, usually associated with achievement. Overall, it indicates that social address may influence participation, however, family functioning and cultural orientations also play a

crucial role in the determination of children´s participation patterns. The presence and the developmental impact of these trends should be investigated in further studies examining how parenting/family cultures impact child development mediated by time use arrangements.

The positive influences of the school and organized activities environments were also clear. Overall, better process quality of these environments was associated with more active, engaged, and playful children. Particularly, the overall quality of organized activities was linked to more active portfolios and patterns, whereas lower quality environments predicted membership in the less active and more sedentary clusters (see Mahoney et al., 2007). The qualities of activity environments that effectively engage children (as well as their parents) include, among others, a high level of organization and structure, a positive social climate, the provision of social support, and an emphasis on skill-building through enriching, stimulating activities (see Eccles & Gootman, 2002; Mahoney et al., 2007). These characteristics are expected to be developmentally effective and to contribute to a higher child involvement. Moreover, the well-being and growth provided by constructive, productive activities developed in quality settings may also promote long-term involvement. In a recent study on organized after-school activities, Liu and colleagues (2021) found that higher activity quality in the 6th grade was positively associated with participation levels in the 9th grade. These findings show the important contributions of the quality of activity environments in shaping children´s participation patterns, whose positive influences go beyond the specific settings where activities are developed. These findings can help uncover opportunities for more effective interventions, particularly those involving school and community settings.

The present study has several limitations that should be considered. The cross-sectional data from non-probabilistic samples of children impedes the inference of causality and the generalization of our findings. In addition, missing values, social desirability, and the lack of a measure related to the accessibility to organized activities (see Patočková et al., 2021) might have biased our results. Notwithstanding, our findings are generally in line with the literature, and the use of 95% CIs provided a good precision of our time use estimates. In addition to including a comprehensive portrayal of children´s everyday lives, we also found a magnitude of effects of environmental factors that were small to large for the categories of daily activities and small to moderate for activity patterns, which also points to a good validity of our cluster solution and overall findings.

Conclusion

The contributions of this research include an examination of children´s everyday lives on multidimensional profiles of participation along with an in-depth investigation of the influences of

multilevel ecological factors. To our knowledge, the present study is one of the few to use a mixture of variable- and person-centered approaches, with a sample of school-aged children in the European context, to document such patterns and associations. We provided a comprehensive outlook of children's everyday lives in different ecological settings, including a large spectrum of activities children engage with, particularly, the relevant description of free time at school, play time, and family time. This was coupled with a comprehensive analysis of the influences exerted by factors that reflect the actual features of the ecological settings where daily activities ensue, integrating social/structural, process-level, and cultural factors that go beyond the prevalent factors found in research. Our findings show how child attributes and family functioning and culture influence time use, complementing the more prevalent factors found in the literature such as gender and SES, and how the quality of school and community environments are important to the promotion of more active, participative children. Finally, we highlight the varying developmental opportunities provided by families, schools, and communities for different groups of children that may have consequences for child well-being and development. Daily activities constitute relevant developmental assets for children and our findings may help inform families, professionals, services, and policymakers in promoting a more positive time use that supports child well-being and growth, particularly for socially vulnerable children who experience higher constraints to their participation.

Study 3

Daily Activities as Steppingstones to Well-being and Growth: Children´s Perspectives about their Everyday Lives

Abstract

Daily activities occurring at home, at school, and in the community are expected to play an important role in the well-being and growth of children. Consequently, families, schools, and communities provide different bundles of activities that incorporate a significant part of children´s time use. However, despite children being the primary recipients of such efforts, very few studies have explored children´s perspectives regarding their participation in and engagement with daily activities and the meaning and possible impact of those activities. Building on children´s viewpoints about the fabric of their everyday lives, two qualitative studies were developed. In the first study, four focal groups with 4th Graders (n = 21) were conducted using a draw-write-and-tell technique. In the second study, a Q-methodology was applied to a sample of 3rd and 4th Graders (n = 17). Overall, findings indicate that children identified a diversity of relevant daily activities whose characteristics exert both positive and negative influences on well-being, in which social partners and relationships are key elements. These activities are a context for experiencing positive emotions and psychological well-being, learning new skills, developing identity and autonomy, and interpersonal conflict. Despite children having different viewpoints regarding their time use and daily activities, they consistently identified the need for more free time after school and for a stronger voice and autonomy in choosing and engaging with those free time activities. Daily activity participation is a crucial dimension in the enhancement of children´s lives. Therefore, their different values, choices, and needs must be heard and attended to. Children constitute valid informants about their everyday lives and can be active elements in promoting their well-being and growth. Avenues for intervention regarding children´s time use are proposed.

Keywords: childcare; child health; participation; free time; leisure; middle childhood

Introduction

Daily activities occurring at home, school, and community are expected to play an important role in children´s psychosocial adjustment, enabling the integration of healthy, adaptive behaviors. Participation in daily activities, specifically time use, is also an indicator of child well-being as it reflects the characteristics of children and their ecologies, particularly the developmental opportunities and constraints present in the environments in which they grow (Lam & McHale, 2015a). For example, playing, dyadic time with parents, physical activity, and extracurricular activities have been linked to the promotion of social skills, achievement, and better well-being (Berntsson & Ringsberg, 2014; Brockevelt et al., 2019; Metsäpelto & Pulkkinen, 2014; Oberle et al., 2019). Such an impact is related to children´s participation but also the quality of the activities and the settings where they are developed, through dimensions such as social connectedness and emotional support from peers and adults, opportunities to learn new skills and develop a positive identity, and the provision of psychological safety and stimulation (Eccles & Gootman, 2002; Larson et al., 2004). In addition, meaningful use of time in activities with positive developmental characteristics is crucial to understanding children´s everyday lives, but their perspectives on the relevance, meaning, and utility of such daily activities are seldom investigated (Brockevelt et al., 2019; Odenbring, 2018).

There is a widespread notion in society that the way children spend their time is essential for their achievement and success (Wight et al., 2009). For this reason, families, schools, and communities provide different bundles of daily activities that result mostly in adults defining, organizing, and allocating a significant part of children´s daily participation and time use. However, despite children being the primary recipients of such efforts, very few studies have explored children´s perspectives regarding their participation in and engagement with daily activities, specifically, their meaning and possible impact. Children´s viewpoints on the matter have been consistently overlooked since families and social institutions tend to organize and regulate children´s educational and leisure activities exclusively from an adult point of view (see Lehto & Eskelinen, 2020). Recent literature has explored after-school leisure and organized activity participation from children´s views, indicating that children´s everyday lives can be improved in several dimensions. Overall, findings indicate that children value a meaningful use of time (e.g., meaning, relevance, perceived utility) characterized by the centrality of self-regulated participation and pursuit of their interests, particularly in play and socialization activities with their families and peers, and a dislike for very structured, unstimulating activities and tight schedules that promote stress and time pressure (see Brockevelt et al., 2019; Horgan et al., 2018; Howe, 2016; Lehto & Eskelinen, 2020; McAuley et al., 2012; Odenbring, 2018). However, less

attention has been given to the identification of the activities that children most value in their everyday lives, the reasons for their participation and engagement, and the impacts of these activities on their well-being and growth from children´s perspectives.

The effects of time use on child outcomes are related to children´s preferences, motivations, and the meanings that derive from their lived experiences. Nevertheless, only a few studies address the lived experience of those who benefit most and who are, in fact, the best experts in their everyday lives (Lehto & Eskelinen, 2020). Furthermore, children should be at the center of research focusing on these topics. A growing consensus indicates that children should be understood as social agents, with valid viewpoints, perceptions, and experiences, capable of thoroughly engaging and contributing to research that investigates matters that concern and are relevant to them (Gibson, 2012; Howe, 2016; Martins et al., 2018). It involves designing studies that facilitate the active, full participation of children in addressing topics of interest, as children can provide new insights that are different from the perspective of adults (Ellingsen et al., 2014; Morrow, 2001). In addition, there is a need to use methods that facilitate hearing children´s voices, thus an adaptation of methods to fit children´s developing psychological competencies is warranted (Gibson, 2012). As a result, the present research follows a multi-methods approach, in which each stage is informed by the results and findings of the previous. We start in the first study with a *draw-write-and-tell* technique (Angell et al., 2015) that uses drawings and writings to start a conversation with children, later coupled with more in-depth focus groups (Morgan et al., 2002). In the second study, a Q methodology (Brown, 1993; Watts & Stenner, 2005) was used as a way of investigating children´s subjectivity and shared views about their everyday lives and activity participation.

The present research aims at putting children at the center of the debate on how daily activity participation and time use are important dimensions of their lives. By considering children´s perspectives, the provision of care, leisure, and educational activities can be significantly improved (Howe, 2016). Thus, this research focuses on the analysis of daily activities as elements of child well-being and growth, building on their perspectives about their everyday lives and experiences of social participation. Two studies were conducted with 3rd and 4th Graders using approaches that facilitate children´s participation and the exploration of their perspectives. The main goal was to explore children´s viewpoints about the fabric of their everyday lives. Specifically, we aimed at (1) examining the activities that children value in their everyday lives, specifically the ones they are more engaged with, their preferences and choices, (2) the characteristics of and the reasons for their participation and engagement, and (3) the possible influences of these activities on their well-being and growth.

Methods

Participants and Procedures

This research is based on a purposive sample of socially heterogeneous urban students attending the 3rd and 4th Grades (*n* = 38) in three primary schools in Northern Portugal. School boards were contacted to provide institutional approval and assistance in recruiting participants. Parents provided informed consent and children provided assent in a written form as well as orally at the beginning of each session. Sessions were scheduled after class on the school premises (i.e., school library, classroom). In the first study, four focal groups (4 to 6 children each) with 3rd and 4th Graders (*n* = 21; girls = 57%) were conducted in two primary schools using a draw-write-and-tell technique. In the second study, a Q-methodology was applied to a sample of 4th Graders (*n* = 17; boys = 53%) from three primary schools. In each session of approximately 60 to 70 minutes conducted by the researcher, children were seated around a table in small groups where they could easily manipulate the materials (e.g., draw-write-and-tell cards, Q-sorts) and participate in the activity. The researcher asked children and parents´ permission to record the session, explaining the treatment and use of the data gathered. This research was approved by the University´s Ethics Committee and the General Board of Education.

Measures

Draw-Write-and-Tell Cards

A *draw-write-and-tell* technique (Angell et al., 2015; Backett-Milburn & McKie, 1999) was applied in the days previous to the focus groups. During their free time in each school, children were asked to draw their favorite and least favorite daily activity, providing information regarding their choices in each card. This information included the following dimensions: (1) identification of the activity; (2) the setting; (3) the social partners of the activity; (4) the feelings associated with the activity; (5) the personal relevance of the activity (i.e., 3-point Likert-type; *not important* to *very important*); and (6) what the child learns from participation. The *draw-write-and-tell* is a valuable tool that enables children´s participation in research exploring topics related to their lives. It allows children to share a diversity of meaningful information from their viewpoints and lived experiences (see Angell et al., 2015). By using drawings, children have more control and can communicate their perspectives and meanings more effectively regarding their social worlds (Backett-Milburn & McKie, 1999), as drawings can be used as a tool to start the conversation and elicit more meaningful responses from children (Yuen, 2004). The cards were then used as a facilitating tool in the following focus groups.

Focus Group Schedule

A semi-structured schedule for the focus groups (Morgan et al., 2002) was developed in complement of and building on the dimensions assessed in the *draw-write-and-tell* cards. Specifically, it explores with children (1) the identification of their meaningful daily activities (favorite and least favorite, daily preferences and choices), (2) the main characteristics of those activities (context, social partners, relevance, developmental features), and (3) the effects on growth and well-being based on their lived experience during the activities. During the sessions, questions were made by the researcher around the *draw-write-and-tell* cards, clarifying and probing into children´s perspectives and experiences on each of the previous dimensions. This was thought to improve children´s focus and motivation throughout the sessions. The focus groups are a child-friendly technique that promotes participation and deeper access to children´s meanings and has been successfully used in social, health, and educational research covering a wide spectrum of topics related to children and childhood (Morgan et al., 2002).

Q-sorts

The Q methodology uses both qualitative and quantitative methods to systematically examine the subjectivity of persons involved in a specific topic of interest (their viewpoints, beliefs, opinions) by exploring correlations between overall aspects, patterns, or groups of participants based on their Q-sorts (Coogan & Herrington, 2011). A Q study aims at investigating social representations and constructions whose overall configurations are shared by specific groups of participants. Thus, in Q methodology, the measures and tests are the samples, and the person is the variable (Watts & Stenner, 2005). Because of these features, the Q methodology may constitute an effective way of soliciting children to share their viewpoints and experiences, helping them systematically express their subjectivity (Ellingsen et al., 2014). Children are exposed to a set of cards with subjective statements (Q-set) to which they can relate to subjectively, responding by rank-ordering the statements from their viewpoint and meanings attributed. The resulting Q-sort matrix reflects each child´s view on the topic.

To develop the Q-set for this study, a concourse (i.e., a collection of the diversity of ideas on a given topic) of categories and statements about children´s perspectives on daily activities and time use was generated. The concourse was built on the findings of the previous focus groups study (naturalistic) and complemented with previous literature (ready-made) focused on topics relevant to the goals of the present research (see Brockevelt et al., 2019; Horgan et al., 2018; Howe, 2016; Lehto & Eskelinen, 2020; McAuley et al., 2012; Odenbring, 2018). The selected categories of the concourse included the following dimensions representing a preliminary set of 71 statements: structured (frenetic) vs.

unstructured time; the centrality of relationships in joint activities; expression of identity and autonomy; opportunities for growth, learning, and well-being (satisfaction, fun, relaxation, health); stress in daily routines (long school days/tight schedules) and highly regulated free time (structured routines); self-determination during free time (child self-regulation and pursue of own interests vs. adult regulation); meaningful use of time (meaning, relevance, perceived utility); the importance of play and self-directed activities; and, the value of the playful, democratic, and social nature of activities (dislike for very structured, unstimulating activities). The Q-set resulting from the concourse analysis was scrutinized and edited to represent a purposive selection of statements. This Q-set, comprising a total of 34 statements, includes the following examples: "I choose what to do in my daily activities and my opinion matters"; "I like to spend my free time with my friends, playing and talking"; "My parents spend little time with me because they are very busy"; "I feel stressed every day, I have too many activities to do"; "My favorite free time activity is playing"; "I spend too much time doing homework and studying"; "My free time is boring, I have nothing interesting to do"; "I like to do activities in which I am good at, in which I learn new things"; "My favorite free time activity is sports"; "After-school activities should always be fun and relaxing"; "I would like to have more time without interruptions, to play, relax and talk"; "I prefer to be at home with my family than to be involved in extracurricular activities". Some sentences were written to represent the opposite meaning of these examples. During the sessions, and following the instructions of the researcher, children organized their statements (printed on small cards) in a Q-grid (size A3) showing a quasi-normal distribution (from "nothing like me" = -4 to "very much like me" = 4; neutral position = 0). Next, upon completion, the researcher asked children to reevaluate their responses and to check for any necessary changes and adjustments. Finally, children´s responses in the completed Q-sort were recorded for analysis.

Data Analysis

Recorded data from the sessions were transcribed and organized for analysis. A thematic analysis of the data was applied using a deductive-inductive approach (Braun & Clarke, 2006), complemented by the content analysis of the draw-write-and-tell instrument. Children´s Q-sorts were analyzed using the KADE software (Banasick, 2019). A factor analysis using principal components analysis with varimax rotation supported by a by-person correlation matrix was performed based on the dataset of children´s response patterns in the Q-grid. Factors were extracted to represent Q-sorts that shared similarities among sub-groups of participants. Eigenvalues and a scree plot were used to determine the number of factors to retain, also considering their theoretical significance (Ellingsen et

al., 2014; Watts & Stenner, 2005). In both studies, field notes by the researcher supported the analyses.

Results

A synthesis of the content analysis of the drawings and responses in the *draw-write-and-tell* cards is displayed in Table 19. Children reported on their favorite and least favorite activities, their context and social partners, the importance attributed to each activity, and the emotions usually experienced during the activities.

Table 19

Content of the Drawings and Responses in the Draw-Write-and-Tell Technique

Favorite activities	*sports*, *family leisure time*, *playground*, *playing with toys*, *playing/hanging out with friends*, *caring for pets*, *electronic gaming*, *active play* (e.g., running)
Least favorite activities	*homework*, *being in class*, *fighting with peers*, *being alone*, *household chores*
Contexts	*school*, *home*, *afterschool program*, *sports gym*
Social partners	*friends/peers*, *parents* and *family members (siblings, cousins, other adults*, *other adults* (e.g., *sports coach*), *alone*
Importance	*high importance* attributed to *favorite activities*; frequently *high importance* was attributed to the *least favorite activities* (e.g., *being in class*, *homework/studying*) perceived as socially relevant activities
Emotions linked to favorite activities	*happy*, *content*, *fun*, *peaceful*, *curious*, *joy*, *friendship*, *strength*, *courage*, *excitement*, *aggressive* (i.e., *sports*)
Emotions linked to least favorite activities	*sad*, *bored*, *anxious*, *lonely*, *angry*, *agitated*, *aggressive* (towards peers), *nervous*

The thematic analysis of the focus groups revealed four themes:

Positive Emotions and Well-Being

Daily activities were seen as a way of experiencing *positive emotions* and *well-being*. Children reported experiencing positive emotions as an important element of their daily activities, particularly their favorite, including relaxation, satisfaction, fun, or an overall state of well-being. In addition, these emotions were often linked to the direct effect of the activity on their daily psychological states and the important role of positive interactions with social partners (mainly peers) during the activities:

> M.: I feel happy because I am with my friends, I am not alone, I feel amused because I am playing with those people who are closer to me.
>
> T.: We play with a person, doing things we both enjoy.

R.: We spend time with our friends, (...) we see our friends participating and we also want to be involved.

Fun, focus, interest, and relaxation were frequently considered important features of the experiences provided by the activities. These were described as the most relevant outcomes of participation, being able to feel satisfied, connected, and focused:

A.: We do these activities because we like them, and it is fun.

G.: I have fun because I am paying attention to what I am doing, and I do enjoyable activities.

S.: I feel calm because I am not nervous, I am relaxed.

T.: It is our favorite activity. It is what we love the most.

B.: I really enjoy recess with my friends.

P.J.: When I am upset, basketball makes me feel more relaxed.

Learning New Skills

Daily activities are a way of *learning new skills*. Children reported liking the activities in which they develop new cognitive and socioemotional skills. These included self-regulation, social competence, and prosocial behavior, as well as deeper knowledge about their lifeworlds. Furthermore, children were able to be very specific about the new skills they developed as a result of their participation, attributing greater value to their capabilities of socializing positively with peers and being social and emotionally competent:

S.: I learn new stuff playing with my toys, (...) and I also learn to use my imagination.

P.: Our parents teach us important things because when we grow up we will have that idea within us.

F.: (after changing school) I thought to myself "you don't have to feel like this, you will be able to adapt to your colleagues and friends".

P.J.: I have learned what is good behavior, and to adapt myself to the rules.

M.: I learn to be around people, to stay calm so they can teach me.

G.: I have learned to play as a team member, (...) we develop friendships and a love for sports. (...) I learn to be an athlete, it´s like being healthy and sporty.

T.: I have learned how to lose and to win, (...) I don't like to lose but I have to deal with it. I don't feel sad, if I don't learn how to lose I will not have any friends.

M.: We should spend more time in the playground/recess because while we play we learn how to play and be with each other.

J.: I learn how to be calm. Before I wasn´t able to.

M.: You should always use the markers in the same direction. I have learned this and many other things.

A.: I have learned to share and to be content.

R.: (during physical activity) I learn to relax and feel good.

T.: I am more caring now.

N.: I am more friendly with others.

B.: I learn to respect my friends.

Identity and Autonomy

Daily activities play a relevant role in *identity* and *autonomy* development. Children reported that participation is a way of expressing their process of individual growth, particularly their identity development, their agency, as well as their autonomy, particularly in those activities in which they feel self-efficacious. In addition, children were reflexive about their personal activity choices and their impacts, particularly the positive moments spent with their families and friends as well as the important role attributed to physical activity:

P.: I have always wanted to play sports since I was little, and if I wanted to play it´s because it was very important for me, and I had to be good at it and that is very important for me.

G.: This activity is what I have always wanted since I was a small child.

T.: My father said that if I didn´t make any spelling mistakes I could ask for anything, and I chose to enter the football team.

N.: I was a swimmer and then I started thinking about changing to basketball, I started going, and then I liked it very much.

I.: If I study and get good grades, then after class I have more time to play.

J.: If you can´t win you have to believe in it. (...) I feel aggressive, but not in the sense of... like... but in the sense that I have to kick the ball hard.

M.: If I don't have too much homework, I enjoy more time playing. (...) Playing is far better than watching TV.

F.: I feel the urge to win. (...) I just wanted to be involved in sports.

H.: When I don't know how to do something, I don´t feel like doing it. I don´t care about it.

In addition, the importance given to daily activities was independent of their personal preferences, indicating the capability to distinguish values from choices:

D.: Playing is important because as I said I learn lots of things, but I also have other important things, like studying.

D.: One important thing is school and stuff because the *Playstation* is not mandatory.

S.: Sometimes I don't like to do homework, but it is important for school.

L.: Doing your homework is important, but I don't like it.

A.: I don't like to study English, but if I learn English I will be ready for the test.

Interpersonal Conflict

Daily activities are also a context for, sometimes unresolved, *interpersonal conflict* (bullying, tensions among peers). Children shared their worries about unattended and unresolved conflicts among peers and friends, mainly at school and at extracurricular activities. Sometimes these conflicts happen during their favorite activities, and some seem to be unattended or unresolved by adults in the context where they occur. Children reported many incidents occurring in their everyday lives, but showed disagreement with the situations of conflict:

B.: Fighting with others means that it is a very serious moment, and it is a moment in which we should not behave like that.

S.: We should be united instead of fighting each other, that´s what happens now between boys.

P.: I don't like to fight here at our school. (...) Sometimes I am so upset that I can´t control myself and I have to fight with them.

J.: I fight with my colleagues only because they have done something to me.

M.: I am playing by myself and from nothing, they start fighting. I haven't done anything, and they start kicking me.

R.: I don´t like fighting in school, but when it is needed, it is really needed. (...) If there is a problem (...) and a fight is needed, then it has to be, if it is needed to fight I will fight.

Sometimes during the conversation, children shared that they were either victims of bullying or had a colleague with poor behavior that affected them and their peers:

R.: He gets near me and starts beating me, and I was innocent... that´s why I hate that person, he treats me badly.

J.: There was a student there that used to mock me, and that made me so angry that I just wanted to punch him. (...) He called me fat and said that I was the worse student.

A.: She treats everybody poorly.

F.: He is rude, he mistreats his friends.

The Q-study results revealed subjective, patterned perspectives of children about their daily participation, and this method facilitated the reflection on children´s experiences and emotions,

showing different configurations of their viewpoints (Ellingsen et al., 2014). In Q methodology, people are the variables; as a result, each factor represents a group of children who share an identical configuration of viewpoints. The inspection of Eigenvalues and the scree plot resulting from factor extraction indicated a 2- to 4-factor solution. Four factors were retained explaining 64% of the variance. Factors were stable and distinct from each other, representing a diversity of response patterns among sub-groups of children in the sample. Each factor comprised at least 85% of Q-sort loadings that were significant at the $p < .05$ level. Correlations between factor scores varied between .15 (factors 1 and 3) and .56 (factors 1 and 4), and factor composite reliability varied between .80 and .95. Each factor had at least four distinguishing statements significant at the $p < .05$ level, and at least one distinguishing statement at the $p < .01$ level. These helped to highlight the differences among the groups of children under investigation. Six consensus statements shared by the factors were also identified. As a result, four patterned viewpoints (factors) were further examined:

(1) "engaged and busy" ($n = 5$) – Children associated with this factor held a perspective that favored free play, screen time, extracurricular activity participation, time spent at school (school activities, recess), and their autonomy in choosing what to do during free time. They expressed that they never felt alone or bored and that their time was filled with activities in which they learned new things. These children were moderately satisfied with their activity participation but expressed that they would like more access to free time after school, perhaps due to being involved in multiple activities.

(2) "relaxed players" ($n = 5$) – Children loading significantly on this factor valued spending time with friends, playing and socializing (particularly in school recess), and liked to play in the outdoors and nature, indicating that they would like to have more time to play and relax without interruptions from adults. They also prefered being at home and involved in activities with their families. These children didn´t feel time pressure, bored, or stressed in their everyday lives and placed a higher value on relaxed, unstructured free time. However, they expressed that they would like to have a stronger voice in choosing their free time activities, indicating the need for higher autonomy.

(3) "academically-oriented" ($n = 1$) – The child that loaded significantly on this factor had a very different viewpoint from other participants. The overall configuration of this factor revealed a pattern characterized by giving higher importance to time spent in school-related activities (except for recess which she found boring). She valued studying and doing homework or other academically-oriented activities and was less interested in creative, skill-building activities. The

child also liked to be in the outdoors during her free time and shared the desire to spend more time doing free time activities of her liking. Additionally, she disliked spending time at home in activities with her family.

(4) "active social learners" (n = 6) – Children loading significantly on this factor expressed that their favorite activities were sports and physical activity and hanging out with friends (playing and talking as a way of feeling good). They also enjoyed engaging in activities where they felt competent and learned new things. They didn´t feel boredom at school or in their free time, were generally satisfied with their use of time, and shared that their opinion mattered (with parents) in the allocation of free time.

Discussion

This study aimed to examine the activities that children value in their everyday lives, the characteristics of their participation, and the possible influences of these activities on their well-being and growth. Overall, our findings indicate that children elaborate deeply on the meaning of their daily experiences and may contribute to a better comprehension of their everyday lives and childhoods (Ferreira et al., 2018; Lehto & Eskelinen, 2020). Children identified a diversity of relevant daily activities (e.g., family leisure, sports, playing), which occur in diverse ecological settings (home, school, community), and the distinct characteristics of these activities that may exert both positive and negative influences. In addition, children have different patterned perspectives on their daily participation and time use, helping identify different configurations of values, choices, and needs that must be heard and attended to, particularly, the relevance of relationships, the quality of activities, and free time. Finally, it reinforces the idea that the organization of daily activities is crucial in enhancing children´s lives and overall well-being and that societal expectations may be at odds with children´s preferences and experiences.

Findings indicate that children´s favorite activities are centered around physical activity and sports, family leisure, playing/hanging out with friends, and using playgrounds and outdoor spaces, while the least favorite activities include homework and studying, being in class, being alone, and social contexts where conflicts happen among peers (Brockevelt et al., 2019; Horgan et al., 2018; Howe, 2016; Odenbring, 2018). The lived experiences of children during their daily activities exert both positive and negative influences on their well-being and growth. Activities are associated with a diversity of positive emotions (e.g., happiness, contentment, joy) and negative emotions (e.g., stress, boredom, sadness, loneliness), which affect children´s everyday psychological states. Children could also discern between their personal preferences and the social importance of activities and the choices they have to

make. Additionally, daily activities may comprise several opportunities for growth and learning, involving identity development, autonomy, mastery, socioemotional growth, and fulfillment of individual pursuits (Brockevelt et al., 2019). For example, higher engagement was observed with intrinsically motivated activities that contribute to the satisfaction of basic psychological needs (i.e., relatedness, autonomy, competence) (see Faust & Kupermic, 2020). Conversely, some activities may result in boredom, loneliness, stress, and lack of emotional safety, negatively impacting children (Brockevelt et al., 2019; Odenbring, 2018). Particularly, bullying has been identified as a frequent experience that negatively affects their everyday lives (McAuley et al., 2012). Furthermore, daily activities are linked to children´s perceptions that action and empirical experiences in each setting are crucial features of the processes of learning and growing, and here the resources available to children are paramount (i.e., material, educational, psychosocial) (Ferreira et al., 2018; Lehto & Eskelinen, 2020). In addition, activities are also a context in which social partners are key elements (Berger et al., 2020; Howe, 2016). Trusted and supportive relationships with social partners frequently arise as crucial in the experiences reported by children; they provide meaning and a sense of security in their daily interactions (with peers and adults). Previous research has demonstrated that children like to engage in shared activities in which they develop and maintain their relationships (Horgan et al., 2018; McAuley et al., 2012). Social partners could be seen as vehicles through which activities become developmentally significant and promote well-being (Brockevelt et al., 2019; Ferreira et al., 2018; Lam & McHale, 2015a).

Furthermore, children´s everyday activities have become more regulated and institutionalized (Odenbring, 2018). Childhood is increasingly spent in organized settings and tensions may arise between societal expectations and children´s values, preferences, and needs. Despite the importance attributed to specific daily activities, they may not reflect the reality of most children´s lives. While some children reported satisfaction with their use of time and activity participation (and that their opinion matters), others valued more free time after school doing activities of their liking and expressed that they would like to have a stronger voice and autonomy in choosing and engaging with those free time activities (whether organized or less-structured), which is aligned with recent literature (see Horgan et al., 2018; Lehto & Eskelinen, 2020; Odenbring, 2018). Children suggested that they may benefit from more free time in which they participate in stimulating, playful, and democratic activities, and in the company of supportive peers and adults (Howe, 2016; Lehto & Eskelinen, 2020, Horgan et al., 2018). Children value activities developed in settings where they feel secure, where conflict resolution is applied, and bullying is prevented. In addition, children appreciate having opportunities to learn new things and develop new skills in dynamic and autonomous, but relaxed/less strict activity settings

(Horgan et al., 2018). They also attribute greater value to self-directed play, socialization, and quality interactions with social partners during the activities (Lehto & Eskelinen, 2020).

Overall, these findings indicate that the different child perspectives previously discussed (preferences, values, and choices) may result from quality and process-level aspects of activities shaping their everyday lives and effectively impacting well-being. This aligns with the characteristics of positive developmental contexts posited by Eccles and Gootman (2002) and the Child-Activity-Context Model of Children´s Subjective Well-being (Brockevelt et al., 2019). These authors propose that daily activities may have a deeper meaning and positive effect on children in the presence of the following aspects: physical and psychological safety; provision of social and emotional support and opportunities to belong (social connectedness); the existence of positive social norms and structure; support for mastery, agency, and efficacy; opportunities for developing new skills with access to resources; and experience of overall meaningful use of time. In addition, it implies the integration of resources and efforts by families, schools, and the wider community, to improve the structure and quality of daily activities as an intervention avenue for well-being and growth promotion. Another implication is the fact that children´s voices should be heard on these topics since they proved valuable informants regarding their everyday lives.

Limitations of this study include the use of two small samples with context-specific characteristics (a small city in Northern Portugal) and from less-diverse backgrounds, impeding a broader view of children´s perspectives on their everyday lives. In addition, the limited amount of time to develop the sessions and to build rapport with participants may have hindered the depth of children´s responses; a deeper exploration of their views could be more effective if the design included a higher investment in the children–researcher relationship and a more active input of children to the research process as a whole. However, the sequential multi-methods approach has provided insights on this topic that are aligned with recent literature and that could be replicated and enhanced by further studies.

Concluding, our findings were discussed in light of recent literature that characterizes children as active elements in promoting their well-being and growth. Hearing children´s voices can inform better practices related to the provision of care, leisure, and educational activities in schools and communities, and may motivate families to start a conversation with their children about the best ways to organize family life and children´s time use.

Study 4

Children´s Daily Activities and Well-being during the COVID-19 Lockdown: Associations with Child and Family Characteristics

Abstract

Learning, leisure, social, and movement activities are essential facets of children´s development affecting their physical, mental, and social well-being. During the first Covid-19 lockdown and post-lockdown period, children´s everyday lives were disrupted and altered in significant ways for an extended period, raising several concerns regarding its negative effects. This study investigated children´s daily activities during the lockdown and post-lockdown period, considering child and family factors that influenced their participation, and the effects of daily activities on child well-being. Cross-sectional data were collected during June and July 2020 from a sample of 3rd and 4th graders (n = 110) and their parents. Participants reported the intensity of children´s weekly participation in various learning, leisure, socializing, and movement activities, child and family characteristics, and child well-being outcomes. Findings indicate an overall pattern characterized by a higher prevalence of sedentary behaviors (screen time) and a lower prevalence of active leisure and playing activities, particularly among socioeconomically vulnerable children. Compared to boys, girls were less physically active but engaged more in play and social activities. In addition, sleep, active leisure, playing and learning activities, and family coping strategies were linked to better overall child well-being. These findings help identify promising avenues for effective intervention strategies, at the family and community levels, aimed at promoting child well-being and mitigating harm during the present and future crises.

Keywords: Covid-19, child health, family adaptation, health promotion, time use

Note. This study corresponds to a published paper available at: https://doi.org/10.1007/s12144-022-02759-y

Introduction

During the Covid-19 first lockdown and post-lockdown period, children´s everyday lives were disrupted. In a context of economic downturn, social isolation, and widespread uncertainty, families were given the responsibility to care for their children at home, full-time, and during an extended period, regardless of their resources and needs (Cheng et al., 2020; Cluver et al., 2020; Fore, 2020; Prime et al., 2020). Prolonged confinement at home coupled with lower access to educational, social, and health services has raised several concerns amongst non-governmental organizations, academics, professionals, and policymakers, regarding the possible adverse effects on child well-being and development, both short- and long-term (Bates et al., 2020; Fore, 2020; Wang et al., 2020). It is expected that these sharp changes in children´s environments and routines have had a significant impact on well-being, affecting particularly those experiencing vulnerabilities and those who lost access to their support systems, thus contributing to the increase of pre-existing inequalities (Cheng et al., 2020; Patrick et al., 2020; United Nations, 2020). However, the knowledge about children´s everyday lives during the lockdown, its impacts on child well-being, and its influencing factors is still emerging (Bates et al., 2020; Guan et al., 2020; Larsen et al., 2021).

As a result of the implementation of pandemic mitigation efforts by governments – home confinement, social isolation, the closing of schools and non-essential services –, children´s daily activity patterns and routines were altered in significant ways. In Portugal, during the first lockdown and post-lockdown period from the middle of March 2020 to the end of the school year in the middle of June 2020, school-aged children stayed at home. Consequently, using a home-based distance-learning model, the Portuguese Ministry of Education has implemented a national program via televised lessons for students which were complemented by teachers´ tutoring on digital platforms. In addition to the fact that everyday life was now spent at home, children lost access to daily activities such as classes at school, playing with friends, extracurricular and enrichment activities, sports, among other important leisure and socialization experiences with peers and adults. These new routines presented many challenges to children and their families who had to cope with feelings of loneliness, anxiety, and depression, and deal with heightened household tensions as well as other psychosocial stressors (e.g., reallocation of household tasks, parents working from home) related to the ongoing health and social crisis (see Larsen et al., 2021).

Daily activities occur through the routine interactions between a child and its environment (e.g., playing with a sibling, studying, hobbies, socializing with parents, watching TV, doing sports). By being developed in different ecological settings (home, school, community), frequently involving peers and

adults, daily activities are the building blocks of what is experienced in the course of children´s everyday life. Thus, daily activities are the essential routine tasks that children perform and engage with. These activities can be more structured (adult-supervised, goal-directed, rules-based) or less structured (informal, child-led, fewer rules), nevertheless, they constitute an important facet of child development, affecting children´s physical, mental, and social well-being (Metsäpelto & Pulkkinen, 2014; Wong et al., 2017). Both physically active behaviors (active play, sports) and sedentary behaviors (waking behaviors characterized by a low energy expenditure such as screen time) have been consistently linked with children´s physical and mental health (Carson et al., 2016; Dale et al., 2019; Zhang et al., 2017). Also, stimulating leisure activities (e.g., creative leisure, extracurricular activities, dyadic/social time with parents) are known to support and enhance several child well-being outcomes (Berntsson & Ringsberg, 2014; Oberle et al., 2019; Yogman et al., 2018). However, in the context of a health and social crisis, where children´s participation in society has been severely restricted, and families´ coping mechanisms have been seriously challenged, the risk for poorer physical and mental health outcomes increased (Fegert et al., 2020; Loades et al., 2020; Patrick et al., 2020; United Nations, 2020). These well-being risks may be linked to the exposure to pervasive psychosocial stressors but also an increase in sedentary behaviors, a decrease of physical activity levels, adverse changes in sleep and daily routines, as well as a lower contact with stimulating play, learning, and socialization experiences (Bates et al., 2020; Dale et al., 2019; González et al., 2020; Moore et al., 2020; Pombo et al.,2021).

Evidence on children´s patterns of daily activities during the Covid-19 pandemic and its influencing factors could inform interventions, during the current pandemic and in a future crisis, aimed at protecting children´s rights and well-being and preventing adverse outcomes (Fore, 2020). Therefore, the present study investigated how Portuguese school-aged children spent the first Covid-19 lockdown and post-lockdown period, considering child and family characteristics that facilitated or constrained their participation in daily activities, and examined how daily activities were linked to child well-being outcomes. Specifically, this study aimed at 1) describing the intensity of children´s weekly participation in daily activities and their levels of engagement with those activities; 2) examining the differences in the intensity of weekly participation by gender, sociodemographic characteristics, and family adversity (socioeconomic change) and coping strategies (adaptation); and 3) investigating the associations between different types of daily activities and child well-being.

Methods

Participants

The present study is based on cross-sectional data from a non-probabilistic sample of 110 children enrolled in the 3rd and 4th grade (50% girls), aged between 7 and 11 years old (M = 9.09, SD = 0.80), from northern and central Portugal, and their parents (85% mothers). Of the participating parents, 54% had an educational level up to the 12th grade, the remaining 46% had higher education; 78% were employed full-time, 6% half-time, and the remaining 16% were unemployed, receiving training, or performing domestic work. About 83% of families were nuclear, 9% single-parent, and 8% were extended or reconstituted families.

Procedures

Participants in this study were recruited from an ongoing prospective study on children´s everyday lives and healthy development. They were invited by email (n = 293), telephone (n = 41), and postal mail (n = 12), and renewed the informed consent (parents) and assent (children) they had provided in an earlier stage of the global study. Then, both parents and children responded to an online survey or a paper and pencil version according to their preference (n = 137, response rate = 40%). Incomplete research protocols (n = 27) were dropped, resulting in the sample previously described (n = 110).

From the middle of June to the end of July 2020, participants responded to the questionnaires retrospectively, as explicitly asked in the research protocol, reporting on the previous weeks of the lockdown and post-lockdown period. In Portugal, schools were closed from the 18th of March 2020 to the end of the school year in the middle of June 2020. During this period, children stayed at home in their parents´ care. In addition, all the questionnaires asked respondents to consider the previous months of lockdown, reinforcing the retrospective nature of the survey. The research protocol included instructions in which the questionnaires were responded to in an explicit order. The information provided by the online survey tool and by our previous experience indicates that, in total, questionnaires took approximately 35 minutes to respond to. Furthermore, the present study was guided by the legal and ethical norms in force, specifically, participation was voluntary, confidential, and anonymous, and guidance from health authorities was followed to protect the safety and well-being of participants. Finally, as described previously, the present study was conducted with a sub-sample of a larger ongoing study, which received the approval of the University´s Ethics Committee and the National Ministry of Education.

Measures

Children´s Daily Activities

A shortened version of the Q25 questionnaire (Oliveira et al., 2019) was used to assess children´s participation in daily activities. Using Likert-type scales, both parents and children reported on the weekly frequency (from "never" = 0 to "daily" = 5) and time spent (from "around 30 minutes" = 1 to "2 hours+" = 4) in 11 types of daily activities, as well as the number of hours of sleep. For each activity, participants also reported the level of children´s engagement with the activity (e.g., satisfaction, interest, focus) using Likert-scales (from "not at all" = 0 to "totally" = 4). In the present study, two different domains of activities were considered in the analyses: the *movement activities* domain encompassing *sleep* (hours per night), *physical activity* (exercise, sports), *active play* (running outside, jumping, dancing, riding a bicycle), *TV*, *gaming/internet*, and *socializing online*, and the *learning and socialization activities* domain encompassing *play* (toys, games, hobbies), *creative leisure* (reading/writing, drawing/painting, playing an instrument), *family meals*, *activity with parents* (parent-child joint activities), *household chores*, and *school at home* (distance-learning on television, tutoring with school-teacher, homework). A weighted score representing the *intensity* of weekly participation in hours was created for each daily activity by multiplying the weekly frequency by the number of hours spent (for *sleep*, the number of hours per night was considered). An average score for children´s *engagement* levels across each activity domain was calculated. In preliminary validation procedures, the original Q25 has provided satisfactorily valid scores of the intensity of weekly participation of children in daily activities in terms of distribution and accuracy, with estimates in line with previous literature. In addition, differences according to child characteristics (gender, grade, chronic condition, learning disabilities) showed a good level of sensitivity of the measure. Because the instrument is constituted by ordinal/categorical items that measure the intensity of children´s participation in different types of daily activities (multiple dimensions/constructs of daily life) and is not specifically measuring an underlying unidimensional construct, the Q25 short-form´s intensity scores presented an overall low Cronbach´s alpha of .53.

Child Well-being Outcomes

Children reported on their *health-related quality of life* using the KIDSCREEN-27 questionnaire (Ravens-Sieberer et al., 2007) consisting of 27 Likert-scales (e.g., from "never" to "always"). Three dimensions were included in the present study: a 5-item *physical well-being* dimension (α = .79, *M* = 2.94, *SD* = 0.65), a 7-item *psychological well-being* dimension (α = .86, *M* = 3.14, *SD* = 0.64), and a 7-item *social well-being* dimension (α = .70, *M* = 3.25, *SD* = 0.62). A score for each dimension was created by averaging the items, with a higher score representing higher levels of health-related quality of life. In addition, parents also reported on children´s *psychological adjustment* using the Strengths and

Difficulties Questionnaire (Goodman, 2001). A score for each *internalizing* (*M* = 3.54, *SD* = 2.94), *externalizing* (*M* = 6.52, *SD* = 3.51), and *prosocial behavior* (*M* = 8.87, *SD* = 1.57) indicator was computed by summing the corresponding 3-point items ("not true" = 0 to "very true" = 2), a higher score representing higher levels of each behavior (α = .74 for the 25 items).

Socioeconomic Variables, Family Adversity, and Family Adaptation

Parents provided information on the child´s *gender* (coded as girls = 1, boys = 2), *marital status* (married/civil union = 1, other = 2), *professional status* (employed full-time = 1, other = 2), and *educational level* (≤ high-school = 1, higher education = 2), using a sociodemographic questionnaire. Parents also reported on recent changes in the family´s socioeconomic situation and routines and the family´s coping behaviors during the lockdown/post-lockdown period. Using Likert-scales, parents characterized *socioeconomic change* using two items on parents´ professional situation ("a lot worse" = 1 to "much better" = 5) and family´s monthly income ("decreased a lot" = 1 to "increased a lot" = 5) (α = .85; *M* = 2.73, *SD* = 0.51). Items were averaged and then dichotomized representing a group of families with a positive or no change in their socioeconomic situation (positive/no change = 1; 62% of the sample) and a group where negative change and socioeconomic adversity were experienced (negative change = 2; 38%). A third item assessed *daily routines change* in the family ("changed completely" = 1 to "nothing changed" = 5), which was dichotomized to represent a group of families without alterations (no change = 1; 16%) and a group where alterations were experienced (change = 2; 84%). The remaining four items assessed *family adaptation* processes and coping strategies during this period. Using from "not at all" = 1 to "totally" = 5, parents reported on the efforts taken to manage emotions, improve social support and communication, establish a healthy routine adjusted to the child´s needs, and create opportunities for the development of new skills (α = .80; *M* = 3.08, *SD* = 0.67) (see Prime, Wade, & Browne, 2020). These items were averaged, and the measure was dichotomized by the median value representing different groups of families displaying lower (lower = 1, 37%) and higher (higher = 2, 63%) levels of adaptation.

Data Analysis

Descriptive statistics were calculated to describe sample characteristics and the study variables. Differences in the intensity of children´s participation in daily activities according to child gender, socioeconomic characteristics (marital status, professional status, educational level), and family adversity and adaptation (socioeconomic change, daily routines change, family adaptation) were analyzed with the Mann-Whitney test (for two independent groups). The mean rank for each group, the test statistic, statistical significance, and effect size (Cohen´s *d*) were calculated (Gignac & Szodorai,

2016). Then, due to non-normal distributions, associations between participation in daily activities, activity domain engagement, and child well-being outcomes were tested using Spearman´s rank correlation coefficients. Furthermore, a bootstrapping procedure was used in inferential analyses (i.e., differences, correlations) to calculate the bias-corrected accelerated (BCa) 95% confidence intervals for *p*-values, thus indicating the precision of the estimates and allowing a more robust assessment of the null hypothesis (Ruscio, 2008). Next, child gender, socioeconomic characteristics, and family adversity and adaptation dichotomic variables were correlated with child well-being outcomes using point-biserial correlations. This step helped identify the factors that were significantly associated with child outcomes to be included as control variables in the regression models. As a result, *gender*, *professional status*, *SES change*, and *family adaptation* were selected. Next, two multivariate regression models (maximum likelihood estimation method) were used to investigate the predictive influence of daily activities per domain of activities on each child outcome, controlling for the covariates previously described. In both models, the six daily activities from the *movement activities* domain and the *learning and socialization activities* domain were entered along with the covariates, respectively. Standardized beta coefficients, standard errors, statistical significance, and variance explained (R^2) are described. All statistical analyses were conducted on SPSS (Version 25) and AMOS (Version 25).

Results

Table 20 describes the intensity of children´s participation in daily activities and the engagement levels for each type of activity and activity domain. Overall, higher intensity activities encompassed *sleep*, *TV*, *gaming/internet*, *family meals*, and *school at home*. Activities with lower intensity included *physical activity*, *active play, socializing online, play*, *creative leisure, activity with parents*, and *household chores*. In addition, the activities with higher child engagement levels were *physical activity, active play*, *gaming/internet*, *TV*, and *family meals*. At the domain level, *movement activities* showed higher child engagement compared with *learning and socialization activities*. Statistically significant associations were found among daily activities (see Table 21).

The differences in the intensity of children´s participation in *movement activities* (Table 22) and *learning and socialization activities* (Table 23) according to gender, socioeconomic characteristics, and family adversity (daily routines and socioeconomic change) and adaptation are described. Both statistically significant results and effects sizes were considered in the analysis of these differences, as defined by Gignac and Szodorai (2016).

Gender differences indicated that girls spent more time in activities such as watching *TV*, *socializing online*, *play*, *creative leisure*, and *activity with parents* whereas boys spent more time in

physical activity and *active play*. Differences according to socioeconomic characteristics indicated that children from single-parent families spent more time in activities such as *physical activity*, *active play*, *socializing online, family meals*, *activity with parents,* and *household chores*, while children whose parents were married/civil union participated more in activities such as *school at home* and watching *TV*. In addition, children whose parents were employed full-time showed higher levels of participation in *physical activity*, *active play*, *socializing online*, and *activity with parents*, while children whose parents were in a more vulnerable professional situation invested more in watching *TV* and doing *household chores*. Children whose parents had higher education had a higher intensity of *sleep*, *physical activity*, *active play*, *socializing online*, and *activity with parents*, and lower intensity in *household chores* and *school at home*.

Differences regarding family adversity and adaptation were found, suggesting that children from families with a negative socioeconomic change spent more time watching *TV* and *gaming/internet*, and less time in *sleep*, *socializing online*, *play*, *creative leisure*, *family meals*, and *activity with parents*. In addition, children from families where daily routines changed spent more time watching *TV*, *sleeping*, and in an *activity with parents*, and less time *socializing online*. Children from families that presented lower adaptation levels spent more time in *sleep* and *gaming/internet*, and less time in *physical activity*, *active play*, *play*, *family meals*, and *activity with parents*.

Table 24 describes the correlations between the intensity of participation in daily activities, engagement levels, and child outcomes. Physical well-being was positively correlated with *physical activity* and *active play*. Psychological well-being was positively correlated with *play* and *active play* and negatively correlated with *household chores* and *gaming/internet*. Social well-being was positively correlated with the intensity of *activity with parents*, *physical activity*, *active play*, *socializing online*, and *family meals*. Prosocial behavior was positively correlated with *active play*, *TV*, *play*, *creative leisure*, *family meals*, *household chores*, and *school at home*. Internalizing behavior was positively correlated with *household chores* and negatively correlated with *play*. Externalizing behavior was positively correlated with *gaming/internet* and negatively correlated with *creative leisure* and *play*. In addition, *movement activities* engagement levels were positively correlated with psychological and social well-being and negatively correlated with internalizing and externalizing behaviors. Lastly, *learning and socialization activities* engagement levels were positively correlated with physical, psychological, and social well-being as well as with prosocial behavior and negatively correlated with externalizing and internalizing behavior.

Table 25 describes the results from the multivariate regression models. The predictive value of each daily activity was calculated considering the contributions of the remaining daily activities in each activity domain, controlling for the effects of the covariates (i.e., gender, professional status, socioeconomic change, family adaptation). In both models, the variance explained ranged between 9% (for psychological well-being) and 32% (for social well-being). Higher physical well-being was predicted by higher levels of *physical activity* and *family adaptation* and lower levels of *socioeconomic change*, while better psychological well-being was predicted by higher *sleep* and lower *household chores*. Better social well-being of the child was predicted by lower *socioeconomic change* and higher *family adaptation*. In addition, higher levels of prosocial behavior were predicted by higher levels of *TV* watching and *school at home*. Higher levels of internalizing behavior were predicted by lower *play* and *socializing online*, higher *household chores*, as well as *gender* (specifically, girls). Finally, higher externalizing behavior was predicted by higher *gaming/internet* and the *professional status* of the parent (other than employed full-time).

Table 20

Description of the Intensity of Children´s Participation in Daily Activities and Engagement Levels with BCa 95% CI

	Intensity				*Engagement*	
Activities	min.-max.(range)	*Mdn*	*M* (*SD*)	BCa 95% CI	*M* (*SD*)	BCa 95% CI
Movement						
sleep[a]	8-10 (2)	9.00	9.03 (0.60)	[8.92, 9.13]	2.33 (1.08)	[2.11, 2.54]
physical activity	0-10 (10)	3.00	3.50 (2.46)	[3.05, 4.00]	3.04 (0.85)	[2.87, 3.22]
active play	0-14 (14)	3.50	5.19 (4.65)	[4.32, 6.13]	3.29 (0.64)	[3.17, 3.41]
TV	0.25-14 (13.75)	10.50	9.14 (3.85)	[8.37, 9.88]	3.14 (0.68)	[3.01, 3.27]
gaming/internet	0.25-14 (13.75)	7.00	7.93 (4.23)	[7.07, 8.81]	3.27 (0.72)	[3.13, 3.39]
socializing online	0-14 (14)	2.50	3.64 (3.80)	[2.89, 4.37]	2.93 (0.78)	[2.78, 3.08]
domain level					3.00 (0.44)	[2.92, 3.08]
Learning/socialization						
play	0-14 (14)	1.88	3.13 (3.59)	[2.49, 3.84]	2.74 (0.66)	[2.62, 2.87]
creative leisure	0-14 (14)	2.50	3.57 (3.39)	[2.86, 4.27]	2.52 (0.85)	[2.35, 2.69]
family meals	2.5-14 (11.5)	7.00	7.13 (2.77)	[6.64, 7.65]	3.14 (0.74)	[3.00, 3.29]
activity w/ parents	0.25-14 (13.75)	3.75	6.53 (4.54)	[5.56, 7.49]	2.78 (0.68)	[2.66, 2.90]
household chores	0-14 (14)	3.50	3.56 (2.75)	[3.06, 4.15]	2.14 (0.94)	[1.94, 2.32]
school at home	4-25 (21)	15.00	16.30 (5.41)	[15.31, 17.35]	2.34 (0.82)	[2.19, 2.48]
domain level					2.60 (0.53)	[2.50, 2.69]

Note. [a] hours of sleep per night; BCa = bias-corrected accelerated.

Table 21

Correlation Coefficients Between Movement Activities and Learning and Socialization Activities

	1	2	3	4	5	6	7	8	9	10	11	12
1. *sleep*	–											
2. *physical activity*	-.02	–										
3. *active play*	.12	**.54****	–									
4. *TV*	.06	.09	-.11	–								
5. *gaming/internet*	.11	.04	**-.19***	.19	–							
6. *socializing online*	.04	.08	.08	.07	**.27****	–						
7. *play*	-.07	.10	.07	**.21***	-.001	.18	–					
8. *creative leisure*	-.02	-.09	-.16	.11	.05	.16	**.32****	–				
9. *family meals*	-.04	.09	.08	.01	-.16	.11	-.02	**.28****	–			
10. *activity w/ parents*	.13	**.21***	-.002	**.28****	.09	.17	**.23***	**.35****	**.31****	–		
11. *household chores*	.02	.13	.04	**.31****	-.08	.18	**.22***	**.30****	**.29****	**.30****	–	
12. *school at home*	**.19***	-.01	-.06	.19	-.18	-.002	**.21***	.19	.09	-.01	.14	–

Note. Statistically significant results on bold. Effect size parameters as defined by Gignac and Szodorai (2016) for *r*: 0.1 < r < 0.2 – small, 0.2 < r < 0.3 –moderate, r > 0.3 – large.
**p* < .05, ***p* < .01.

Table 22

Differences in the Intensity of Children´s Participation in Movement Activities According to Gender, Socioeconomic Characteristics, and Family Adversity and Adaptation

	Sleep		***Physical activity***		***Active play***		***TV***		***Gaming/internet***		***Socializing online***	
Gender												
girls	49.28	1113.50	44.93	976.50	43.02	**883.00***	57.91	**788.50****	50.23	1164.50	54.51	955.00
boys	47.69	0.06	52.22	0.26	55.98	**0.47**	41.09	**0.62**	48.77	0.05	44.49	0.36
Marital status												
married/civil union	42.47	362.50	40.56	292.00	41.95	361.50	44.42	334.50	42.75	420.00	40.66	**267.00***
other	38.95	0.10	51.45	0.31	49.38	0.21	34.38	0.29	44.50	0.05	57.25	**0.48**
Professional status												
employed full-time	42.98	601.50	44.98	537.50	47.28	**463.50***	41.99	482.00	44.64	645.50	46.78	498.50
other	45.34	0.08	38.29	0.22	34.39	**0.42**	53.63	0.38	43.97	0.02	36.24	0.34
Educational level												
≤ high-school	39.37	**730.00***	40.95	802.50	41.64	822.50	47.15	881.00	43.94	933.00	41.72	826.50
higher education	49.20	**0.40**	47.43	0.26	48.94	0.29	42.49	0.18	46.24	0.09	48.84	0.28
SE change												
positive/no change	45.97	784.50	43.17	846.00	45.18	925.00	42.92	820.50	42.99	824.50	47.04	823.00
negative change	40.77	0.20	45.36	0.08	44.71	0.02	48.25	0.21	48.25	0.20	41.71	0.20
Daily routines												
no change	33.86	369.00	47.39	463.50	41.54	476.50	30.43	**321.00***	50.32	450.50	52.25	423.50
change	45.95	0.36	43.35	0.12	45.65	0.12	47.72	**0.50**	44.01	0.18	43.65	0.24
Family adaptation												
lower adaptation	47.33	773.50	37.03	**657.00***	36.33	**638.00***	46.39	878.00	49.73	768.00	44.45	906.00
higher adaptation	42.06	0.20	48.05	**0.43**	50.11	**0.53**	44.18	0.08	42.21	0.28	45.32	0.03

Note. For each activity, the first column describes the mean ranks for each group and the second column describes the Mann-Whitney *U* and effect size (Cohen´s *d*). Statistically significant results on bold. Effect size parameters as defined by Gignac and Szodorai (2016), based on the conversion of *r* to *d*: 0.2 < *d* < 0.41 – small, 0.41 < *d* < 0.63 – moderate, *d* > 0.63 – large.
SE = Socioeconomic
*$p < .05$, **$p < .01$

Table 23

Differences in the Intensity of Children´s Participation in Learning and Socialization Activities According to Gender, Socioeconomic Characteristics, and Family Adversity and Adaptation

	Play		***Creative leisure***		***Family meals***		***Activity w/ parents***		***Household chores***		***School at home***	
Gender												
girls	56.98	**834.00****	53.78	991.00	46.57	1057.00	53.43	1008.00	50.58	1049.50	50.72	1091.50
boys	42.02	**0.55**	45.22	0.30	50.51	0.14	45.57	0.28	46.33	0.15	47.24	0.12
Marital status												
married/civil union	43.18	424.50	43.21	422.50	41.04	327.00	42.02	366.50	39.73	**232.50***	43.94	328.00
other	41.88	0.04	41.71	0.04	48.27	0.20	48.96	0.20	56.86	**0.50**	33.83	0.29
Professional status												
employed full-time	44.89	628.50	44.96	624.00	43.84	613.50	46.07	547.00	41.19	482.00	44.41	618.00
other	43.08	0.06	42.84	0.07	42.29	0.05	38.79	0.24	51.63	0.35	42.53	0.06
Educational level												
≤ high-school	45.46	962.00	44.68	968.50	45.53	872.50	39.06	**699.00***	46.49	828.50	47.09	842.00
higher education	44.46	0.04	45.38	0.03	42.28	0.13	51.95	**0.51**	41.21	0.21	41.54	0.22
SE change												
positive/no change	47.37	804.50	50.98	**606.00****	48.18	**665.50***	49.50	**687.50***	44.66	855.50	46.05	822.50
negative change	41.16	0.24	35.32	**0.62**	37.17	**0.43**	37.72	**0.49**	42.92	0.07	41.92	0.16
Daily routines												
no change	39.71	451.00	46.82	499.50	38.75	437.50	37.75	423.50	45.89	484.50	45.29	507.00
change	45.99	0.18	44.66	0.06	45.01	0.18	46.35	0.24	43.64	0.07	44.35	0.03
Family adaptation												
lower adaptation	40.94	790.00	43.83	885.50	39.08	722.50	40.15	764.00	43.30	857.50	44.09	894.00
higher adaptation	47.39	0.24	45.69	0.07	46.08	0.30	47.86	0.29	44.41	0.04	44.75	0.03

Note. For each activity, the first column describes the mean ranks for each group and the second column describes the Mann-Whitney *U* and effect size (Cohen´s *d*). Statistically significant results on bold. Effect size parameters as defined by Gignac and Szodorai (2016), based on the conversion of *r* to *d*: 0.2 < *d* < 0.41 – small, 0.41 < *d* < 0.63 – moderate, *d* > 0.63 – large.
SE = Socioeconomic
**p* < .05, ***p* < .01.

Table 24

Correlations Between the Intensity of Participation in Daily Activities, Domain Engagement Levels, and Child Well-being Outcomes

	Physical Well-being	***Psychological Well-being***	***Social Well-being***	***Prosocial Behavior***	***Internalizing***	***Externalizing***
Movement						
sleep	.10	.10	.06	-.05	-.001	-.07
physical activity	**.27****	.09	.17	.03	-.08	-.01
active play	**.23***	.01	.13	.11	-.17	-.07
TV	.06	.01	.01	.14	.12	-.05
gaming/internet	-.07	-.14	.00	-.05	-.04	**.22***
socializing online	-.09	.00	.14	.02	-.15	.05
engagement levels	**.25***	.14	.18	.10	-.15	-.12
Learning/socialization						
play	.11	.18	.07	.14	**-.21***	-.15
creative leisure	-.17	.09	-.07	.11	.01	**-.23***
family meals	-.05	-.04	.10	.11	.10	-.01
activity w/ parents	.06	.18	**.21***	.08	.09	-.06
household chores	-.09	**-.21***	-.02	**.21***	**.25***	.05
school at home	-.03	.02	-.03	**.30****	.08	-.06
engagement levels	**.21***	**.26***	**.25***	**.21***	-.18	**-.47****

Note. Statistically significant results on bold. Effect size parameters as defined by Gignac and Szodorai (2016) for *r*: 0.1 < r < 0.2 – small, 0.2 < *r* < 0.3 –moderate, *r* > 0.3 – large.
**p* < .05, ***p* < .01.

Table 25

Multivariate Regression Models Predicting Child Well-Being Outcomes per Domain of Daily Activities and Covariates

	Physical Well-being	**Psychological Well-being**	**Social Well-being**	**Prosocial Behavior**	**Internalizing**	**Externalizing**
	β (*SE*)	*β* (*SE*)	*β* (*SE*)	*β* (*SE*)	*β* (*SE*)	*β* (*SE*)
Movement						
sleep	.15 (0.10)	**.21 (0.11)***	.06 (0.10)	-.14 (0.27)	.07 (0.50)	-.09 (0.58)
physical activity	**.30 (0.03)****	.13 (0.03)	.14 (0.08)	-.15 (0.08)	.05 (0.14)	-.03 (0.17)
active play	.04 (0.02)	-.11 (0.02)	-.07 (0.02)	.14 (0.04)	-.12 (0.08)	.14 (0.09)
TV	-.02 (0.02)	.05 (0.02)	.05 (0.02)	**.26 (0.05)***	.10 (0.08)	-.16 (0.10)
gaming/internet	-.04 (0.02)	-.19 (0.02)	-.01 (0.01)	-.01 (0.04)	.03 (0.08)	**.30 (0.09)****
socializing online	-.17 (0.02)	.04 (0.02)	.03 (0.02)	.00 (0.04)	**-.24 (0.08)***	-.02 (0.09)
gender	-.16 (0.13)	-.07 (0.14)	.00 (0.12)	.02 (0.34)	**-.23 (0.63)***	.02 (0.73)
professional status	.12 (0.17)	-.09 (0.18)	-.12 (0.15)	.01 (0.44)	-.10 (0.80)	**.30 (0.92)****
socioeconomic change	-.14 (0.10)	-.03 (0.10)	**-.23 (0.09)***	-.10 (0.25)	.09 (0.45)	.06 (0.52)
family adaptation	.20 (0.14)	.07 (0.15)	**.39 (0.12)*****	.11 (0.35)	.12 (0.65)	-.09 (0.75)
model R^2	.22	.09	.31	.11	.14	.19
Learning/socialization						
play	.08 (0.02)	.11 (0.02)	-.03 (0.02)	.02 (0.05)	**-.29 (0.09)****	-.16 (0.10)
creative leisure	-.19 (0.02)	.05 (0.02)	-.15 (0.02)	-.12 (0.05)	-.02 (0.10)	-.13 (0.12)
family meals	-.03 (0.03)	-.02 (0.03)	-.01 (0.02)	-.01 (0.07)	-.06 (0.12)	-.00 (0.15)
activity w/ parents	-.00 (0.02)	.17 (0.02)	.12 (0.01)	.04 (0.04)	.15 (0.07)	.13 (0.09)
household chores	-.01 (0.03)	**-.26 (0.03)***	.04 (0.03)	.13 (0.07)	.20 (0.13)	.04 (0.16)
school at home	-.03 (0.01)	.03 (0.01)	-.01 (0.01)	**.33 (0.03)*****	-.03 (0.05)	-.06 (0.06)
gender	-.07 (0.13)	-.03 (0.13)	.00 (0.11)	-.04 ((0.31)	**-.28 (0.57)****	.08 (0.70)
professional status	.09 (0.17)	.02 (0.17)	-.11 (0.15)	.01 (0.40)	-.07 (0.75)	.21 (0.91)
socioeconomic change	-.20 (0.10)	-.06 (0.10)	**-.26 (0.09)****	-.04 (0.24)	.10 (0.44)	.08 (0.54)
family adaptation	**.21 (0.14)***	.06 (0.14)	**.37 (0.12)*****	.13 (0.34)	.12 (0.63)	-.13 (0.76)
model R^2	.12	.11	.32	.16	.18	.15

Note. Values are standardized beta coefficients and standard errors; statistically significant results on bold; $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. Control variables = gender, professional status, socioeconomic change, and family adaptation (all dichotomic).

Discussion

We aimed to investigate how children spent the Covid-19 lockdown and post-lockdown period and explore its child, family, and well-being correlates. The intensity and engagement with both movement activities and learning and socialization activities were described, the factors influencing different levels of participation were investigated, and the links between participation and child well-being indicators were examined. It was observed that children's participation rates in daily activities varied significantly across child and family characteristics, and, in turn, different participation levels were linked with child outcomes. The findings of the present study are focused on the effects of daily activities on child outcomes during the pandemic, considering the contributions of different ecological factors.

Regarding children´s participation in daily activities, our findings indicated a higher prevalence of sedentary behaviors (e.g., screen-time) and a lower prevalence of active leisure and playing activities. Recently, studies have confirmed this pandemic-related change characterized by a decline in physical activities and play and an increase in sedentary behaviors (i.e., screen-based activities) linked with a decrease in the proportion of children meeting the recommended guidelines for combined movement behaviors (Bates et al., 2020; Dunton et al., 2020; Guan et al., 2020; Moore et al., 2020; Pombo et al., 2021). A higher intensity of sedentary behaviors, particularly screen-time, coupled with lower levels of physical movement and stimulating activities (i.e., play, creative leisure, active play) may constitute a risk for the physical and mental well-being of children (Bates et al., 2020; Berntsson & Ringsberg, 2014; Kremer et al., 2014; Tsiros et al., 2017).

These findings indicate that the pandemic mitigation efforts might have had unfavorable collateral effects on child well-being and worsened pre-existing problems related to sedentary lifestyles (Pombo et al., 2021). Noteworthy, in the present study, children have shown higher motivation and interest when participating in active play and physical activities in their homes and communities. Our findings indicate that children´s positive engagement with an activity is an important predictor of individual participation in healthy activities, also predicting better levels of well-being. Social restrictions and the “stay at home” advice could have been balanced with a health promotion message directed at children and their parents (Moore et al., 2020).

Concerning the factors that influenced different participation levels in daily activities, boys exhibited a more active profile while girls presented a playing- and socializing-oriented profile. This is in line with recent studies that have reported that during the lockdown girls were more physically inactive and engaged more in social activities than boys (Dunton et al., 2020; Guerrero et al., 2020; Moore et

al., 2020). On the one hand, girls may be at higher risk as a result of spending less time in active leisure; on the other hand, they could develop new skills and coping mechanisms in a time of crisis as they were more involved in learning and socialization experiences, as compared to boys. However, in our study, we found that girls showed higher levels of internalizing behaviors, and this constitutes a risk for child well-being worthy of further attention. To be effective, interventions should target these gendered differences. Our findings also suggest that children whose families were in a more vulnerable situation during this period (e.g., lower socioeconomic status, family adversity, lower adaptation) exhibited a more sedentary/low-stimulation profile characterized by lower levels of active leisure, decreased playing and socializing activities, and higher screen time. Besides constituting a disadvantage in a healthy adaptation to the sanitary crisis, these differences indicate that the pandemic´s impact was not equal for all children. These findings may reflect pre-existing differences and are in line with previous research on social inequalities and health behaviors (Currie et al., 2012; Inchley & Currie, 2012), thus corroborating the existence of health and developmental disparities between social groups during the pandemic (González et al., 2020; Guerrero et al., 2020; Moore et al., 2020). Therefore, it is crucial to call for effective interventions that promote healthy routines and lifestyles and, particularly, support families with lower internal and external resources in the protection of their children´s well-being.

Regarding the effects of daily activities on child outcomes, correlation results indicated that playing and learning activities were linked to lower behavioral problems, active leisure was positively associated with physical well-being, and socialization and family activities were linked to better social well-being. However, these associations are complex and other ecological factors may influence the links between time use during the pandemic and child outcomes. Findings from the regression models, that considered the different effects of daily activities while controlling for important covariates, provided a more fine-grained view of this relationship. Overall, findings indicated that sleep, active leisure, and family adaptation strategies contributed positively to the physical and psychological well-being of the child and playing and socializing activities, as well as gender (i.e., boys), predicted lower levels of internalizing behaviors. Noteworthy, lower levels of experienced socioeconomic adversity and higher levels of adaptation strategies from families were particularly linked to better social well-being. Also, screen time activities showed distinct effects on child outcomes: watching TV predicted better prosocial behavior and socializing online predicted lower internalizing behaviors, however, gaming/internet was linked to higher externalizing behaviors. In addition, household chores predicted lower psychological well-being and higher internalizing behaviors, and a more vulnerable professional status of the parent

was linked to externalizing behaviors. As expected, a few daily activities (e.g., activity with parent) lost their predictive value when controlling for the effects of other activities and factors. Although the magnitude of these associations was small to moderate, it is consistent with previous studies that reported the positive effects of playing, learning, and socializing activities (Crosnoe & Trinitapoli, 2008; Lam et al., 2012; McHale et al., 2001), and the negative effects of household chores and screen time (Kremer et al., 2014; Lam et al., 2016; Tsiros et al., 2017). Patterns of daily activities characterized by frequent physical activity, low sedentary behavior, and higher involvement with stimulating activities (i.e., playing, socializing, productive/active leisure) have been consistently associated with better health and quality of life in children (Berntsson & Rinsberg, 2014; Wong et al, 2017). Also, factors such as the experienced socioeconomic adversity and the families´ coping strategies emerged as significant predictors of child well-being and should be considered as targets of effective interventions.

Furthermore, parents´ ability to adjust family routines and activities to children´s needs amid adverse environmental constraints and adversity is crucial (Moore et al., 2020). Engaging in activities with parents was associated with higher participation rates in other relevant activities (e.g., play, physical activity, creative leisure, meals). Children from families with higher levels of adaptation effectively showed healthier activity patterns, with implications for their well-being. It suggests distinct family coping strategies but also the active role of parents in supporting their children´s participation in positive patterns of activities (Berntsson & Ringsberg, 2014; Lam & McHale, 2015b; Lam et al., 2012; Moore et al., 2020). Indeed, Guerrero et al. (2020) have found that parental perceived ability to support and guide child activities is a good predictor of children meeting movement activity guidelines, and Moore et al. (2020) have highlighted that parental co-participation is an essential factor in the promotion of healthier activity patterns. For example, children whose families reported a relevant change in their daily routines spent more time watching television, sleeping, and in activities with parents, suggesting that this might have been an adaptation strategy for a significant proportion of families during the lockdown. In addition, as a mitigation effort during this period, children attended school lessons through a home-based distance-learning model. Expectedly, a significant proportion of families have used these available educational resources, observable by the high intensity of television viewing and studying at home activities (encompassing television lessons, interactions with teachers, and homework), which may have contributed to the additional screen time observed (Dunton et al., 2020). The investment in these activities reveals families´ different strategies implemented to adjust to school closures and maintain a predictable and structured routine. For other families, this might have been a way to balance their lower access to educational resources in a context where learning gaps

became notorious (see Van Lancker & Parolin, 2020). Time dedicated to school activities (via television and other platforms) might have helped improve children´s academic competence and prevent learning loss; however, this could have happened at the cost of other important activities such as sleep, physical activity, or family leisure (see Zhang et al., 2017). Time invested in academic activities has been linked to better competence but also higher stress and poorer mental health in children (Brown et al., 2011; Zhang et al., 2017). Conversely, a constructive use of social and dyadic time with parents has been associated with better competence and psychosocial adjustment (Crosnoe & Trinitapoli, 2008; Lam et al., 2012; McHale et al., 2001), thus constituting an asset for children during the pandemic.

The identification of these different participation profiles linked to child and family characteristics and child outcomes may help detect well-being risks and identify promising avenues for future effective intervention strategies. In general, our study indicates the need to improve the knowledge on the effects of different patterns of daily activities on children´s well-being and adjustment during a health and social crisis and its underlying mechanisms. The magnitude of the impact of social isolation and school closures on child well-being is still emerging (Larsen, 2021). Our findings suggest an important avenue for promoting child well-being: the regulation of daily activity patterns by intervention strategies that bring together child, family, school, and community efforts (see Wong et al., 2017). There is a need to assess effective strategies, at the family and community levels, that facilitate the substitution of sedentary leisure for active and stimulating leisure pursuits. These strategies should promote predictable daily routines and facilitate higher investment in stimulating activities and family quality time, particularly among those who are socially vulnerable (Moore et al., 2020; Pombo et al., 2021). These efforts may be challenging in the context of social isolation, uncertainty, and disruption of families` everyday lives; however, small effective changes could protect and promote child well-being in the present and future (Bates et al., 2020). Here, parental co-participation and the ability to creatively influence children´s daily activities are crucial elements. Noteworthy, children´s engagement with activities was indicative of better overall well-being. This bidirectional relationship also suggests the importance of positively involving and motivating children for participating in positive and constructive activities, thus enhancing the health and developmental gains of those activities. Finally, several recommendations warranting immediate action to protect children, especially vulnerable ones, from the downside of the pandemic have been issued and constitute a valuable resource for professionals and policymakers, but also for families and communities (see Guan et al., 2020; Margaritis, 2020; Miranda et al., 2020; Prime et al., 2020; Shah, 2020; Wang et al., 2020).

The present study has several limitations. First, the study design and sampling do not allow for the generalization of our findings and impede the inference of causality. For example, the distribution of parents´ professional and educational status was higher in our sample than in the population, which may have biased the results (e.g., the underrepresentation of low-income families may hinder the negative impacts of the pandemic). Second, missing values, social desirability, and recall bias (i.e., self-report) may have influenced our findings. Third, we have not controlled for the increase of the familywise error rate across our results, but we have used a robust approach that included the calculation of 95% CIs for *p*-values coupled with a focus on the description of effect sizes. Nonetheless, the findings presented here are generally in line with recent literature, and the use of bootstrapping procedures and multivariate regression models strengthened their validity. In addition, we have presented a multidimensional assessment of child well-being outcomes and included a wide range of daily activities that better portray children´s everyday lives during the pandemic, and to our knowledge, this is one of the few studies to do so.

Conclusion

This study provided an outlook on how children spent the Covid-19 lockdown and post-lockdown period and explored its child, family, and well-being correlates. Risks for child well-being were found regarding sedentary and low-stimulation profiles, particularly in socially vulnerable children, but also protective factors regarding active, stimulating, and adaptive family behaviors; thus, opportunities for intervention were identified. A deeper understanding of the effects of daily activities on child outcomes and its ecological correlates could guide intervention studies on the most effective ways to protect child well-being and development in the present and future crises.

Study 5

Portfolios and Patterns of Daily Activities as Elements of Positive Development during Middle Childhood

Abstract

Children's well-being, social competence, and psychological adjustment are key indicators of current and future health. These positive outcomes are, to some extent, the result of everyday developmental experiences provided by families, schools, and communities in the form of daily activities. However, little evidence is available concerning the complex links between concurrent participation in sets of structured and less-structured activities and positive outcomes during middle childhood. Using an ecological approach, the present study examined the complex links between quantitative and qualitative dimensions of time use and child well-being and development. We provide a comprehensive and ecologically valid description of these links, contributing to a better understanding of how time use constitutes a relevant developmental phenomenon. In particular, we examined: (i) the contribution of different profiles (portfolios and patterns) of daily activities to child well-being and developmental outcomes; (ii) the qualitative influences of daily activities on child outcomes; and (iii) the interacting quantitative and qualitative aspects of time use which affect their positive development. Based on cross-sectional, multi-informant (child, parent, teacher) data from a sample of Portuguese 3rd to 6th graders (n = 353), the present study expands on previous research by integrating variable- and person-centered ecological analysis of daily activities. Findings indicate that children´s multidimensional profiles of participation in daily activities are independently linked to child well-being and developmental outcomes, and that these links are complex; the quality aspects of participation are strongly associated with better child outcomes; and, the interacting quantitative and qualitative aspects of time use predict child well-being and development. An ecological developmental perspective of children´s everyday life is necessary and useful to disentangle how different aspects of time use constitute a developmental phenomenon with implications for children´s well-being.

Keywords: ecological contexts; person-centered analysis; time use; well-being

Introduction

Children's ability to exhibit social competence and psychological adjustment are key indicators of current and future health and adaptive behavior (Huston & Ripke, 2006a). These positive outcomes are, to some extent, the result of the everyday developmental experiences provided by their families, schools, and communities in the form of daily activities and overall time use (Larson & Verma, 1999). The daily activities of school-aged children can be construed as proximal processes occurring in diverse microsystems. This daily participation is expected to shape, and be shaped, by child development, in which change is rooted in children's multilayered social and cultural ecology. However, there is still little evidence concerning the complex links between different profiles of participation in daily activities, the multilayered ecology in which these profiles are embedded, and positive child outcomes during middle childhood. This study aims at assessing the potential of time use quantities and qualities in the enhancement of child well-being and development by looking at a wider set of structured and less-structured care and leisure activities occurring within the ecology of the child.

Previous research has focused on the description of single, specific categories of daily activities (e.g., extracurricular activities), overlooking the concurrent interplay of effects of different daily activities and their multidimensional patterns of organization on children´s healthy and positive development. Results from these types of analysis can differ across individuals in the sample, and the findings reported on an aggregate level may provide a limited perspective of individual differences (i.e., ecological fallacy) (Zarrett et al., 2009). Time spent in each activity setting can have different effects when considered in isolation instead of examining its simultaneous effects, both in the form of portfolios (participation in sets of activities) and patterns (aggregate, intensity-specific combinations of daily activities). Specific structured and less-structured activities can add to improve child outcomes while others can be detrimental. Some activities may also buffer the negative effects of others. Researchers should consider the broader context of daily participation in which the developmental importance of one activity is interrelated with participation in other activities (Zarrett et al., 2009). Better child outcomes may be linked to combinations of home and out-of-home leisure activities that complement each other, providing a variety of opportunities to develop skills and relationships, and improve health and well-being. In contrast, less-participative, low-stimulation profiles that may result in poorer outcomes for children (Vandell et al., 2020). As Zarrett et al. (2009, p.378) put it: "more is better, but not always for all individuals in all circumstances".

In a study that examined a wide range of daily activities (e.g., tutoring, leisure reading, sports, screen time) from a sample of 7th and 9th graders, Hu and Mu (2020) found that homework was related

to better school performance and higher depression, and that sports correlated with higher well-being scores. Additionally, they found that tutoring and screen time were associated with worse educational and well-being outcomes. The authors suggest that a balanced time allocation of daily activities may benefit overall child development as opposed to a high investment in screen-based or achievement-oriented, stress-inducing activities. In other research on children´s well-being, socioeconomic status, and after-school leisure activities (Kennewell et al., 2022), including measures for 12 different daily activities occurring in different settings (e.g., youth organizations, sports, homework, social media, chores), the authors found that for low-SES children, participation in sports, homework, reading, and spending time with friends predicted better well-being outcomes, compared with sedentary time (screen time) which was linked to poorer well-being. Such a holistic approach can prove very useful in understanding how time use constitutes a developmental phenomenon.

Additionally, most previous research has focused on after-school leisure activity settings separately. Here, a person-centered approach is more valuable in comprehensively describing children´s lives by representing different profiles of participation in a variety of activities happening in different settings. For example, several researchers have successfully applied patterned person-centered approaches to understand how different profiles of extracurricular participation are linked to child development and well-being. In a study focusing on extracurricular activities by Oberle et al. (2019), four distinct participation profiles were reported, with higher well-being scores being found for *all activities* and *sports* profiles compared with the *no activities* and *individual activities* profiles. Zarret et al. (2009) also found six participation profiles in a study focusing on how sports participation relates to other after-school activities: the *sport-only*, the *high-engaged*, the *sport-youth development program*, the *sport-performing-art*, the *sport-religion*, and the *non-sport*. Overall, the *high-engaged* youth and those highly involved in *sports and youth development programs* were doing better than the remaining profiles in indicators of functioning. Similarly, Linver and colleagues (2009) found five different clusters of organized activity participation (*sports-focused*, *sports plus other activities*, *school-based activities*, *religious youth groups*, and *low activity involvement*) in which those who participated in *sports plus other activities* presented more positive outcomes in youth development. Using a low-income sample, Morris and Kalil (2006) compared achievement and behavior outcomes in relation to five clusters of after-school participation: *high clubs*; *high sports*; *low sports, lessons, and clubs*; *high sports and clubs*; and *high sports, lessons, and clubs*. Participation in a combination characterized by sports, lessons, and clubs was associated with better outcomes for children (achievement and prosocial behavior) than for children with low participation. Additionally, Badura et al. (2015) identified five clusters (*all-rounders*,

artists, *individual sports*, *team sports*, and *inactive*) in which the more *active* clusters were more likely to report excellent health and higher life satisfaction compared to the *inactive* cluster.

However, most research has been generally focused on organized activity participation as a context of positive development, thus excluding other daily activities and settings that may contribute equally to child outcomes and that also constitute relevant components of children´s care and leisure time. We conceptualize such time use profiles in terms of common patterns of activities and experiences, encompassing structured and less-structured activities, developed in home, school, and community settings with a diversity of peers and adults. In a study by Bartko and Eccles (2003), measuring adolescent participation in 11 structured and less-structured daily activities, a total of six clusters were found: *sports*, *school*, *uninvolved*, *volunteer*, *high-involved*, and *work*. The *high-involved* cluster (high participation in all activity settings) showed a positive adjustment in all indicators, similar to the *school* cluster (involvement in school-based activities such as clubs and homework). Conversely, the *uninvolved* cluster had low academic performance and higher problem behaviors. Vandell and colleagues (2020) found four different clusters of children using seven indicators of after-school time use (e.g., home alone, sports, ASP). They reported that children attending high-quality after-school programs (*program only*) and those that complemented program participation with other extracurricular activities (*program+activities*) showed better achievement and fewer problem behaviors compared with the *unsupervised+activities* cluster (higher levels of less-structured, unsupervised leisure time). Interestingly, they found that the *all low* activity group of children did not differ significantly from the better performing groups. They argue that these children could be spending their leisure in supervised, quality family time, as they were more likely to be in two-parent households and less likely to have full-time employed mothers. In another study (Park & Zhan, 2017), the authors examined how after school childcare arrangements were linked to academic and behavioral outcomes of low-income children (ASP, *relative care*, *parental care*, *self-care* and *combinations of care*). They found that compared to children in ASPs, those in parental care had better academic performance and behavioral outcomes. Sauerwein et al. (2016), using both indicators of school-based extracurriculars and out-of-school leisure activities, identified five patterns of time use: *out-of-school*, *highly active*, *culturally-oriented*, *jocks* (sports), and *less active*. *Culturally-oriented* youths, characterized by engaging in cultural activities (e.g., reading, music), doing sports, socializing with friends, and being less involved in screen time, presented better grades and higher levels of prosocial and cooperative behavior in Grade 5 and better prosocial behavior up to Grade 7. Conversely, the *out-of-school* (highly involved in out-of-school leisure activities) and *highly active* (high participation in both school-based extracurricular activities and leisure activities) students

reported poorer outcomes. Also, in a recent study focused on children´s movement behaviors, Wong et al. (2017) found four different clusters: *studious actives*, *techno-actives*, *stay home screenies*, and *potterers*. The *studious actives* (high PA, low screen-time) scored higher on physical/psychosocial health than *potterers* (low PA, moderate screen-time) while the remaining clusters showed intermediate values. These findings are supported by previous literature, in which lower physical activity and sleep and higher screen-time profiles have been linked to suboptimal mental health (Zhang et al., 2017). Finally, in an international study developed in 18 countries, which compared the time use patterns of children including nine structured and less-structured leisure activities (Ahn & Yoo, 2022), the authors found that children who actively engage in a diversity of daily activities (*overall high activity group*) consistently show better satisfaction with their lives and with their time use compared with groups characterized by low participation or high involvement with screen time activities. Additionally, worse child outcomes have been found for unstructured activity profiles linked to feelings of loneliness, disappointment, and isolation (Bohnert et al., 2008). For example, more passive, unstructured activity profiles and experiencing alienation during discretionary time have been associated with depressive symptoms (Bohnert et al., 2009).

Furthermore, the quantification of participation is incomplete without a description of the structure, social context, meanings, motivations, and goals that are the components of the involvement with any daily activity (Larson & Verma, 1999). Recent research has found evidence for the importance of including process measures in time use models such as the psychological safety of activity settings, the social climate and effectiveness of social interactions, as well as the opportunities for skill building and growth provided (Kataoka & Vandell, 2013; Smith et al., 2014). In a study about extracurricular participation and achievement (Schuepbach, 2015), the author found that the intensity of attendance and the quality of extracurricular activities (e.g., health and safety, interactions, program structure) contribute to better achievement. The quality of after-school extracurricular and youth program participation has also been linked to better developmental outcomes in previous literature (Liu et al., 2021; Smith et al., 2017; Wade, 2015), where an appropriate structure, supportive environment, and engaging, positive interactions prove to be most beneficial. Similarly, the home environment, where many daily activities occur, is expected to be critical to the developmental effectiveness of child time use (Fomby & Musick, 2018). However, the quality of children´s experiences in activities has rarely been studied. There is a need to understand the developmental effectiveness of the quality of daily experiences that occur in such diverse activity settings.

Research must go beyond the frequency and intensity of participation and disentangle how the quantities and qualities of time use interact to promote child well-being and development. Activities may have different roles according to their specific features and the ecological settings where they occur, as well as the characteristics and background of the child. Quantity and variety seem to matter, but the quality aspects of activities may also play an essential role in promoting positive outcomes. More information is needed regarding the processes by which family, school, and community environments operate (Huston & Ripke, 2006b). Processes are key elements comprising the interactions with significant others (e.g., mentoring, regulation, support, meaning-making), the settings where activities ensue (e.g., goals, resources, organized versus disorganized), and growth opportunities (e.g., engaging, challenging, increasingly complex) (Larson et al., 2004). However, there is still a lack of information on the quality effects of school and community settings and how activity settings help shape children's daily lives, their experiences, and ultimately their positive outcomes (Huston & Ripke, 2006b). Thus, the positive development of children can be better understood through a framework that includes the various dimensions of participation, particularly the examination of how the quantities and qualities of participation affect child outcomes (Larson, 2001; Larson & Verma, 1999).

Present study

Guided by the bioecological perspective (Bronfenbrenner & Morris, 1998; Darling, 2007) and drawing from the previous literature, the present research aimed at disentangling the positive developmental effects of the quantities and qualities of time use by integrating variable- and person-centered approaches to the study of children´s participation profiles in both structured and less-structured daily activities. In addition, the examination of positive development during middle childhood is based on a perspective focused on qualities and strengths rather than deficits. Therefore, we include four adjustment indicators as core areas of healthy and positive functioning: well-being, psychosocial adjustment/adaptive behavior, social competence and achievement. Since specific daily activities can play a role in preventing problem behaviors whereas other activities may represent a source of less-than-optimal experiences linked to maladjustment (e.g., internalizing, externalizing behavior), problem behaviors were also included for comparison purposes.

In short, the present study aimed to examine the positive developmental effects of both quantitative (structure of activities in the form of portfolios and patterns) and qualitative (environment quality and process level) aspects of children´s time use. The following questions guided the analyses:

1) How do different profiles (portfolios and patterns) of daily activities, occurring at home, school, and community, influence children´s well-being and developmental outcomes?

2) How are qualitative aspects of daily activities (child participation, family environment, and school / community environment quality) linked to better child outcomes?
3) How do quantitative and qualitative aspects of children´s time use interact to effect their positive development?

Methods

Participants and Procedures

The sample of this study comprised 3rd to 6th Graders (n = 362), aged between 8 and 13 years old (M = 9.69, SD = 1.28), 58% of whom were girls. Children had a chronic health condition in 10% of the cases (e.g., respiratory, allergies, hearing/vision) and a learning disability in 8% of the cases (e.g., dyslexia, attention-deficit). Parents, of which 86% were mothers, were married or in a civil union in 88% of the cases, 47% had higher education, and 81% were employed full-time. The family typology included single parent families (10%) and nuclear/reconstituted families (90%).

Measures

Dependent Variables

Child-, parent-, and teacher-report measures were used to assess child well-being and developmental outcomes. The child-reported KIDSCREEN-27 (Matos et al., 2012; Ravens-Sieberer et al., 2007) questionnaire comprises 27 Likert scales that assess the child´s subjective health in five dimensions: physical well-being, psychological well-being, parent relations and autonomy, social support and peers, and school environment. Three averaged scores were used in the present study: *physical well-being* (M = 4.19, SD = 0.64), *psychological well-being* (M = 4.32, SD = 0.62), and a total *health-related quality of life* (*HRQOL*) score (M = 4.31, SD = 0.48). The *HRQOL* and *psychological well-being* scores were highly kurtotic and were treated by standardizing the scores and eliminating extreme values (five cases). The parent-reported SDQ (Goodman, 2001) was used to assess several dimensions of children´s psychological adjustment. Respondents used a 3-point Likert-type scale to indicate how each behavior applies to the child (from "not true" = 0 to "certainly true" = 2) in each of the 25 items. Three scores were integrated in the analyses: *prosocial behavior* (M = 8.96, SD = 1.41), *internalizing behavior* (M = 4.12, SD = 3.16), and *externalizing behavior* (M = 5.95, SD = 3.41), a higher score representing higher levels of each behavioral dimension. In addition, the teacher-reported adaptive functioning section of the TRF (Achenbach et al., 2014) provided information on *school achievement* (six Likert scales; from "far below the class" to "far above the class") and *adaptive behavior* (four 7-point Likert-type scales; from "much less" to "much more" about work, behavior, learning, and happiness). These scores were used in the analyses: *school achievement* (M = 3.59, SD = 0.83) and *adaptive functioning*

(*M* = 19.07, *SD* = 3.96). Teachers also reported the *learning difficulties* status of the child (1 = yes, 2 = no). More detailed information on these measures is found on Chapter 2 Methods.

Independent Variables

Quantitative Indicators of Time Use. The Q-25 (Oliveira, Martins, & Carvalho, 2019) uses a holistic approach in the measurement of children´s daily activity participation. It includes a comprehensive set of activities, and measuring its weekly intensity of participation, the child´s engagement levels in each type of activity, and the process-level quality of environments where activities ensue (for details see Chapter 2 Methods and Chapter 3 Study 2). In the present study, seven categories of daily activities were used as quantitative indicators of time use (i.e., weekly hours), encompassing: *play time* (*M* = 5.94, *SD* = 4.78), *family time* (*M* = 14.87, *SD* = 6.10), *screen time* (*M* = 11.05, *SD* = 6.25), *PA* (*M* = 9.01, *SD* = 5.09), *OA* (*M* = 7.58, *SD* = 6.27), *homework* (*M* = 5.96, *SD* = 3.75), and *school free time* (*M* = 5.58, *SD* = 2.77). These scores were standardized for the cluster analysis described below.

Qualitative Indicators of Time Use. The average engagement levels across each category of daily activities were evaluated by the Q-25 (Oliveira, Martins, & Carvalho, 2019). It included *play time engagement* (*M* = 2.93, *SD* = 0.68), *family time engagement* (*M* = 3.10, *SD* = 0.59), *screen time engagement* (*M* = 3.16, *SD* = 0.67), *PA engagement* (*M* = 3.26, *SD* = 0.61), *OA engagement* (*M* = 2.99, *SD* = 0.70), *homework engagement* (*M* = 2.63, *SD* = 0.84) and *school free time engagement* (*M* = 3.43, *SD* = 0.67). The FES (Moos & Moos, 1986; Matos & Fontaine, 1992) was used to assess parents´ perceptions of their families´ social, environmental, and relational characteristics (*family environment*), namely, the home environment variables *cohesion* (*M* = 8.19, *SD* = 1.33) and *organization* (*M* = 8.06, *SD* = 1.40), and the family cultural orientations, *achievement* (*M* = 5.53, *SD* = 1.69), *intellectual-cultural* (*M* = 5.48, *SD* = 2.12), and *active-recreational* (*M* = 6.20, *SD* = 1.79). In addition, the Q25 also provided averaged scores of the *quality of the environment* at *school* (*M* = 2.78, *SD* = 0.71), *sports* (*M* = 3.19, *SD* = 0.66), and *OA* (composite score of all types of OA) (*M* = 3.09, *SD* = 0.62) settings. Here, the child–parent dyad used a 5-item measure (Likert-scales ranging from "not at all" = 0 to "totally" = 4) to assess the developmental quality features of each environmental setting where activities occur, namely, the dimensions of physical and psychological safety, structure, social support, positive and inclusive social norms, and stimulating skill building experiences (see Eccles & Gootman, 2002). More detailed information on these measures is found on Appendix 2.

Covariates

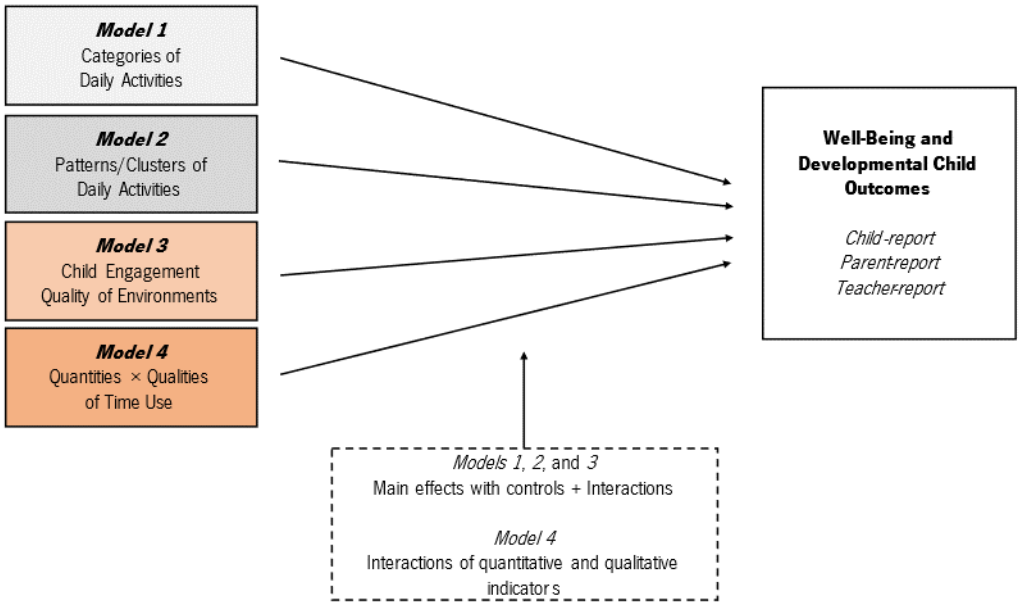
The sociodemographic questionnaire provided information on the child´s age of the child (8-13 years), gender (coded as girls = 1, boys = 2), pre-adjustment levels (*M* = 3.72, *SD* = 0.75), parental educational level (from 1 = lower than 4th grade to 9 = PhD; *M* = 5.69, *SD* = 1.63) and marital status (married/civil union = 1; single/other = 2). In addition, the *learning difficulties* status of the child was provided by teachers (yes = 1; no = 2).

Analytical plan

All analyses were conducted using SPSS (Version 28) and PROCESS (Version 4.1). A conceptual analytical model was created to guide the examination of the relationships among our variables of interest (Figure 6). First, the individual links among DA, the covariates, and child outcomes were tested through correlation analysis. Next, in Model 1, the multiple concurrent effects of DA on child outcomes were investigated through a set of multiple linear regression models with the *backward* method using strong controls and probing for interactions. In Model 2, as a result of the integration of the younger and older samples in a full sample and the shared commonalities reported among clusters in Study 2, a new cluster analysis was performed following the steps previously described (see Chapter 2 Methods and Study 2). Specifically, we followed three steps to identify heterogeneous groups of children who share homogeneous patterns of daily activities. The standardized weekly intensity of participation scores (play time, PA, screen time, family time, OA, homework, and school free time) were entered in a hierarchical clustering technique (Ward´s method with a squared Euclidean distance measure). The visual organization of the dendrograms and the coefficients in the agglomeration schedules indicated a five to six cluster solutions. It was followed by an iterative non-hierarchical *k*-means analysis applied to the cluster solutions suggested in the previous step. After 9 iterations, the six-cluster solution was stable and theoretically adequate for further analysis. Analysis of variance and chi-square tests were performed to examine cluster differences across DA and covariates. In Model 3, we investigated the links between the qualitative indicators of time use and child outcomes, probing the effects of child engagement, family environment, school environment, sports environment, and OA environment, by using correlation and multiple linear regression (*backward* method) analyses. In Model 4, the interacting quantitative and qualitative indicators of time use were tested by investigating how the links among portfolios and patterns of participation (quantities) and positive child outcomes are moderated by the qualitative aspects of participation. Effect sizes (Cohen´s d) are reported in the four tested models.

Figure 6

Conceptual Analytical Model



Results

The associations among categories of DA, covariates, and child outcomes were examined by calculating Pearson and point-biserial correlation coefficients (see Table 26). The results indicated that play time was positively associated with both HRQOL and internalizing behavior, and family time was associated with higher prosocial behavior and lower externalizing behavior. In general, screen time intensity was linked to poorer well-being and developmental outcomes, and OA intensity was associated with lower school achievement and adaptive functioning, and higher internalizing behavior. Conversely, PA was associated with better well-being and school achievement. Homework intensity correlated positively with prosocial behavior and adaptive functioning, but also with internalizing behavior. School free time was linked to better well-being outcomes and lower internalizing behavior. Additionally, we explored the effects of both OA *intensity* and *breadth* (number of OA types in which the child participates; range: 0 - 5) of participation with the latter not being significantly associated with the dependent variables and thus dropped from further analysis. Because OA participation intensity was associated with poorer outcomes, including internalizing, school achievement, and adaptive functioning, we further investigated the links between the specific types of DA (dichotomic) that integrate the OA category (i.e., participation vs. non-participation). We found that *tutoring* was associated with overall

poorer outcomes, and *EA* and *YG* participation was linked to better outcomes (as reported in Table 26). All covariates significantly correlated with at least two child outcome indicators. Additionally, child age significantly correlated with play time, r = -.15, p = .004, PA, r = .15, p = .007, screen time, r = .31, p < .001, OA, r = -.17, p = .001, homework, r = .23, p < .001, and school free time, r = -.37, p < .001; gender correlated with PA, r = .12, p = .031; pre-adjustment correlated with homework, r = .19, p < .001; learning difficulties correlated with PA, r = .16, p = .014, screen time, r = -.19, p = .004, OA, r = -.27, p < .001, and school free time, r = .15, p = .021; parent education correlated with PA, r = .17, p = .002, screen time, r = -.23, p < .001, OA, r = -.19, p < .001, homework, r = -.21, p < .001, and school free time, r = .17, p = .002; and marital status correlated with screen time, r = .14, p = .016, and homework, r = .12, p = .039.

Based on the previous correlational analysis, in Model 1, we investigated the concurrent effects of the seven categories of DA using multiple linear regressions that integrate strong controls into the models (i.e., the covariates that significantly correlated with each outcome were entered in each regression model). The focus was on identifying independent, above and beyond, effects of DA intensity of participation on child outcomes. The effects of the remaining predictors in the final re-estimated model step of the regression analysis and explained variance are displayed in Table 27. PA levels predicted better well-being and achievement compared with screen time and OA participation which predicted poorer outcomes. Play time predicted higher internalizing and externalizing behaviors, and family time predicted higher prosocial behavior but lower school achievement. Homework predicted higher prosocial behavior and adaptive functioning. When controlling for the remaining variables, school free time lost its predictive value. Here, the effects of covariates were in the expected directions, with the increase of age predicting lower levels of psychological well-being, HRQOL, and prosocial behavior, with gender (boys) predicting lower internalizing behavior, and with pre-adjustment levels predicting overall better child outcomes. In addition, parent educational level predicted prosocial behavior and achievement and lower problem behaviors, and marital status (single-parent) was predictive of lower achievement and adaptive functioning, and higher externalizing behaviors.

Based on the previous regression analyses, we investigated moderation effects by testing the possible interactions between DA and the covariates using PROCESS (Hayes, 2022). Moderation analyses were performed controlling for the effects of the predictors and moderators (statistically significant covariates). Results indicated that the negative effects of screen time on adaptive functioning were stronger for children with high levels of pre-adjustment, β = -.11, p = .033, d = 0.57 (Figure 7). The remaining moderation effects were statistically non-significant.

Figure 7

Slopes of Screen Time Predicting Adaptive Functioning for Lower, Moderate, and Higher Pre-Adjustment

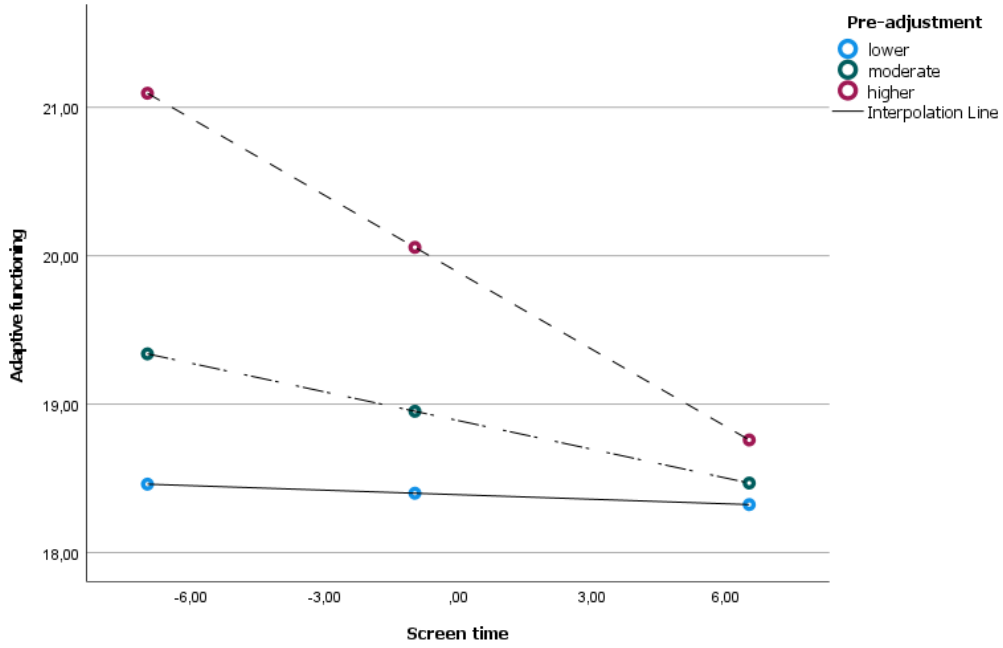


Table 26

Correlation Coefficients between Quantitative Indicators of Daily Activities, Covariates, and Child Outcomes

	Child-report (KIDSCREEN-27)			Parent-report (SDQ)			Teacher-report (TRF)	
	Physical WB	*Psychological WB*	*HRQOL*	*Prosocial Behavior*	*Internalizing Behavior*	*Externalizing Behavior*	*School Achievement*	*Adaptive Functioning*
Daily Activities								
Play time	.09	.08	.14*	.05	.12*	.00	-.05	-.03
Family time	.00	.10	.07	.17*	.07	-.14**	-.11	-.01
Screen time	-.18**	-.22**	-.15**	-.01	.24**	.13*	-.13*	-.16*
PA	.31**	.11*	.24**	.03	-.09	.05	.23**	.07
OA *overall*	.00	-.07	-.02	.00	.11*	.06	-.21**	-.17**
Tutoring	-.01	-.18**	-.14*	-.05	.10	.15*	-.20**	-.16*
EA	.03	.09	.08	.00	-.16**	-.10	.03	.03
YG	.09	.03	.06	-.01	-.03	.01	.21**	.14*
Homework	-.03	-.08	.05	.12*	.14*	-.02	.10	.13*
School free time	.13*	.17**	.20**	.00	-.11*	.00	.07	.09
Covariates								
Child								
Age	-.12*	-.29**	-.26**	-.14*	.14*	.11*	-.08	-.08
Gender	.04	.04	-.04	-.09	-.12*	.10	-.04	-.09
Pre-adjustment	.16*	.14*	.26**	.20**	-.06	-.31**	.15*	.16*
Parent								
Education level	.09	.08	.07	.12*	-.29**	-.17**	.16*	.12
Marital status	-.04	-.10	-.04	.06	.14*	.15*	-.15*	-.13*
M	4.19	4.32	4.31	8.96	4.12	5.95	3.59	19.07
SD	0.64	0.62	0.48	1.41	3.16	3.41	0.83	3.96

Notes. * $p < .05$, ** $p < .01$, *** $p < .001$. Effect size parameters as defined by Gignac and Szodorai (2016) for r: 0.1 < r < 0.2 – small, 0.2 < r < 0.3 – moderate, r > 0.3 – large.

Table 27

Model 1 Standardized Regression Coefficients for Child Outcomes with Categories of Daily Activities and Covariates as Predictors

	Child-report (KIDSCREEN-27)			Parent-report (SDQ)			Teacher-report (TRF)	
	Physical WB	*Psychological WB*	*HRQOL Score*	*Prosocial Behavior*	*Internalizing Behavior*	*Externalizing Behavior*	*School Achievement*	*Adaptive Functioning*
Daily Activities								
Play time					.10	.12*		
Family time				.14*			-.12	
Screen time	-.18***	-.15**			.21***	.19***		-.15*
PA	.30***	.16**	.26***				.21**	
OA		-.17**	-.09					-.15*
Homework				.12*				.14*
Covariates								
age		-.29***	-.29***.	-.14*				
gender					-.10			
pre-adjustment	.13*	.09	20***	.16**		-.10	.15*	.14*
parent education				.12*	-.25***	-.26***	.18**	
marital status						.09	-.13*	-.11
Model R^2	.14	.17	.19	.11	.15	.16	.14	.10
Cohen´s d	0.81	0.91	0.97	0.70	0.84	0.87	0.81	0.67

Notes. * $p < .05$, ** $p < .01$, *** $p < .001$. School free time was excluded in the final regression models for all child outcomes and thus not included in the present table.

Next, we tested Model 2 and probed for the existence of heterogeneous time use sub-groups of children by performing cluster analysis. As a result of the cluster procedures previously described, a 6-cluster solution was found to be robust and adequate for further examination. Following, a description of children´s time use clusters is coupled with a visual depiction of the standardized cluster centers (Figure 8) and the respective analysis of variance results for each DA.

Cluster 1 [35% of participants; 95%CI (30, 40)] – children from the "less-involved" cluster presented overall lower levels in the intensity of participation in DA compared with the remaining clusters, showing moderate levels of OA and school free time;

Cluster 2 [13%; 95%CI (10, 17)] – children from the "highly-active studious" cluster had very high levels of PA, above average levels of homework and school free time, average levels of family time, and lower levels of play time, screen time, and OA;

Cluster 3 [21%, 95%CI (17, 25)] – children in the "disengaged screeners" cluster showed very high levels of screen time and an overall low level of participation in the remaining activities, particularly family time, PA, and school free time (i.e., very low socializing levels with peers and adults);

Cluster 4 [9%; 95%CI (6, 12)] – the "after-schoolers" cluster was characterized by very high levels of OA participation, homework, and play time, above average levels of family time, moderate levels of PA and screen time, and very low school free time;

Cluster 5 [12%, 95%CI (9, 15)] – except for the lower levels of OA participation, the "active homies" cluster presented very high levels of play time and school free time, above average levels of family time, and moderate levels of homework, screen time, and PA;

Cluster 6 [10%; 95%CI (7, 13)] – children from the "home studious screeners" cluster presented very high levels of family time, higher levels of screen time and homework, above average PA, and lower levels of play time, OA, and school free time.

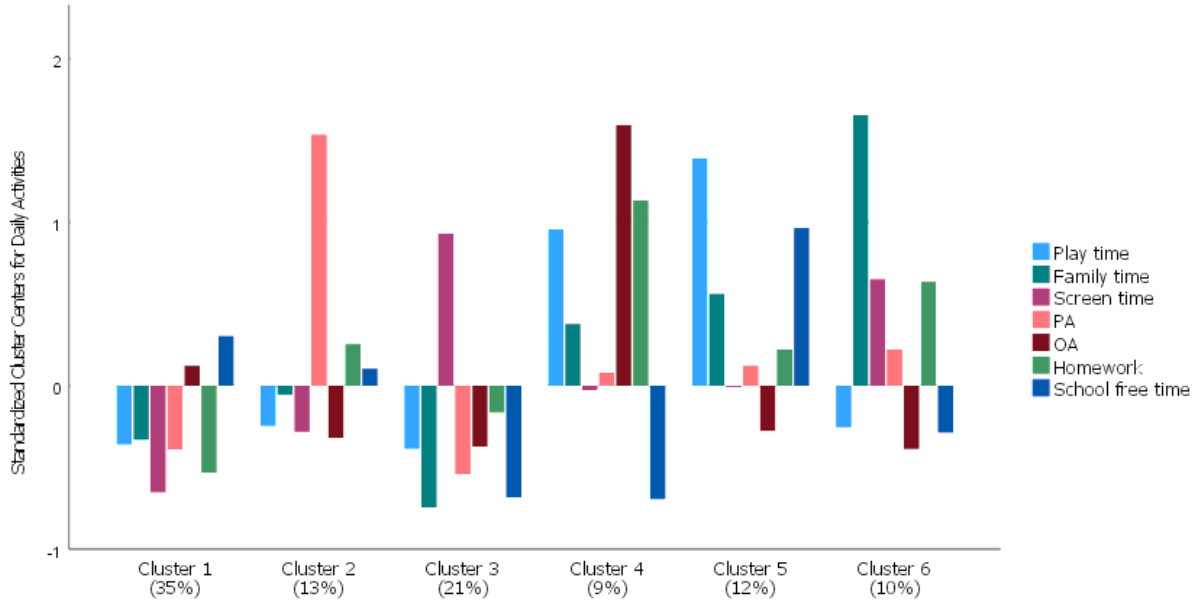
An analysis of variance of the clusters showed that all categories of DA contributed significantly to the heterogeneity of patterns: *play time*, $F(5, 346) = 46.94$, $p < .001$, *family time*, $F(5, 346) = 65.76$, $p < .001$, *screen time*, $F(5, 346) = 43.55$, $p < .001$, *PA*, $F(5, 346) = 52.77$, $p < .001$, *OA*, $F(5, 346) = 31.58$, $p < .001$, *homework*, $F(5, 346) = 26.37$, $p < .001$, and *school free time*, $F(5, 346) = 28.93$, $p < .001$.

In addition, cluster membership varied as a function of the following covariates: age, $F(5, 332) = 18.81$, $p < .001$, with the *disengaged screeners* and *home studious screeners* clusters including a larger proportion of older children, as opposed to the *less-involved* and *active homies* that included a larger proportion of younger children; learning disability status, $\chi^2(5, 238) = 47.74$, $p < .001$, with these

children being overrepresented in the *after-schoolers* cluster; and, parent educational level, $F(5, 321) = 5.61$, $p < .001$, with higher levels being associated with the *highly-active studious* and *active homies* clusters, and lower levels with the *disengaged screeners* and *after-schoolers* clusters. Gender, pre-adjustment levels, and marital status did not differ across clusters.

Figure 8

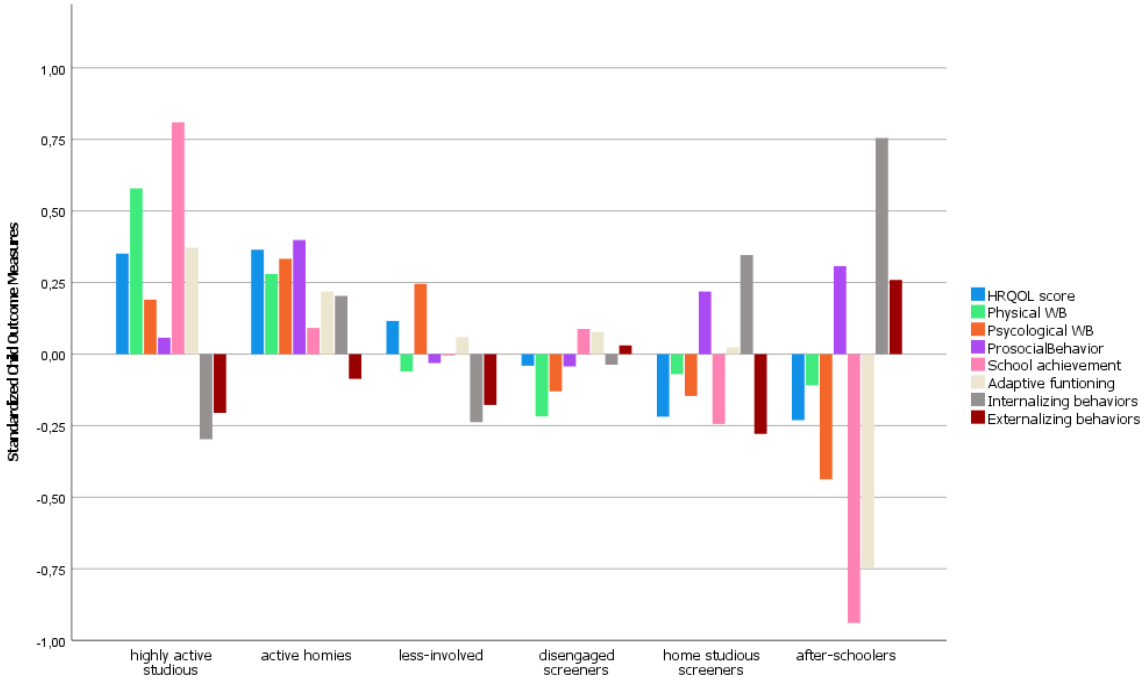
Standardized Cluster Centers for Children´s Daily Activity Patterns in the Full Sample



Does cluster membership increase or decrease the probability of better child outcomes? To examine these relationships, a set of hierarchical logistic regression models using the enter method was tested. In Step 1, we included the cluster membership (reference cluster = less-involved; larger cluster with a low participation profile), and in step 2, the covariates were added as controls (see Table 28). Based on these associations, a set of interactions was further examined between cluster membership and the statistically significant covariates (see also Table 28). The outcome variables were dichotomized by the mean value to represent different adjustment levels of the child. We were interested in investigating whether different patterns of daily activities were related to the odds of better and worse adjustment indicators. By creating these thresholds, they provide a simple but significant measure of the benefits of time use to positive outcomes, considered as higher and lower levels on each indicator of functioning.

Figure 9

Standardized Child Outcome Measures per Cluster Membership



The *highly-active studious* cluster showed overall better outcomes compared with the remaining clusters. Similarly, the *active homies* showed better well-being outcomes and prosocial behavior (however, with a tendency for higher internalizing behavior). The *disengaged screeners* showed a tendency for lower psychological well-being and higher internalizing behaviors. The *after-schoolers* cluster showed overall worse outcomes, with lower psychological well-being, adaptive functioning, and a tendency for lower school achievement. Comparatively, the *home studious screeners* and the *less-involved* clusters showed a tendency for more intermediate, although problematic, child outcomes. Standardized child outcomes per cluster membership are displayed in Figure 9. These results align with the previous analysis, indicating that the *highly-active studious* and *active homies* clusters present overall better outcomes compared with the remaining clusters. The *after-schoolers* cluster shows the worst child outcome indicators.

The moderation analysis showed that, for the *highly-active studious*, a higher pre-adjustment increased the odds of better well-being and school achievement, and boys and children from single-parent families were more likely to show better school achievement. For the *active homies*, higher levels of pre-adjustment increased the odds of better well-being outcomes, and for the *home studious*

screeners, higher levels of pre-adjustment were linked to lower externalizing behaviors. For the *disengaged screeners*, the odds for worse well-being also increase as age increases. For the *after-schoolers*, as age increases, the odds of lower psychological well-being also increase, and children with higher pre-adjustment and from single-parent families in this cluster tended to show lower adaptive functioning.

Are the qualitative aspects of participation associated with child outcomes? In Model 3, we examined the effects of child engagement levels, the home environment, and the school, sports, and OA environments. First, a correlation analysis was used to understand the individual links between our variables of interest (Table 29). Results indicate that play time, family time, PA, OA, homework, and school free time engagement levels were positively associated with better child outcomes and lower levels of internalizing and externalizing behaviors compared with screen time engagement which generally was not associated with child outcomes. The home environment and family culture were also positively correlated with child outcomes; however, they were not correlated with teacher-reported school achievement and adaptive functioning. The quality of school and community settings where activities ensued were specifically associated with better child well-being outcomes and prosocial behavior. Second, we conducted a set of multiple linear regression analyses to understand how the quality aspects of participation concurrently influence child outcomes, controlling for the effects of the covariates.

The predictors were analyzed at three levels: child (engagement), family (home environment, family culture), and school/community settings (process quality of the environments) (Tables 30, 31, and 32, respectively). Results show that higher engagement levels in screen time were associated with poorer child outcomes. In contrast, family time, PA, and homework engagement were associated with higher levels of well-being and prosocial behavior. Homework engagement was linked to better teacher-reported child outcomes. Family time engagement was associated with lower externalizing behavior and lower school achievement. Finally, play time engagement predicted lower externalizing behaviors. The models´ effect sizes (Cohen´s *d*) were moderate to large, varying between 0.79 and 1.21.

Table 28

Model 2 Odds-Ratio and BCa 95% CIs for Child Outcomes with Clusters of Daily Activities and Covariates as Predictors

	Child-report (KIDSCREEN-27)			Parent-report (SDQ)			Teacher-report (TRF)	
	Physical WB	*Psychological WB*	*HRQOL Score*	*Prosocial Behavior*	*Internalizing Behavior*	*Externalizing Behavior*	*School Achievement*	*Adaptive Functioning*
Clusters								
highly-active studious (2)	4.43**/0.82 [1.72, 11.43]	1.76/0.31 [0.77, 4.04]	4.28***/0.80 [1.75, 10.51]	2.99*/0.60 [1.12, 7.99]	0.93 [0.37, 2,38]	0.94 [0.41, 2.14]	4.78**/0.86 [1.75, 13.16]	1.34 [0.54, 3.30]
disengaged screeners (3)	1.01 [0.49, 2.07]	0.67/0.22 [0.32, 1.42]	1.13 [0.54, 2.38]	1.27 [0.59, 2.74]	1.78/0.32 [0.83, 3.81]	1.18 [0.56, 2.50]	1.20 [0.51, 2.82]	1.06 [0.45, 2.50]
after-schoolers (4)	1.16 [0.48, 2.86]	0.38*/0.53 [0.14, 0.99]	0.75 [0.29, 1.94]	1.92/0.36 [0.69, 5.30]	1.76/0.31 [0.70, 4.41]	1.08 [0.42, 2.74]	0.46/0.43 [0.13, 1.62]	0.21*/0.86 [0.04, 0.99]
active homies (5)	1.25 [0.54, 2.89]	2.59/0.53 [0.98, 6.87]	2.74*/0.56 [1.07, 7.03]	2.04/0.39 [0.73, 5.67]	1.97/0.37 [0.82, 4.74]	1.25 [0.54, 2.90]	1.61/0.26 [0.62, 4.18]	1.23 [0.48, 3.17]
home studious screeners (6)	1.37 [0.56, 3.35]	1.68/0.29 [0.67, 4.24]	2.56*/0.52 [1.01, 6.51]	1.73/0.30 [0.65, 4.56]	1.62/0.27 [0.62, 4.23]	0.43/0.47 [0.17, 1.10]	1.25 [0.40, 3.93]	1.99/0.38 [0.63, 6.29]
Reference cluster *less-involved (1)*								
Step χ^2	13.82*	24.56***	18.24**	6.83	14.57*	3.87	17.48**	11.84*
Covariates								
age	0.82	0.59***	0.61***	0.73**	1.11	1.17	0.87	0.94
gender	1.08	1.11	0.85	0.70	0.61	2.12**	0.66	0.84
pre-adjustment	1.60**	1.30	1.47*	1.34	0.93	0.47***	1.47	1.48
parent education	1.06	0.95	0.99	1.14	0.69***	0.85*	1.09	1.21
marital status	1.01	0.54	1.13	1.75	1.48	2.55*	0.57	0.49
Step χ^2	12.44*	29.80***	26.81***	16.21**	26.55***	39.76***	9.42	10.62
Model χ^2	26.26**	54.35***	45.04***	23.02*	41.12***	43.63***	26.90**	22.46*

(cont.)						
Interactions						
cluster 2 × pre-adj.	1.45** [1.15, 1.83]		1.34** [1.08, 1.66]		1.51** [1.17, 1.95]	
cluster 2 × gender (boys)					2.77** [1.43, 5.38]	
cluster 2 × marital status (single/other)					3.03** [1.32, 6.97]	
cluster 5 × pre-adj.	1.26* [1.03, 1.54]		1.29* [1.06, 1.59]			
cluster 3 × age		0.90*** [0.85, 0.95]	0.94* [0.89, 0.99]			
cluster 4 × age		0.90* [0.83, 0.98]				
cluster 4 × pre-adj.						0.66* [0.45, 0.97]
cluster 4 × marital status (single/other)						0.28* [0.09, 0.93]
cluster 6 × pre-adj.				0.80* [0.65, 0.99]		
Interaction Model χ^2	17.05**	22.67***	15.95** (age) 16.58** (pre-adjustment)	5.46 (pre-adjustment)	22.93*** (gender) 17.36** (pre-adjustment) 16.81** (marital stat)	9.33 (marital status) 10.24 (pre-adjustment)

Notes. * $p < .05$, ** $p < .01$, *** $p < .001$. Results presented are Step 2 main effects controlling for the covariates. Cohen´s *d* for each cluster effect are presented in the case of small to large effect sizes.

Table 29

Correlation Coefficients between Qualitative Indicators of Daily Activities and Child Outcomes

	Child-report (KIDSCREEN-27)			Parent-report (SDQ)			Teacher-report (TRF)	
	Physical WB	*Psychological WB*	*HRQOL*	*Prosocial Behavior*	*Internalizing Behavior*	*Externalizing Behavior*	*School Achievement*	*Adaptive Functioning*
Child Engagement								
Play time	.16**	.30***	.32***	.18***	-14**	-.32***	.18**	.25***
Family time	.27***	.35***	.37***	.27***	-11*	-.30***	.05	.12
Screen time	.07	.08	.11*	.04	-.07	.01	.05	.00
PA	.46***	.31***	.36***	.10	-.18**	-.02	.15*	.10
OA	.27***	.24***	.36***	.13*	-.09	-.21***	.06	.10
Homework	.08	.27***	.33***	.30***	-.05	-.37***	.28***	.37***
School free time	.26***	.32***	.34***	.15**	-.15**	-.08	.03	.10
Home Environment								
Cohesion	.23***	.25***	.23***	.32***	-.16**	-.15**	.12	.12
Organization	.15**	.18**	.16**	.23***	-.01	-.13*	.02	.02
Achievement	-.01	.24***	.23***	-.01	.16**	.15**	.08	.03
Intellectual-Cultural.	.05	.19***	.19***	.22***	-.18***	-.23***	.07	-.01
Active-Recreational	.04	.24***	.27***	.25***	-.18***	-.18***	.12	.09
School/Community								
School Environment	.21***	.32***	.41***	.15**	-.11	-.12*	.03	.11
Sports Environment	.28***	.30***	.35***	.20**	-.07	-.01	.00	.05
OA Environment	.23***	.25***	.34***	.18***	-.08	-.06	-.01	.05
ECAs	.25***	.30***	.40***	.17*	-.04	-.10	.07	.11
Tutoring	.27**	.25**	.23*	.04	-.11	.01	-.03	-.03
YG	.08	.04	.02	.14	-.11	-.02	-.06	.02
ASP	.27**	.19	.29**	.22*	-.06	.00	-.06	-.08

Notes. * $p < .05$, ** $p < .01$, *** $p < .001$. Effect size parameters as defined by Gignac and Szodorai (2016) for r: 0.1 < r < 0.2 – small, 0.2 < r < 0.3 – moderate, r > 0.3 – large.

The home environment variables (cohesion, organization) were not normally distributed and Spearman´s rho was reported in this Table for these variables.

Table 30

Model 3 Standardized Regression Coefficients for Child Outcomes with Child Engagement Levels and Covariates as Predictors

	Child-report (KIDSCREEN-27)			Parent-report (SDQ)			Teacher-report (TRF)	
	Physical WB	*Psychological WB*	*HRQOL*	*Prosocial Behavior*	*Internalizing Behavior*	*Externalizing Behavior*	*School Achievement*	*Adaptive Functioning*
Child Engagement								
Play time						-.19**		
Family time	.15**	.20**	.15*	.20**		-.19**	-.15*	
Screen time		-.13*		-.13*		.12*		
PA	.35***	.22***	.18**		-.14*	.19**		
OA								
Homework		.13*		.25***		-.17**	.37***	.33***
Covariates								
age		-.24***	-.16**					
gender		.10			-.11			
pre-adjustment	.14*		.11			-.17**		.13
parent education				.16**		-.20***	.26***	.18**
marital status				.11*	.13*	.12*	-.14*	
Model R^2	.21	.22	.25	.16	.14	.27	.17	.17
Cohen´s *d*	1.05	1.07	1.15	.86	.79	1.21	.91	.90

Notes. * $p < .05$, ** $p < .01$, *** $p < .001$. School free time engagement was excluded in the final regression models for all child outcomes and thus not included in the present table.

Table 31

Model 3 Standardized Regression Coefficients for Child Outcomes with Home Environment and Family Culture as Predictors

	Child-report (KIDSCREEN-27)			Parent-report (SDQ)			Teacher-report (TRF)	
	Physical WB	*Psychological WB*	*HRQOL*	*Prosocial Behavior*	*Internalizing Behavior*	*Externalizing Behavior*	*School Achievement*	*Adaptive Functioning*
Home Environment								
Family Functioning								
Cohesion	.17*	.23***	.21**	.25***			.26***	.22**
Organization								
Family Culture								
Achievement						.15**	.16*	
Intellectual-Cultural.	.16**	.11				-.17**		-.16*
Active-Recreational			.17**	.23***	-.14*			
Covariates								
age	-.18*	-.44***	-.35***	-.23***			-.20*	-.21**
gender					-.10	.10		.
pre-adjustment	.14*		.19***	.13*		-.29***	.18**	23***
parent education				.09	-.25***		.24***	.21**
marital status				.13*	.10	.13*	-.12	
Model R^2	.09	.15	.19	.18	.13	.18	.17	.12
Cohen´s *d*	0.63	0.85	0.96	.94	0.77	0.94	0.89	0.72

Notes. * $p < .05$, ** $p < .01$, *** $p < .001$. The home environment variables (cohesion, organization) were not normally distributed and were dichotomized by the mean value representing higher and lower levels on each indicator.

Table 32

Model 3 Standardized Regression Coefficients for Child Outcomes with School/Community Quality of Environments as Predictors

	Child-report (KIDSCREEN-27)			Parent-report (SDQ)			Teacher-report (TRF)	
	Physical WB	*Psychological WB*	*HRQOL*	*Prosocial Behavior*	*Internalizing Behavior*	*Externalizing Behavior*	*School Achievement*	*Adaptive Functioning*
School/Community								
School Environment			.19*					
Sports Environment	.26***	.30***	.25***	.16*				
OA Environment					-.12			
Covariates								
age		-.28***	-.21***					
gender						.16*		
pre-adjustment	.25***	.13	.27***	.14*		-.28***	.26**	.21*
parent education					-.27***	-.24***		
marital status		-.12			.14*	.16*		
Model R^2	.14	.22	.30	.05	.12	.20	.07	.04
Cohen´s *d*	0.82	1.05	1.30	0.50	0.72	1.00	0.53	0.42

Notes. * $p < .05$, ** $p < .01$, *** $p < .001$.

Regarding the family environment effects, cohesion, intellectual-cultural orientation, and active-recreational orientation predicted overall better child well-being and developmental outcomes. Noteworthy, the intellectual-cultural orientation had a negative impact on adaptive functioning. Family achievement orientation predicted higher externalizing behaviors but also better school achievement. The effect sizes were moderate to large, varying between 0.63 and 0.93 (Cohen´s *d*). Regarding the quality of activity settings, the sports environment predicted better well-being and prosocial behavior, the school environment predicted better HRQOL, and the OA overall environment was linked to lower internalizing behavior. The effect sizes were small to large, varying between 0.42 and 1.30.

Do the quantities and qualities of time use interact to improve children´s well-being and development? Building on the statistically significant predictors from the previous models, Model 4 was examined by a set of linear regressions (1) and logistic regressions (2) with moderation analyses (Table 33). The following interaction models were tested:

(1) *Intensity* of DA × child *engagement* DA; × family *cohesion*, *achievement orientation*; *intellectual-cultural orientation*; *active-recreational orientation*; × quality of *school environment*, *sports environment*, *OA environment*.

(2) *Clusters* of DA × child *engagement* DA; × family *cohesion*, *achievement orientation*; *intellectual-cultural orientation*; *active-recreational orientation*; × quality of *school environment*, *sports environment*, *OA environment*.

Results indicate that the negative effect of screen time on physical well-being was stronger for children reporting lower levels of screen time engagement (Figure 10). Additionally, the negative effect of OA on psychological well-being and HRQOL is stronger for children reporting lower levels of engagement in OA activities, and a trend was observed in the opposite direction, where a higher engagement was linked to positive effects of OA on child outcomes (Figures 11 and 12). The negative impact of OA participation on psychological well-being was also stronger for children from families with lower intellectual-cultural orientation, β = -.03, p = .025 (the moderation model was marginally significant), and the link between play time and externalizing behavior was also stronger for children from families with a lower intellectual-cultural orientation (Figure 13). Noteworthy, the negative effect of family time on school achievement was moderated by the achievement orientation of the family, where higher levels of achievement orientation were linked to poorer school achievement (Figure 14). The family functioning variables did not moderate the relationships between DA and child outcomes. In addition, the negative effect of OA on HRQOL is higher for children who experience lower levels of sports environment quality (Figure 15), and the negative effect of screen time on adaptive functioning

is particularly stronger for children who attend schools with higher levels of environment quality (Figure 16). Conversely, the effect of PA on school achievement functions as a buffer for children experiencing lower levels of school environment quality (Figure 17).

Figure 10

Slopes of Screen Time Predicting Physical Well-Being for Lower, Moderate, and Higher Screen Time Engagement

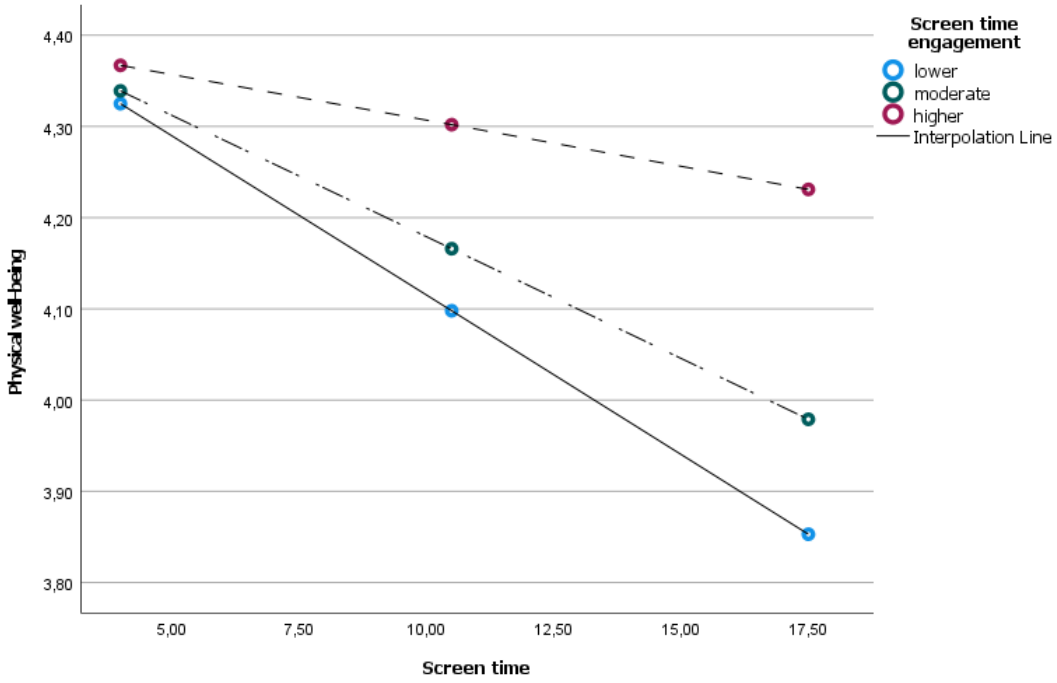


Figure 11

Slopes of OA Predicting Psychological Well-Being for Lower, Moderate, and Higher OA Engagement

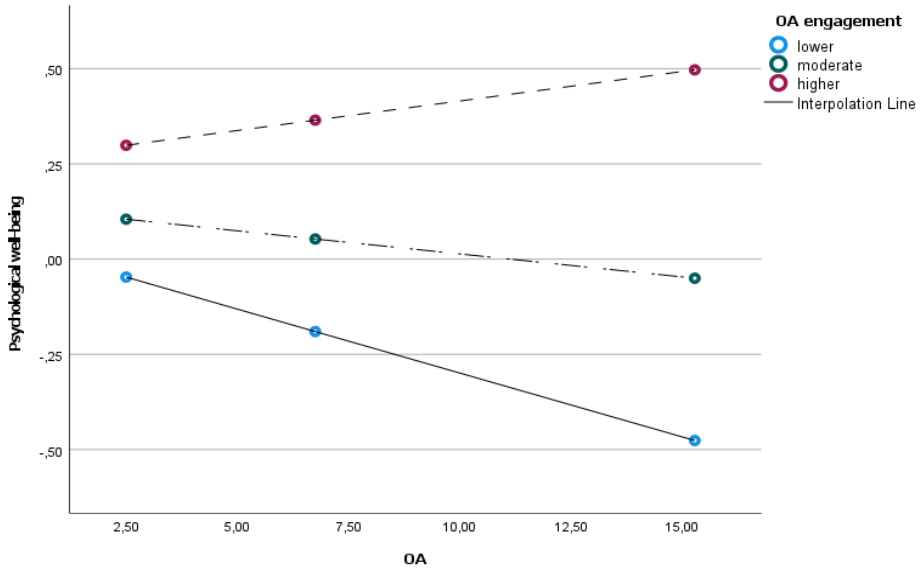


Table 33

Model 4 Regression Coefficients and Effect Sizes for Quantities × Qualities of Time Use Interactions

	Child-report (KIDSCREEN-27)			Parent-report (SDQ)			Teacher-report (TRF+CBRS)	
	Physical WB	*Psychological WB*	*HRQOL*	*Prosocial Behavior*	*Internalizing Behavior*	*Externalizing Behavior*	*School Achievement*	*Adaptive Functioning*
DA intensity × child engagement								
screen time × ST engagement	..02*/0.50							
OA × OA engagement	-	.03*/0.61	.04**/0.87					
DA intensity × family culture								
OA × intellectual-cultural		.01/0.46						
play time × intellectual-cultural						-.04*/0.55		
family time × achievement							-.02*/0.42	
DA intensity × environment quality								
OA × sports environment			.03*/0.84					
PA × school environment							-.03*/0.55	
ST × school environment								-.09/0.47

Note. Cohen´s *d* refers to each regression model explained variance including the predictor, the moderator, and the interaction term; * $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 12

Slopes of OA Predicting HRQOL for Lower, Moderate, and Higher OA Engagement

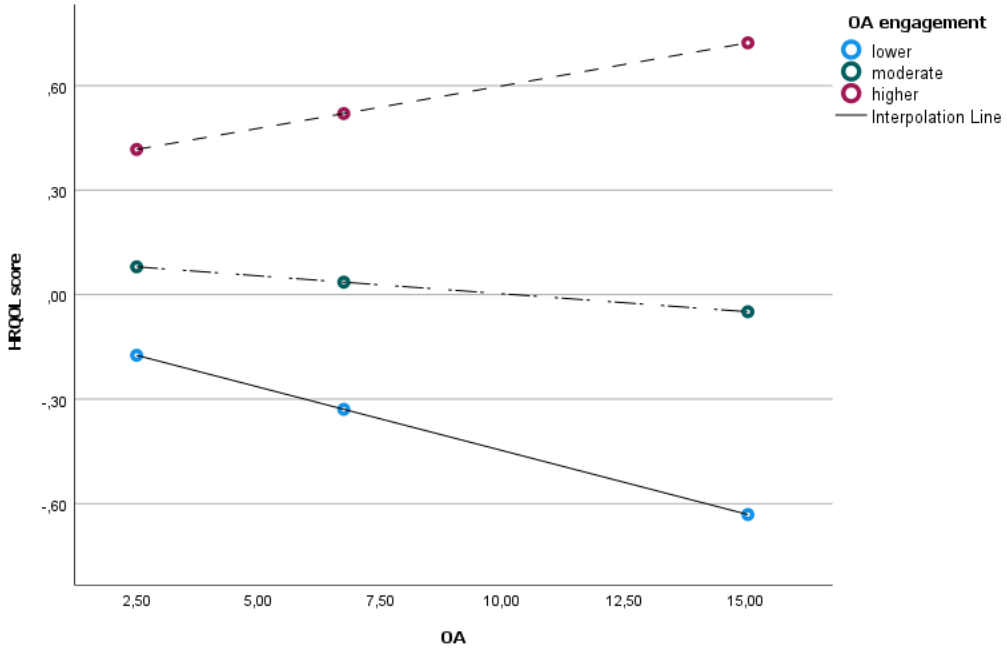


Figure 13

Slopes of Play Time Predicting Externalizing Behavior for Lower, Moderate, and Higher Family Intellectual-Cultural Orientation

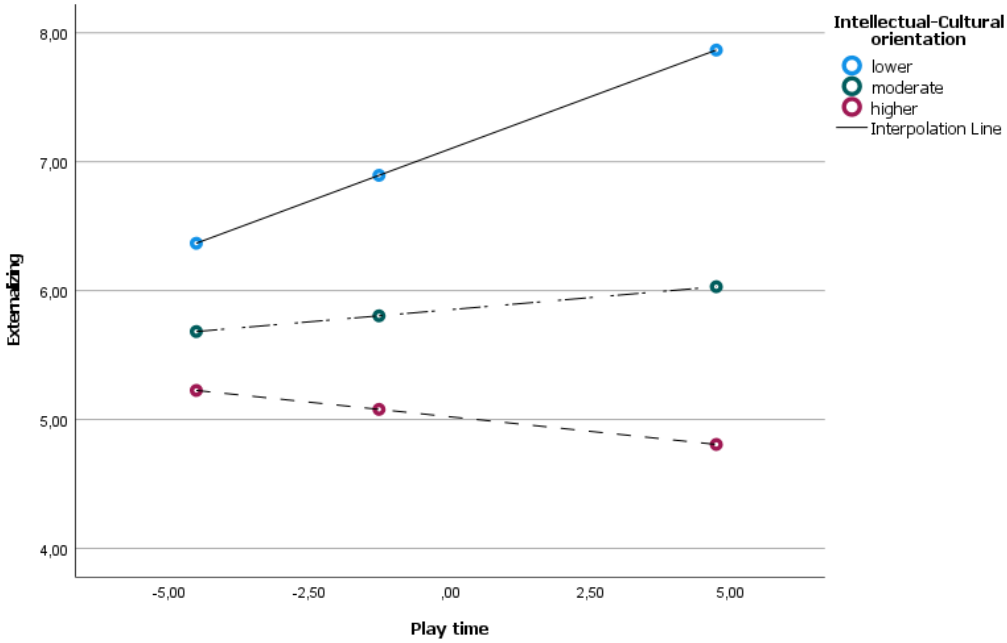


Figure 14

Slopes of Family Time Predicting School Achievement for Lower, Moderate, and Higher Family Achievement Orientation

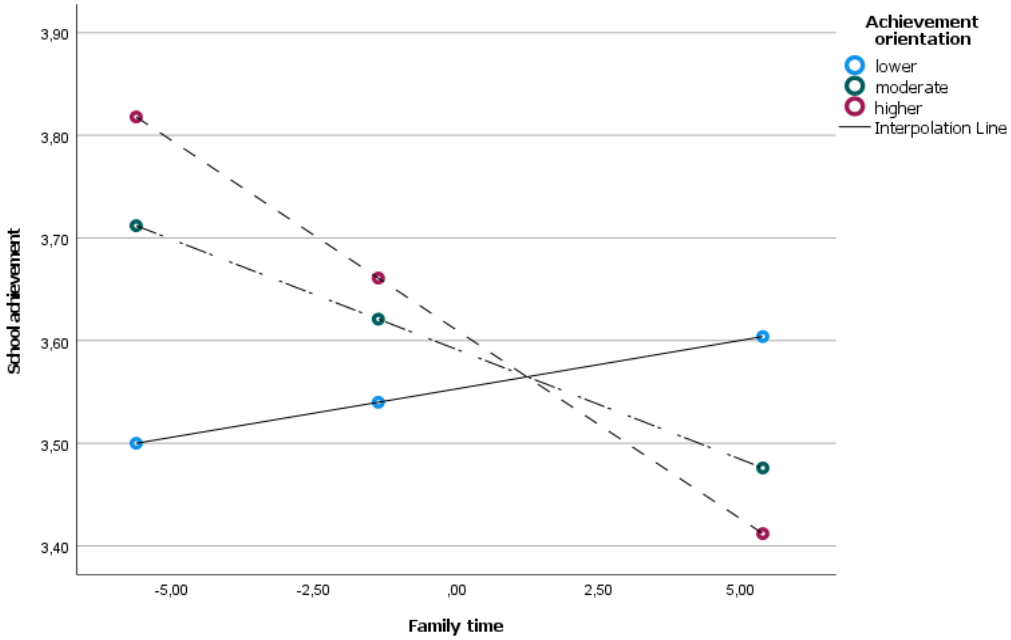


Figure 15

Slopes of OA Predicting HRQOL for Lower, Moderate, and Higher Sports Environment Quality

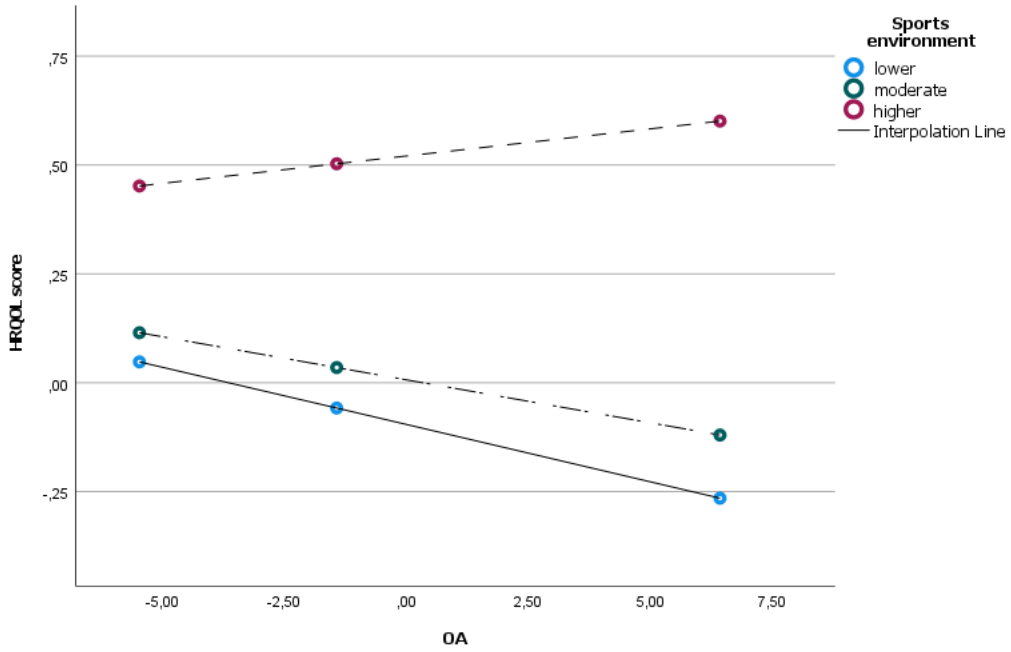


Figure 16

Slopes of Screen Time Predicting Adaptive Functioning for Lower, Moderate, and Higher School Environment Quality

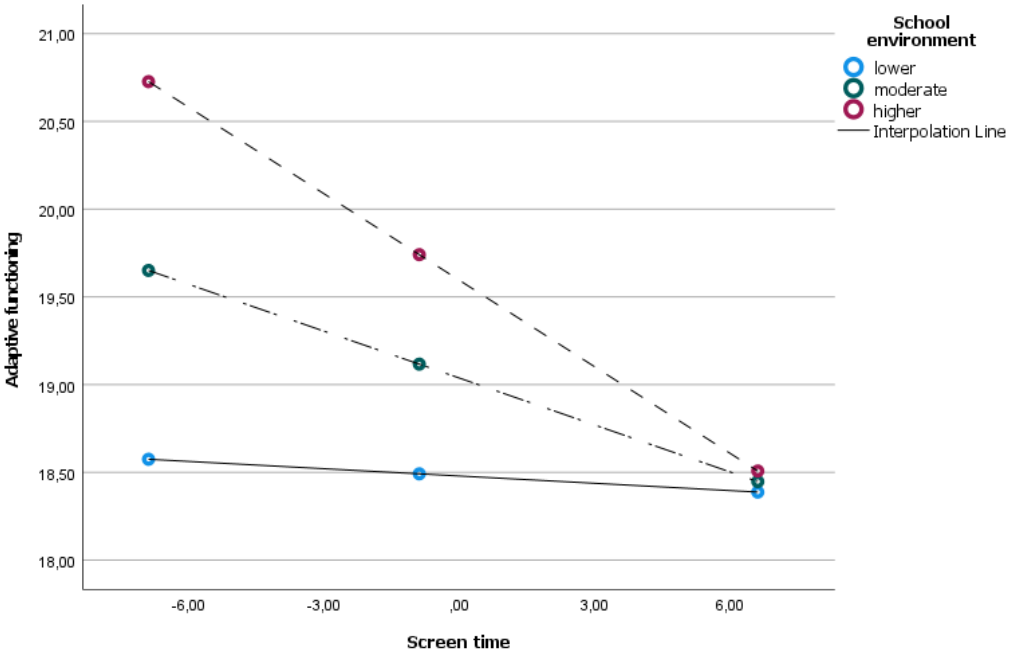
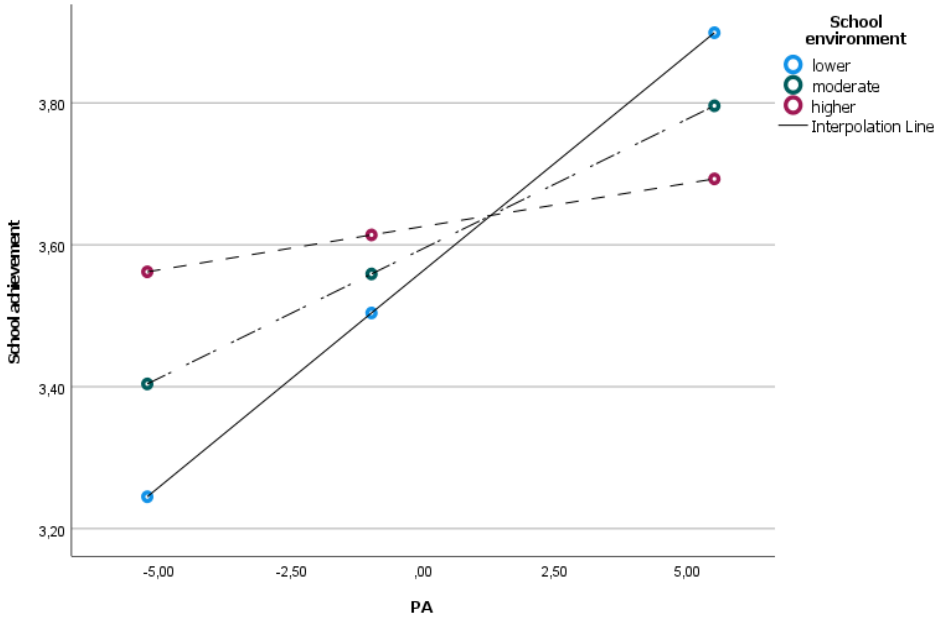


Figure 17

Slopes of PA Predicting School Achievement for Lower, Moderate, and Higher School Environment Quality



Regarding the cluster membership interactions with qualitative indicators of time use, we found that the trends observed in the results from Model 2 are confirmed, with a pattern of better child outcomes being associated with clusters 2 and 5 and worse child outcomes being linked to clusters 1, 3, and 4. The *highly-active studious* and the *active homies* presented overall better outcomes, clearly benefiting from higher engagement levels, family cohesion, intellectual-cultural orientation, and school, sports, and OA quality of environments. These effects were stronger for well-being, prosocial behavior, and school achievement outcomes. In addition, the *home studious screeners* benefited from a better sports environment and homework engagement. Conversely, higher PA and screen time engagement was linked to lower psychological well-being for the *disengaged screeners*. For the *after-schoolers*, children did not benefit from cluster membership as a function of better family and school/community environments, except for the sports environment quality.

Table 34

Model 4 Odds Ratios and Effect Sizes for Cluster Membership × Qualitative Indicators Interactions

	Child-report (KIDSCREEN-27)			Parent-report (SDQ)			Teacher-report (TRF+CBRS)	
	Physical WB	*Psychological WB*	*HRQOL*	*Prosocial Behavior*	*Internalizing Behavior*	*Externalizing Behavior*	*School Achievement*	*Adaptive Functioning*
Clusters								
highly-active studious (2)								
× family time engagement	1.45**/0.21 [1.13, 1.87]		1.37**/0.17 [1.08, 1.74]				1.61**/0.26 [1.20, 2.15]	
× PA engagement	1.45**/0.21 [1.16, 1.80]		1.34**/0.16 [1.09, 1.65]					
× homework engagement				1.47*/0.21 [1.06, 2.02]			1.99***/0.38 [1.36, 2.91]	
× cohesion	1.15**/0.08 [1.05, 1.27]						1.22***/0.11 [1.08, 1.37]	
× achievement							1.33***/0.16 [1.10, 1.61]	
× intellectual-cultural	1.21**/0.11 [1.07, 1.38]							
× school environment	1.43**/0.20 [1.10, 1.86]		1.41**/0.19 [1.09, 1.81]				1.59**/0.26 [1.16, 2.18]	
× sports environment	1.33*/0.16 [1.04, 1.72]		1.34*/0.16 [1.05, 1.72]				1.49**/0.22 [1.10, 2.02]	
× OA environment	1.41**/0.19 [1.11, 1.79]		1.32*/0.15 [1.05, 1.66]				1.53**/0.23 [1.15, 2.05]	
disengaged screeners (3)								
× PA engagement		0.82*/0.11 [0.68, 0.99]						
× screen time engagement		0.80*/0.12 [0.67, 0.96]						
after-schoolers (4)								
× sports environment				1.58*/0.25 [1.00, 2.49]				
× OA environment							0.67*/0.22 [0.45, 0.99]	

(cont.)					
active homies (5)					
× family time engagement	1.29*/0.14 [1.02, 1.63]	1.34*/0.16 [1.04, 1.71]	1.36*/0.17 [1.07, 1.73]	1.41*/0.19 [1.05, 1.90]	
× PA engagement	1.36*/0.17 [1.07, 1.72]	1.33*/0.16 [1.04, 1.71]	1.39**/0.18 [1.09, 1.77]		
× screen time engagement		1.34*/0.16 [1.02, 1.75]		1.41*/0.19 [1.03, 1.94]	
× homework engagement		1.36*/0.17 [1.04, 1.77]		1.61**/0.26 [1.13, 2.28]	
× school environment	1.34*/0.16 [1.03, 1.73]	1.45**/0.21 [1.09, 1.91]	1.50**/0.22 [1.15, 1.97]	1.56*/0.25 [1.10, 2.22]	
× sports environment		1.65*/0.28 [1.12, 2.44]	1.56*/0.25 [1.10, 2.22]	1.61*/0.26 [1.06, 2.43]	
× OA environment	1.35*/0.17 [1.05, 1.73]	1.37*/0.17 [1.05, 1.79]	1.40*/0.19 [1.08, 1.82]	1.54*/0.24 [1.10, 2.15]	
home studious screeners (6)					
× sports environment			1.40*/0.19 [1.00, 1.96]		
× homework engagement					0.72*/0.18 [0.55, 0.94]

Note. Cohen´s *d* refers to the odds ratios. Reference cluster: less-involved (1); * $p < .05$, ** $p < .01$, *** $p < .001$.

Discussion

Using an ecological approach, the present study examined the complex links between quantitative and qualitative dimensions of time use and child well-being and development. We provided an in-depth, comprehensive, and ecologically valid description of these links, contributing to a better understanding of how time use constitutes a developmental phenomenon with implications for child adjustment during middle childhood. Several levels of the child´s ecology were integrated to identify both the time use portfolios and individual patterns of childcare and leisure and its developmental impacts. Very few studies have integrated these quantitative and qualitative facets simultaneously, thus providing new information on the ecology of the positive development of children. Overall, our findings indicated that: (1) the intensity of weekly participation in specific daily activities was independently linked to different child well-being and developmental outcomes, and these links are complex; (2) time use patterns (clusters) were predictive of different levels of well-being and adjustment in a way that specific combinations were related to greater benefits for children while others could constitute a risk; (3) the quality aspects of participation were strongly associated with better outcomes, particularly, child engagement levels, family cohesion, family culture, and school, sports, and OA quality of environments; and, (4) the interacting quantitative and qualitative aspects of time use predict different levels of child outcomes and contribute to disentangling the links between daily activity participation and child well-being and development.

Participation in daily activities was independently linked to different child well-being and developmental outcomes, but these associations were complex. Screen time predicted worse outcomes and had an overall negative impact even after controlling for the effects of the covariates and the remaining activities (Ahn & Yoo, 2022; Kremer et al., 2014; Tsiros et al., 2017). Specifically, screen time was more detrimental for children with higher pre-adjustment levels. Conversely, higher levels of physical activity independently predicted better well-being and school achievement, in line with previous research (Berntsson & Ringsberg, 2014; Biddle et al., 2019; Tsiros et al., 2017), but differing from the findings of Teixeira (2009). The remaining activities had mixed contributions to child outcomes. Play was associated with a better overall quality of life and with higher problem behaviors (Berntsson & Ringsberg, 2014; McHale et al., 2001; Teixeira, 2009), and its impact was smaller than expected (Yogman et al., 2018). Family time, which includes dyadic and social time with parents, has also shown mixed results, being linked to better behavioral outcomes, but also to lower levels of achievement, with the latter contrasting with previous research (Lam et al., 2012; McHale et al., 2001; Park & Zhan, 2017; Teixeira, 2009).

Furthermore, the intensity of participation in organized activities predicted lower psychological well-being, achievement, and adaptive behavior (Teixeira, 2009), and, contrary to previous studies (Aumètre & Poulin, 2018; Rose-Krasnor et al., 2006), the breadth of participation was not associated with child outcomes. Although mixed results have been found in previous literature, most are based on adolescent samples (Bohnert et al., 2010). In our study, the intensity of participation effects rather varied as a function of the types of activities considered, as opposed to an overall intensity of organized activity participation, where tutoring was detrimental to child outcomes, but youth group participation had small positive effects. As discussed below, the quality of the activity settings and the engagement levels of the child mattered most. Furthermore, the time spent doing homework was associated with better behavioral outcomes but did not show an association with achievement. Although it lost its predictive value in the regression analyzes, free time at school (spent socializing and playing with peers) was associated with higher levels of well-being and lower internalizing behaviors. Finally, the characteristics of the child and the family were linked to different levels of participation but, unexpectedly, did not moderate the relationships between daily activities and child outcomes. In particular, no significant gender differences were found, which is not in accordance with previous literature (see Teixeira, 2009). In interpreting some of these mixed results, we must consider both the use of strong controls in our regression models and the reverse direction of causality, in which it is the level of child adjustment that predicts different portfolios and intensities of participation rather than specific activities being the main producers of child functioning (see McHale et al., 2001).

The activity participation patterns found in the present study reinforce the idea that children experience diverse time use arrangements with implications for their well-being and development. Such different combinations yield more insights into the "naturally occurring patterns of children´s time use in the real world" (Morris & Kalil 2006, p.256). These different combinations reflect varying profiles of participation (in both categories and amount) and thus different levels of exposure to socialization and developmental opportunities, more accurately portraying the childcare and leisure ecology of children. Comparatively, the *less-involved* and *disengaged screeners* clusters were characterized by low levels of participation, except for higher organized activities and screen time, respectively. The *after-schoolers* were highly involved in organized activities and homework, and engaged in play and family time. Conversely, the *highly-active studious* were characterized by a lower involvement in play, screen time, and organized activities. However, they showed a higher involvement with physical activity, homework, school free time, and family time. Similarly, the *active homies* and *home studious screeners* clusters were more involved in physical activity, homework, family time, and additionally screen time. In

addition, a higher level of parent education was associated with the *highly-active studious* and *active homies* cluster membership, and a lower level was associated with the *disengaged screeners* and *after-schoolers* cluster membership, with learning difficulties also being linked to the latter.

As expected, these different patterns were predictive of different levels of child adjustment in a way that specific combinations were linked to greater benefits for children. In contrast, other patterns could constitute a developmental risk. Specifically, the *highly-active studious* and the *active homies* clusters showed a better well-being, achievement, and adaptive behavior. Conversely, the *less-involved*, *disengaged screeners, home studious screeners*, and particularly, the *after-schoolers* clusters showed a trend for intermediate or lower levels of well-being and achievement, and greater behavioral problems. These effects were small to moderate; however, they remained salient even after using strong controls. The moderation analysis confirmed both the beneficial and detrimental effects of cluster membership. For the clusters with overall better outcomes, higher pre-adjustment levels increased the odds of better well-being and behavior. In comparison, for the clusters with worse outcomes, age increased the odds of worse well-being (i.e., cluster-specific characteristics were detrimental for older children).

Each multidimensional profile of participation in daily activities may constitute a distinct pathway either toward competence and adjustment or poorer functioning and well-being (Bartko & Eccles, 2003). Some clusters with unique participation patterns, representing 25% of our sample, were linked to more positive child outcomes, indicating that there is more than one path linking time use and children´s growth (Bartko & Eccles, 2003). The elements that contributed more significantly to these positive results include higher participation in physical activity (sports, active play, movement activities), family leisure and studying at home, playing and socializing with peers at school, moderate levels of extracurricular participation, and moderate to low levels of screen time. However, more than half of our sample belonged to clusters characterized by low involvement (*less-involved* and *disengaged screeners*); this constitutes an indicator of lower socialization experiences with peers and adults as well as lower exposure to engaging, stimulating developmental opportunities on a daily basis. Additionally, the proportion of children in the more suboptimal clusters accounts for 75% of our sample, indicating that these children may be at higher risk for poorer outcomes as a result of their time use patterns, thus social and educational interventions are warranted. In sum, children with profiles characterized by active and engaged everyday lives, higher socializing experiences, and diverse but moderate participation levels in a wider range of activities seemed to benefit most compared with their counterparts who were less-involved or focused in one domain of activities (e.g., screen time, organized activities) (Ahn & Yoo, 2022; Teixeira, 2009).

Furthermore, the qualitative aspects of time use were strongly linked to better child outcomes, specifically, child engagement, family cohesion, intellectual-cultural and active-recreational orientations, and the quality of environments in school, sports, and OA (within this category, the quality of ECAs and ASPs environments were particularly positive). Specifically, at the child level, family leisure time and homework engagement predicted generally better outcomes, physical activity engagement predicted better well-being, and screen time engagement predicted worse outcomes. At the family level, the family environment variables correlated positively with child outcomes. Specifically, family cohesion generally predicted better child outcomes, the achievement orientation of the family predicted better school achievement (but also higher externalizing behaviors), and the intellectual-cultural and active-recreational orientations predicted better levels of well-being and lower problem behaviors. In addition, at the school/community level, the sports environment predicted better well-being and prosocial behavior, the school environment predicted better quality of life, and the organized activities environment was linked to lower internalizing behaviors. The relevance of these quality dimensions has been highlighted by previous research (Fomby & Musick, 2018; Liu et al., 2021; Pierce et al., 2010), indicating that the qualities of time use are important elements of child well-being and development. Although we examined the quality of the environments, they are a proxy for the actual features of children´s interactions within each activity setting. It is the child-environment interaction processes that are critical to development, in line with theoretical expectations (Bronfenbrenner & Morris, 1998; Darling, 2007; Larson et al., 2004). However, the examination of children´s time use as a developmental phenomenon would be incomplete without an investigation of the interactions of these quantitative and qualitative dimensions of participation.

The interacting quantitative and qualitative indicators of participation predicted different levels of child outcomes and contributed to disentangling the links between daily activity participation and child well-being and development. These interactions help explain the positive and negative effects of the intensity of participation in specific daily activities as well as of different time use patterns. Regarding positive effects, the findings suggest that the positive influences of physical activity on school achievement are stronger for children attending schools with a lower environment quality, which indicates a protective effect. In addition, the *highly-active studious* and the *active homies* presented better outcomes, benefitting from higher engagement levels, family cohesion, intellectual-cultural orientation, and school, sports, and OA quality of environments. The *home studious screeners* benefited from better sports environment and homework engagement. Regarding the negative effects, screen time was particularly deleterious for children´s physical well-being when they showed high levels of

screen time coupled with low levels of engagement with that activity, which denotes the passive and alienating influence of screen time for some children. Additionally, the detrimental effect of organized activities on well-being and behavioral outcomes was explained by lower levels of child engagement, which had the opposite effect on high-engaged children. Here, we assume that organized activities failing to positively engage and motivate children due to its structural and process-level characteristics, result in less-than-optimal daily experiences which affect children negatively, or at least are not able to counteract the poorer behaviors exhibited. Conversely, those activity settings that are perceived as having better process-level quality and positively engage children, may have the reverse role on child outcomes (Faust & Kuperminc, 2020; Larson et al., 2004; Wade, 2015). In addition, children whose families scored lower on intellectual-cultural orientation were also experiencing negative impacts of play and organized activity participation. These families may have lower expectations regarding the quality of their children´s structured and less-structured leisure activities, resulting in less-than-optimal family practices and child experiences. We expected the family environment to moderate the relationship between family time and child achievement, but this expectation was not supported by our findings (see Fomby & Musick, 2018). Instead, the negative impact of family time on school achievement was stronger for children whose families scored high on achievement orientation. A poorer achievement of the child may influence parents to spend more time with the child and invest in practices that involve more academically-oriented activities and tasks. Noteworthy, for the group of *after-schoolers*, children did not benefit from better family, school, or organized activity environments indicating that they could be at higher developmental risk than their counterparts. This cluster had an overrepresentation of children with a lower SES and learning difficulties, which helps explain the risk for poorer developmental outcomes; however, above and beyond these characteristics, their time use profile was clearly detrimental thus warranting intervention.

This study has several limitations that must be considered. The cross-sectional data from a non-probabilistic sample of children impedes the inference of causality and the generalization of our findings. In addition, missing data, the use of self-report measures, and social desirability might have biased our results. Notwithstanding, we have used ecologically valid measures of time use and child outcomes and investigated these links using robust models with strong controls thus eliminating the effects of pre-selection factors, including a measure of pre-adjustment of the child.

Conclusion

This research contributed with a detailed examination of children's daily lives on how multidimensional profiles of participation influence child well-being and development. To our knowledge,

the present study is one of the few to use a mixture of variable- and person-centered approaches, with a sample of school-aged children in the European context, to document such patterns and associations. We highlight the varying developmental opportunities provided by families, schools, and communities for different groups of children that may have consequences for children´s well-being and growth. Daily activities constitute relevant developmental assets for children and our findings may help inform families, professionals, services, and policymakers in promoting a more positive time use that supports children´s healthy and positive development, particularly for socially vulnerable children who experience higher constraints on the quantity and quality of their daily participation.

Chapter 4: Discussion and Implications

Integration of Findings

The present research aimed to study how healthy and positive developmental outcomes can be both a consequence and a cause of daily activity participation profiles during middle childhood, considering the influence of multi-level ecological factors, whether individual, social, or cultural. Using a short-term longitudinal, cross-sequential mixed methods design, and integrating both variable- and person-centered approaches, we provided a comprehensive outlook of children's everyday lives across several levels of the child´s ecology, including a wide spectrum of activities, developed in different settings, with a diversity of social partners. Furthermore, it was coupled with a holistic analysis of the influences exerted by daily activities and ecological factors that reflect the actual features of children´s everyday life contexts adding to previous research mainly focused on specific domains of participation.

We have also focused on positive, healthy child outcomes representing the strengths, potentials, health, and competence that support the thriving of children during middle childhood. Our goal was to understand in which ways children´s everyday life contributes to their positive development enabling the identification of possible intervention avenues. In addition, potential differences in child well-being and development were compared across children´s portfolios and patterns of participation using both quantitative and qualitative indicators of time use. These contributions added to the literature by simultaneously considering several facets of participation, thus providing new insights into the interplay of daily activities and healthy, positive child development.

Overall, children experience unequal everyday lives – which vary according to the characteristics of a child´s ecology – with positive and adverse consequences for their healthy, positive development. The main findings of this research include the following:

Main finding 1 – Children´s everyday lives are characterized by multidimensional, heterogeneous, and qualitatively different participation profiles. These profiles indicate the existence of unequal childhoods as children are exposed to distinct sets of developmental affordances and constraints.

Main finding 2 – Multi-level individual, social, and cultural factors significantly shape children´s everyday lives and participation profiles, specifically, child characteristics, socioeconomic status, and the qualities of the environments where activities occur (family, school, community).

Main finding 3 – Different portfolios and patterns of daily activities are independently linked with child outcomes in a way that specific profiles were related to greater benefits (promotive effects)

whereas others could constitute a risk for children. Here, the interplay of quantitative and qualitative dimensions of time use represent different levels of exposure to developmental opportunities associated with positive and adverse variations in well-being and development.

Main finding 4 – Children hold different perspectives regarding their everyday lives (values, choices, needs, and opportunities) that must be considered to achieve a better time use person-environment fit. Thus, children need to experience more free time and autonomy in engaging with their leisure pursuits in the context of quality, positive relationships and engaging, stimulating activities.

The integration of findings from the quantitative and qualitative studies as well as the results from variable- and person-centered approaches, using joint displays, are displayed in Table 35. Joint displays help identify patterns within and between different data sets by comparing quantitative and qualitative data, which can generate meta-inferences (McCrudden et al., 2021). A person-centered approach is more than an analysis of quantitative variations, revealing a more holistic perspective of the qualitative variations in children´s everyday lives that are relevant to child well-being and development (Zarrett et al., 2009). Therefore, in the integration process, we compared the quantitative and variable-centered findings with the qualitative and person-centered findings in different columns. Main results in the form of text, figures, and charts were combined to substantiate this integration (see Table 35). A discussion of the main findings and the meta-inferences resulting from the integration process follows.

What Children Do in their Everyday Lives

Children´s everyday lives are characterized by intensity-specific, multidimensional, heterogeneous, and qualitatively different participation profiles reflecting the existence of diverse, unequal childhoods. Children are exposed to distinct sets and levels of developmental opportunities which can be construed as a myriad of growth affordances and constraints of their ecologies. Our findings fully supported our hypothesis regarding this diversity, as the significant variability in children´s participation profiles was embodied by the diverse portfolios and patterns that were found. Extant research has documented this variability indicating that children´s developmental trajectories may be highly responsive to their overall time use arrangements (Bartko & Eccles, 2003; Park & Zhan, 2017; Sauerwein et al., 2016; Vandell et al., 2020).

The present research has added to previous literature by providing a comprehensive perspective of children´s everyday lives and thoroughly examining several dimensions of their portfolios and patterns of participation. It aligns with the need, identified by other authors, of considering the complex nature of children´s everyday lives and make use of a wider time frame to achieve a realistic

representation of children´s activity participation. We have included detailed measures of child participation and considered the quality of activity settings and experiences as interconnected elements that shape child development (Fauth et al., 2007; Hunt & McKay, 2015; Lam & McHale, 2015a; Riese et al., 2015). In addition, such variability in time use arrangements, settings, experiences, and social partners, holds different meanings for children. Children constitute crucial informants on their everyday lives and thus may help to identify avenues for the promotion of their well-being. Both quantitative and qualitative findings were in accordance with the multidimensionality of children´s everyday lives.

Children´s after-school care and leisure was spent mostly on family activities, media/screen use, organized activities, and physical activities at the aggregate level. However, we found sub-groups of children who were either less active and engaged or that felt that their free time was too constricted. It points to the hypothesis that some children might experience time use arrangements characterized by overscheduling or under scheduling, both detrimental to the satisfaction of their developmental needs. Do these middle childhood participation profiles influence distinct trajectories of participation and development? Longitudinal studies on after-school activity participation have shown that participation patterns that are structured early in middle childhood might influence how children spend their time later in adolescence with lasting developmental implications. Additionally, children with better functioning tend to be more participative (i.e., intensity, breadth) and become more involved with adaptive activities over time, remaining so across middle childhood and adolescent years (Denault & Poulin, 2009; Denault et al., 2009; McHale et al., 2001; Simpkins et al., 2006). This knowledge points to the need to enhance the everyday lives of children who experience sub-optimal time use patterns that constitute a limitation for their growth and learning.

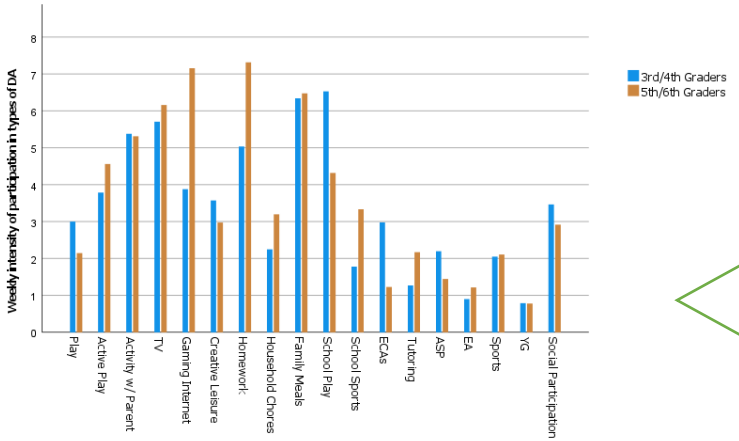
Why Children Have Different Time Use Profiles

Multi-level individual, social, and cultural factors shape children´s everyday lives and participation profiles. Specifically, the different portfolios and patterns of participation significantly varied as a function of child characteristics (adjustment, engagement, developmental status), socioeconomic status (parental education, marital status), and the quality of the environments where activities occur (family, school, community activity settings). Our expectations were confirmed by our findings; children´s ecologies significantly determine their time use arrangements explaining their variability across the population.

Table 35

Integration of Findings from the Quantitative and Qualitative Studies and the Variable- and Person-Centered Approaches

	Quantitative and Variable-Centered Data	Qualitative and Person-Centered Data
What children do in their everyday lives *Main finding 1*	Before and after classroom hours children spend their time in a variety of activities developed in several ecological settings *(Study 2)*	Children identified a diversity of personally relevant daily activities in which they participate *(Study 3)*

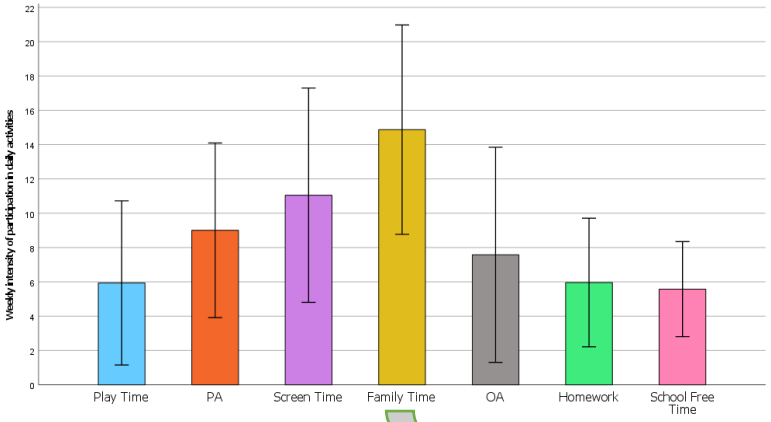


Favorite activities	*sports, family leisure time, playground, playing with toys, playing/hanging out with friends, caring for pets, electronic gaming, active play* (e.g., running)
Least favorite activities	*homework, being in class, fighting with peers, being alone, household chores*
Contexts	*school, home, afterschool program, sports gym*

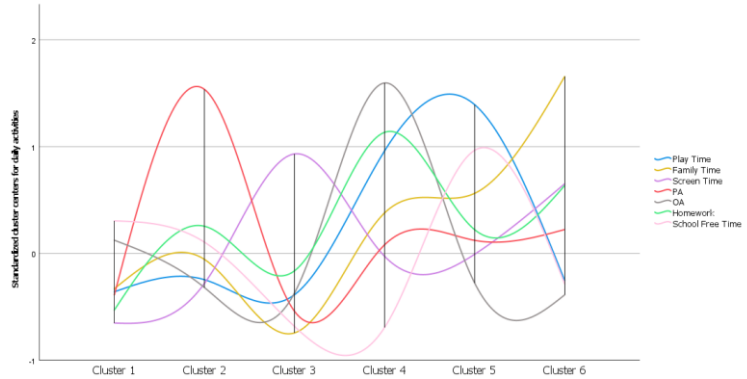


(playing during recess) *(doing homework)* *(socializing with friends)* *(playing sports)*

Children´s everyday lives are characterized by different portfolios of activities *(Study 2)*



Intensity-specific, heterogeneous, multidimensional, and qualitatively different participation patterns/clusters were evident *(Study 2)*



Meta-inferences

(1) Quantitative and qualitative data are in accordance: there is high variability in children´s time use arrangements, settings, and social partners, which hold different meanings for children; children constitute crucial informants on their everyday lives and may help identify avenues for the promotion of their well-being.

(2) Care and leisure time is spent mostly on family activities, media/screen use, organized activities, and physical activities (including active play); however, a high proportion of less active and less engaged/participative children were observed.

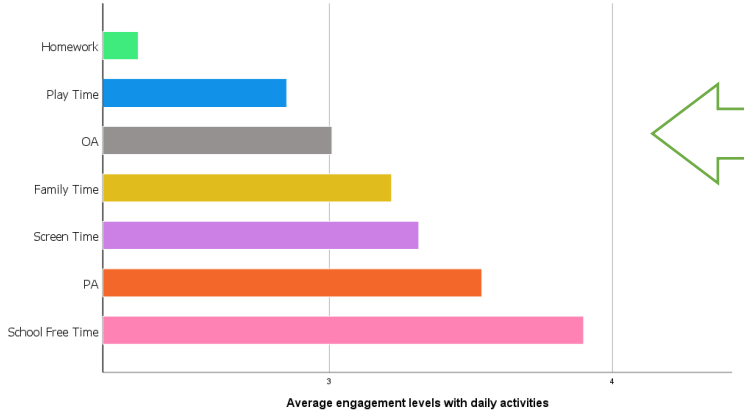
(3) Do varying profiles of participation during middle childhood reflect unequal childhoods which in turn influence distinct trajectories of participation and development?

Why children have different time use profiles

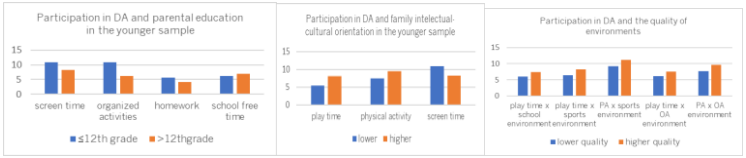
Main findings 2 and 4

Portfolios of activities significantly vary as a function of child characteristics; children with higher levels of engagement were more active at home, school, and community settings, and children with better prior functioning were more engaged, active, and playful, and dedicated more time to academically-oriented activities *(Study 2)*

Children showed distinct levels of engagement with activities suggesting that individual preferences and motivations are important elements of time use *(Study 2)*



Portfolios of activities also significantly vary as a function of parental education, the family environment, and the quality of the settings where activities occur, which is linked with different affordances and constraints *(Study 2)*



Children´s lived experiences during their daily activities are linked with different emotions and psychological states *(Study 3)*

Emotions linked to favorite activities	*happy, content, fun, peaceful, curious, joy, friendship, strength, courage, excitement, aggressive* (i.e., *sports*)
Emotions linked to least favorite activities	*sad, bored, anxious, lonely, angry, agitated, aggressive* (towards peers), *nervous*

M.: "I feel happy because I am with my friends, I am not alone, I feel amused because I am playing with those people who are closer to me"
R.: "we see our friends participating and we also want to be involved"
A.: "we do these activities because we like them, and it is fun"
T.: "it is our favorite activity. It is what we love the most"

Participation is a way of expressing children´s individual preferences and growth, particularly in activities in which their psychological needs are satisfied *(Study 3)*
G.: "this activity is what I have always wanted since I was a small child"
F.: "I feel the urge to win. (...) I just wanted to be involved in sports"
H.: "when I don't know how to do something, I don´t feel like doing it. I don´t care about it"

Despite having different perspectives regarding their time use, children identified the need for **more free time** after school and for **more autonomy** in choosing and engaging with free time activities (i.e., self-directed play and socialization with peers and adults) *(Study 3)*

Children showed different configurations of **values**, **choices**, and **needs** that must be considered; but are these aligned with their real-world daily participation? *(Study 3)*
Highly-ranked statements (ST) in the Q-study:
ST1 – my favorite free time activity is playing; ST5 – I like to spend my free time with friends, playing and talking; ST6 – My favorite free time activity is doing sports and physical activity; ST18 – I would like to have more free time without interruptions, to play, relax and talk; ST22 – I enjoy extracurriculars, it is fun, and I learn new different things; ST29 – I would like to spend more time doing the activities that I like.

Meta-inferences

(4) Quantitative and qualitative data are aligned at the child level (engagement, agency, preferences, needs); however, time use variations indicate the existence of different ecological affordances and constraints at other levels (family, school, community) including family characteristics (SES, culture) and the quality of school/community activity settings.

(5) Children are not passive recipients of environmental stimuli; they are active participants influencing social partners and the nature of the activities; participation reflects their individual choices and characteristics, including their agency, skills, and adjustment levels.

(6) Are children´s perspectives, preferences, and needs at odds or aligned with the time use affordances and constraints of their families, schools, and communities? Also, *person-environment fit* may be important for better after-school care and leisure time arrangements. For example, higher child involvement and engagement may be related to intrinsically motivated activities that contribute to the satisfaction of basic psychological needs (relatedness, competence, autonomy).

How time use affects children´s well-being and overall development

Main findings 3 and 4

Intensity of daily activities shows differential effects on children´s well-being and development *(Study 5)*

Physical activity (sports, active play, movement)	*Better well-being and achievement*
Screen time	*Worse well-being and behavior*
Family time (dyadic and social with parents)	*Better behavioral outcomes but lower achievement*
Play (calm play, hobbies, creative leisure)	*Better quality of life but some problem behaviors*
Organized activities (overall intensity)	*Worse outcomes*
Homework	*Better behavioral functioning but not better achievement*
School free time (playing/socializing with peers)	*Better well-being and lower internalizing behaviors*

For example, during the pandemic lockdown, **sleep**, **active leisure**, and **playing/learning activities** constituted protective factors linked to better overall child well-being, as opposed to less-stimulating and passive profiles *(Study 4)*

Quality of activity environments and children´s engagement with activities also affect their well-being and development *(Study 5)*, particularly:

- **child engagement** (motivation, interest, volition)
- family **cohesion** and **intellectual-cultural** and **active-recreational** orientations
- school, sports, and OA **quality of environments** (quality of ECAs and ASPs effects were positive) (e.g., social support, psychological safety,

Daily activities are a context for experiencing both positive and negative emotions with effects on well-being, in which social partners and relationships are key elements; the most relevant outcomes of participation include being satisfied, connected, and focused *(Study 3)*:

G.: "I have fun because I am paying attention to what I am doing, and I do enjoyable activities"
S.: "I feel calm because I am not nervous, I am relaxed"
P.J.: "when I am upset, basketball makes me feel more relaxed"
B.: "I really enjoy recess with my friends"

Children were specific about the new skills they developed, attributing greater value to their capabilities of socializing positively with peers and being social and emotionally competent *(Study 3)*:

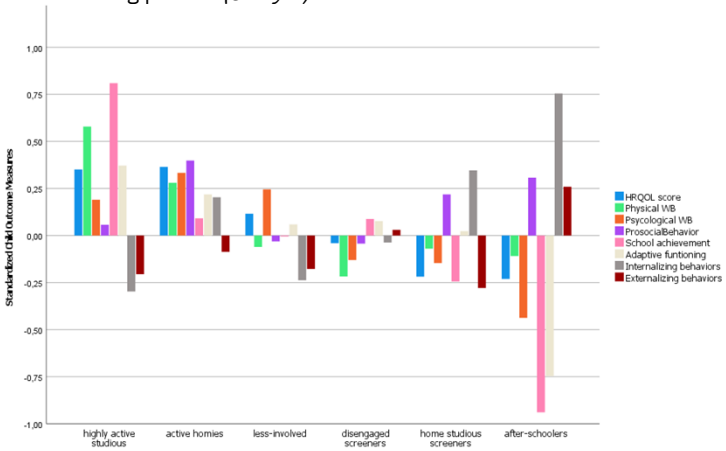
P.J.: "I have learned what is good behavior, and to adapt myself to the rules"
M.: "I learn to be around people, to stay calm so they can teach me"
G.: "I have learned to play as a team member, (...) we develop friendships"
M.: "we should spend more time in the playground because while we play we learn how to play and be with each other"
J.: "I learn how to be calm. Before I wasn´t able to"
A.: "I have learned to share and to be content"
T.: "I am more caring now"
N.: "I am more friendly with others"

(conversely, some activities may result in boredom, loneliness, stress, and lack of emotional safety)

Children expressed that they may benefit from **more free time** in which they participate in **secure**, **stimulating**, **playful** activities, with **quality interactions** with **supportive peers and adults**, and with opportunities to **develop new skills** in **dynamic** and **autonomous** but **relaxed/less strict** activity settings *(Study 3)*
Children showed four patterned viewpoints regarding time use *(Study 3)*:

skill-building activities, mattering)

Specific profiles of daily activities (clusters) are intertwined with positive/negative outcomes – active, social, wider, and engaged profiles of activity participation are linked to better health and development as opposed to disengaged, uninvolved, less-stimulating profiles *(Study 5)*



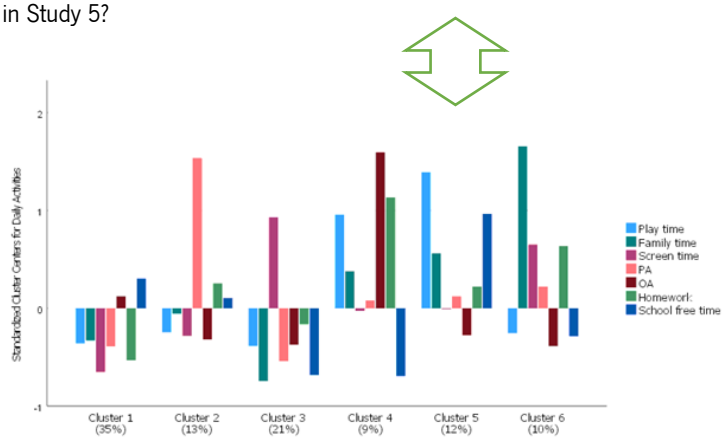
***engaged and busy**, favored free play, screen time, extracurricular activity participation, time spent at school activities and recess, and autonomy during free time. They expressed that they never felt alone or bored and that their time was filled with activities in which they learned new things*

***relaxed players**, valued spending time with friends, playing and socializing (recess), and liked to play in the outdoors and nature; preferred being at home and involved in activities with their families; they did not feel time pressure, boredom, or stress in their everyday lives and placed a higher value on relaxed, unstructured free time*

***academically-oriented**, higher importance to time spent in school-related activities and valued studying and doing homework or other academically-oriented activities; less interest in creative, skill-building activities*

***active social learners**, favored sports and physical activity and hanging out with friends (playing and talking); enjoyed engaging in activities where they felt competent and learned new things: not bored at school or in free time and generally satisfied with their use of time*

Are these preferences, choices, and needs aligned with the participation profiles found in Study 5?



Meta-inferences

(7) Both quantitative and qualitative findings partially align: person-environment fit in daily activity participation may be relevant for child well-being and development, particularly the quality dimensions of activity settings and child engagement, but are children´s preferences, choices, and needs aligned with their real-life participation profiles?

(8) Quantity and diversity matter but quality is essential: secure, stimulating, playful activities occurring in different settings and providing constructive socialization experiences coupled with supportive relationships.

(9) More optimal time use patterns are characterized by being dynamic, diverse, and moderately intense not overscheduling the child or being overly focused on one domain of activities (screen time, OA, homework); less-than-optimal patterns can be stressful, strict, monotonous, and less stimulating and engaging.

Daily activities are developed in multi-layered contexts that provide the cultural scripts and social resources that organize everyday life (Lam & McHale, 2015a). It suggests that children´s time use and participation are socially and culturally-situated in a way that daily activities perform specific functions with meaning within and across contexts (Osher et al., 2020). Child development can be construed as a process of growth through everyday experiences resulting from the participation in the endeavors of families and communities; the child and the context of activities cannot be seen as separate entities as they embody the same processes of participation in everyday life (Rogoff et al., 2018). Child development is thus situated in the population-specific, culturally- and intentionally-designed everyday worlds, and these worlds must be better understood in the context of human development (Weisner et al., 2005). We have added to the understanding of this phenomenon by providing an in-depth description of ecological factors that complement the research corpus. We provided a deeper examination of factors such as children´s characteristics (needs, resources, and demands), family functioning and cultural orientations, as well as the quality of the out-of-home activity settings (school, community).

Surprisingly, our findings did not support the concept that time use during middle childhood is gendered. Although some trends were observed regarding screen time and physical activity differences, as expected given previous literature, children´s participation profiles were not significantly linked to gender. These differences could arise as a function of the activities´ content and social context, an aspect not examined in the present study (see Teixeira, 2009). Gendered differences were more evident regarding activity-specific engagement levels rather than the intensity of participation, indicating gendered preferences and motivations. However, these findings suggest that girls and boys may have progressively moved into the leisure domains and lifestyles once considered to be limited to a specific gender (see Frønes, 2009).

Furthermore, children are not passive recipients of environmental stimuli; they are active participants influencing the nature of their daily activities and experiences and thus active agents of their own development (Bartko, 2006; Dunst, 2022). Participation reflects their individual choices and characteristics, including their agency, skills, and adjustment levels. We demonstrated that children with higher levels of engagement were more active at home, school, and community settings, and that children with better prior functioning were more engaged, active, and playful, and dedicated more time to academically-oriented activities. In addition, higher child involvement and engagement may be related to intrinsically motivated activities that proactively contribute to the satisfaction of their psychological needs (i.e., relatedness, competence, autonomy). Additionally, quantitative and qualitative data were

aligned at the child level (engagement, agency, preferences, needs); however, time use variations indicate the existence of different ecological affordances and constraints at the family, school, and community levels (Bartko, 2006). For example, higher parental education was linked to more active children who were less involved in screen time, organized activities, and homework. Furthermore, the families´ intellectual-cultural and active-recreational cultural orientations were associated with more active and healthy activity profiles. Additionally, a better quality of family, school, and community environments was similarly associated with more active, engaged, and playful children – higher process quality was linked to more active profiles, whereas lower quality was related to less stimulating and more sedentary profiles. Thus, are children´s developmental needs and well-being at odds or aligned with the time use affordances and constraints of their families, schools, and communities?

More affluent parents tend to spend more time in educational activities with children, which positively affects their cognitive development, and employ parenting strategies characterized by warmth/sensitivity, consistency, and support, that promotes socioemotional development. The mechanisms underlying socioeconomic gaps are of social and cultural nature, being related to financial constraints and family resources, time pressure and stress, as well as parental beliefs, values, and preferences that embody family culture. For example, parents with a lower socioeconomic status may underestimate the developmental gains that come from a more constructive time spent with their children. It might be related to a lower amount of time and resources available to them, or they may hold lower expectations regarding the expected returns of time spent with children, the educational importance of family activities, or even how to engage effectively in such activities (Fiorini & Keane, 2014; Kalil & Ryan, 2020). Interventions must consider not only the availability and accessibility to high-quality services and programs but also the integration of parental beliefs, values, and skills as an avenue for positive behavioral change within the home environment, for better family time use choices that promote child well-being and development.

How Time Use Affects Children´s Well-Being and Overall Development

Participation in daily activities interconnects children and their contexts (Dunst, 2022). The central question guiding this research was how time use constitutes a developmental phenomenon reflecting both a cause and a consequence of child well-being and development. Our findings support the concept that the different portfolios and patterns of daily activities that were found are intertwined with child outcomes in a way that specific daily activities and overall profiles are related to greater benefits. In contrast, others can constitute a risk for children. Therefore, a constructive, meaningful, and child-adjusted time use can be a developmental asset for children. The interplay of distinct quantitative

and qualitative dimensions of time use represent different levels of exposure to developmental opportunities associated with positive and adverse variations in well-being and development. In our study, such interacting quantities and qualities were linked with positive effects on child outcomes, but these links were complex. We must also consider the reverse direction of causality, in which the level of a child´s adjustment predicts different portfolios of participation rather than specific activities being the main producers of child functioning (McHale et al., 2001).

Overall, and regarding children´s participation portfolios, favorable developmental outcomes are supported by the degree to which children´s everyday lives are characterized by opportunities to engage in a diversity of positive, constructive, stimulating activities at home, school, and community, in which quality relationships and experiences are key (Bartko, 2006). These activities help develop a range of physical, cognitive, and socioemotional attributes that help children more fully participate in their social and cultural worlds (Osher et al., 2020; VanderVen, 2008). Findings from the post-lockdown study (see Study 4) corroborate these assumptions regarding the potential benefits of children´s time use for their well-being. During the pandemic lockdown, where children´s participation in daily life was severely restricted, the investment in sleep, active leisure, and playing/learning activities in the home environment complemented with better family adaptive strategies, constituted protective factors linked to better overall child well-being as opposed to less-stimulating and sedentary profiles who were particularly prevalent in children from a less affluent background.

However, these links are complex as both quantitative (exposure) and qualitative (process) aspects of participation are at work (Lam & McHale, 2015a). The content of experiences in a given activity may vary across the population, therefore, time allocation may not represent the developmental opportunities expected in each activity (Larson & Verma, 1999). Indeed, our findings suggest that the quality aspects of participation were strongly and consistently associated with better developmental indicators, namely, child engagement, family cohesion, family culture, and the school, sports, and OA quality of environments, significantly adding to a perspective solely based on the intensity of participation. Other authors have also suggested the relevance of these quality aspects (Fomby & Musick, 2018; Liu et al., 2021; Pierce et al., 2010), highlighting how quality processes and environments – the actual features of the interactions of a child within each activity setting – are essential to children´s well-being and development (Bronfenbrenner & Morris, 1998; Darling, 2007; Larson et al., 2004).

The contexts where daily activities occur are very informative of children´s well-being. Children fare better across a range of developmental outcomes when their daily activity settings are

characterized by being safe, structured, warm and supportive, with clear social norms, where they learn valued skills, and develop their autonomy and sense of belonging. These settings must also provide the personal, physical, and social resources needed to shape effective pathways towards healthy behavior (Bartko, 2006). Next, we discuss how daily activities can constitute developmental assets for children.

Physical Activity and Play. In line with previous research, physical activity predicted better well-being and school achievement. Experiencing an active life and being involved in sports positively impacts children by improving their physical and mental health, their social competence and self-regulation, and their psychosocial maturity, which constitutes a foundation for achievement and positive development (Berntsson & Ringsberg, 2014; Biddle et al., 2019; Tsiros et al., 2017; Yu et al., 2013). Specifically, the quality of the sports environment was highly beneficial for children, indicating that this activity context may constitute a critical asset for positive development. It means that the provision and access to time use opportunities in the domain of physical activity, whether through active play, sports, walking outdoors, or movement activities, are critical ingredients of growth-promoting lifestyles whose benefits go beyond physical health.

In addition, play time showed mixed results, being associated with better quality of life but also higher internalizing behaviors. Because in our study, this category encompassed creative leisure (reading, drawing, playing an instrument) and quiet/relaxed play at home, we can assume that it may be a preferential activity for children with specific characteristics (e.g., introverted, self-conscious, anxious), in which they can feel relaxed and have fun. Additionally, it can constitute a parental strategy to entertain children showing some problem behaviors and not a cause of poorer behavior by itself. Our study measured other instances of play, namely active play (as a part of the larger physical activity category) and school free time (playing and socialization time with peers at school); both had positive contributions to child well-being and were significant elements of the better functioning clusters. Here, the content of play time, its social context and resources, the child´s engagement (and intrinsic motivation), and the quality of the environment where it occurs might determine the overall developmental effectiveness of playing. Our findings indicate that play activities are a way of improving child well-being, whether at home, at school (recess), or in the wider community (playgrounds, parks) (Bergen & Fromberg, 2008).

Overall, physical activity and playing can be used as effective tools in the improvement of children´s everyday lives. These activities constitute a means through which children learn to self-regulate their emotions, cognitions, and behaviors, socialize and build safe, stable relationships, and develop their identities in a way that strengthens their health and developmental trajectories.

Family Time, Screen Time, and Homework. Family time, which includes both dyadic and social time with parents, was linked to better behavioral outcomes in children, in line with previous research (see Teixeira, 2009), but also to lower school achievement. Extant research has found that higher levels of parent–child interactions, shared family activities, and supervised social activities in and outside the home environment are associated with better health, achievement, and psychosocial adjustment throughout childhood (Crosnoe & Trinitapoli, 2008; McHale et al., 2001; Raley, 2014). We assume that these family interactions help children navigate their lifeworlds, develop their identities, integrate values and adaptive behaviors, and improve social skills. Particularly in our study, the quality aspects of the home environment were quite influential regarding positive outcomes. For example, family cohesion and intellectual-cultural and active-recreational orientations predicted better levels of well-being and lower problem behaviors. Furthermore, an achievement orientation of the family predicted better school achievement. Here, quality also supersedes quantity. In contrast, the negative association between family time and school achievement may arise from the fact that children experiencing more difficulties at school are likely getting more attention from parents at home, that supervise academically-oriented tasks (i.e., more time studying).

Screen time, another relevant daily activity in children´s lives, was generally detrimental to their well-being and development. Previous research has found mixed results regarding this association. Looking at our data, we consider that bidirectional effects might occur. Less adaptive children with behavioral problems might dedicate larger portions of their leisure to screen time, in which they might feel relaxed and competent; in addition, this investment could constitute a parental strategy used to control the child´s behavior at home. Conversely, screen time, which is often spent alone, may have a displacement effect regarding other activities with positive developmental relevance and with better contents and experiences for child well-being, thus resulting in poorer outcomes (Auhuber et al., 2019; Huesmann & Taylor, 2006). However, as with family time, seen in the context of children´s overall activity patterns, screen time may lose its detrimental effect and constitute a standard element of children´s leisure with negligible effects on their well-being. More research is needed regarding the impact of screen time with the use of longitudinal and experimental designs that best disentangle these associations. Studies must go beyond the amount of time and include other dimensions such as the goals/utility, contents, social context, and child pre-selection characteristics (Orben, 2022; Teixeira, 2009).

Furthermore, the time spent doing homework was associated with better behavioral outcomes. Here, we expect that better-adjusted children are more prone to engage in academic-oriented tasks in

which they feel competent, an investment that results from their prosocial orientation. However, time spent on homework was not associated with achievement, which is in line with previous research. For example, Teixeira (2009) found that the positive effects of homework were a function of the social context of the activity, in which studying alone or with the mother was predictive of better educational outcomes, as opposed to studying with peers during the week. If a child is engaged and feels supported during homework, if the setting is quiet and structured, and if the academic tasks are perceived as interesting, useful, and engaging (i.e., quality aspects), the time spent studying may be more fruitful. In addition, this lack of association with the time spent on homework may result from both high and low achieving children spending higher amounts of time studying, for different reasons. Additionally, children experiencing difficulties at school are probably more engaged in out-of-home tutoring and other extracurricular activities that focus on helping them improve their learning outcomes.

Organized Activity Care and Leisure. The overall intensity of participation in organized activities predicted poorer child outcomes (Teixeira, 2009). One hypothesis is that some children are overscheduled in a way that hinders the possible benefits of participation in organized activities. Indeed, frenetic, stressful, strict, or low-stimulation time use arrangements may impede children from reaping any participation gains, but results from previous literature are mixed (Matjasko et al., 2019; Melman et al., 2007). In our study, specifically, the intensity of tutoring/studying hours was mainly responsible for these deleterious effects (Brown et al., 2011). In addition, this might happen as a result of pre-selection factors – children with poorer adjustment are more involved in organized activities as a strategic response by families that seek to attend to their developmental needs. However, in our study, participation effects rather varied as a function of the types of activities considered. Additionally, the quality of activity settings and the engagement levels of the child mattered most. The detrimental effect of organized activities was explained by lower levels of child engagement, which had the opposite effect for high-engaged children. Therefore, we assume that lower-quality organized activities, failing to positively engage and motivate children, result in less-than-optimal daily experiences, affecting children negatively or having negligible effects. Conversely, those activity settings that are perceived as having better process-level quality and positively engage children may have the reverse role on child outcomes (Faust & Kuperminc, 2020; Larson et al., 2004; Wade, 2015; Peck et al., 2008).

As expected, in our study, the quality of after-school programs and extracurricular activities´ environments predicted better child outcomes as opposed to the intensity of participation, a case in which quality supersedes quantity. These quality dimensions include physical and psychological safety, structure, social support, positive and inclusive social norms, and stimulating skill building experiences.

Participation in high-quality organized leisure that prevents overscheduling the child or the displacement of other developmentally relevant activities (e.g., family time, physical activity) may be an important element of more optimal time use profiles. However, more research is needed regarding this age period on how different types, amounts, and qualities of organized leisure may fit children with different characteristics and needs (Teixeira, 2009). In recent years, a public and private supply of organized after-school activities for children has emerged as a result of parental work demands and the implementation of all-day schooling in Portugal. However, the resulting "hyper-schooling" and "leisure pedagogization" effects associated with large amounts of time spent in structured/strict environments with varying quality, which may tend to be negligible regarding the promotion of positive development, raises several concerns in terms of policies and practices (Osher et al., 2020; Martins et al., 2015; Schuepbach, 2015).

On a person-centered level of analysis, and regarding children´s overall activity participation patterns (clusters), our findings reinforce the idea that children experience diverse time use arrangements with implications for their well-being and development. Different time use combinations reflected varying profiles of daily participation and different levels of exposure to socialization and developmental opportunities, more accurately portraying children´s real-world care and leisure ecology. These different patterns were predictive of different levels of child adjustment in a way that specific combinations were linked to greater benefits for children while other patterns could constitute a developmental risk.

Each multidimensional pattern of participation constituted a distinct pathway either toward competence and adjustment or poorer functioning and well-being. Two unique patterns of participation, representing 25% of our sample, were linked to overall better outcomes, indicating that there is more than one path linking time use and children´s growth (Bartko & Eccles, 2003). Children whose profiles were characterized by active and engaged everyday lives, higher socializing experiences with family and peers, and moderate participation levels in a wide range of daily activities (including organized activities), seemed to benefit more compared with their counterparts who were generally less involved or engaged solely in one domain of activities (e.g., screen time, organized activities). The elements contributing to more positive outcomes included higher participation in physical activity (sports, active play, movement activities), in family leisure and studying at home, in playing and socializing with peers at school, moderate levels of extracurricular participation, and moderate to low levels of screen time. Conversely, patterns characterized by lower socialization experiences with peers and adults and lower exposure to stimulating developmental opportunities embodied the suboptimal clusters that were found,

accounting for a total of 75% of our sample. These children may be at higher risk for poorer developmental outcomes due to their time use arrangements, thus warranting intervention and change in policies and practices. Particularly, children experiencing a chronic health condition, learning difficulties, or problem behaviors tended to have participation profiles that did not seem to benefit them. These profiles can be more passive with less stimulating experiences, or conversely, highly overscheduling, which may constitute a risk as opposed to an asset. Here, the concept of person-environment fit may be important for more adequate after-school care and leisure time arrangements that contribute to overcoming these difficulties. It warrants positive adjustments to how they spend their time and the quality of their daily experiences as a function of children´s developmental needs.

Promoting Healthy and Positive Development by Improving Children´s Everyday Lives – Translational Implications

Children´s healthy and positive development is highly responsive to context; children develop along unique, idiographic pathways embedded in the social and cultural ecology of everyday life. At the center of these reciprocal coactions between a child and her social and cultural contexts are the significant relationships and daily experiences shaping development (Bronfenbrenner & Morris, 1998; Schonert-Reichl, 2011). Developmentally rich contexts that foster well-being, adaptive behavior, and competence, include relationships characterized by attunement, support, co-regulation, consistency, and responsiveness, and experiences/activities that feature safe, enriching, stimulating opportunities targeting foundational skills in the physical, cognitive, socioemotional, and behavioral domains (Osher et al., 2020). The diversity and regularity of exposure to these productive interactions between children and their environments are the building blocks of positive developmental pathways; multiple quality experiences filled with growth-related opportunities that attend to children´s needs, strengths, and potential are thus essential elements for thriving. Improving the quality of children´s environments has been shown to increase the developmental power of proximal processes – the quality of relationships and activities developed in multiple settings and situations can lead to a result in which quality outweighs quantity (Bronfenbrenner & Morris, 1998).

From an applied developmental science perspective, “healthy development involves positive change in the relation between a developing person – who is committed and able to contribute positively to self, family, and community – and a community supporting the development of such a citizen” (Lerner et al., 2019, p. 15). Therefore, a constructive, meaningful, child-adjusted use of time is a developmental asset for children, involving an array of opportunities available to children to engage in creative and structured experiences within the context of caring nurturing relationships that provide

support, empowerment, boundaries, and expectations, and that promote skills and capacities (Benson et al., 2012; Schonert-Reichl, 2011). A constructive use of time can be fostered by asset-building families and communities aimed at supporting health and thriving during childhood. It includes dynamic aspects such as: engaging in family activities at home that are developmentally oriented, in which parents control the amount of screen time and invest in educational time (i.e., growth-oriented home environments); opportunity to positively interact with peers and adults by engaging in the social and cultural endeavors of their families, schools, and communities (social time); opportunities to engage in play allowing self-expression, physical activity, and creativity in the context of healthy relationships (home and school environments); and access to well-designed school-based and after-school programs which are led by competent, caring adults with a focus on quality peer-child and adult-child relationships and skill-building (school and community settings) (Schonert-Reichl, 2011; VanderVen, 2008).

Yu and colleagues (2013) posit that participation patterns characterized by being physically active, structured, socially engaged and with adult supervision, whose routines include restful and relaxing activities, are important for preventing behavioral problems in children. Here, professionals can assist parents and high-risk groups in identifying health-promoting activities and establish more positive daily routines. Additionally, they argue that activity participation and engagement can protect children from poorer outcomes if the best child-environment fit is achieved. Person-environment fit is related to the notion that positive development occurs when there is a match/congruence between children´s characteristics (needs, preferences, internal assets) and the nature of their ecological contexts (resources, goals, values, external assets) (Benson et al., 2012). The concept of person-environment fit can be a relevant element of better after-school care and leisure arrangements, particularly when the quality and quantity dimensions of participation align with children´s characteristics and needs. But are children´s preferences, choices, and needs aligned with their real-life participation profiles, opportunities, and the resources available in their activity settings? Children hold different perspectives regarding their everyday lives that must be included to achieve a time use goodness-of-fit. In line with our findings, children need to experience more free time and autonomy in their leisure pursuits in the context of quality, positive relationships and engaging, stimulating activities (playing and socializing with family and peers) within structured settings (Schonert-Reichl, 2011).

As Bartko (2006) questions, taking into account limited resources and overburdened schedules, what is possible to do to improve children´s daily lives? Given that the accumulation of growth-promoting experiences can have decisive repercussions for healthy, positive development, how can we structure children´s time use to urge them to learn valued skills, create healthy and meaningful

relationships, and feel motivated to take on new challenges and integrate adaptive behaviors? Schonert-Reichl (2011, p. 75) posited that "children who are engaged in meaningful social interactions and structured activities within the home, school, and community, fare better socially and psychologically than children who are not given this same attention. Therefore, it is critical that governments, organizations, communities, and families support each other in creating formative experiences for children that will develop their competence, confidence, and positive views of themselves". Dunst (2022) adds that parents ability to engage children in development-enhancing activities depends mostly on the supports and resources available, specifically time and psychological energy to promote learning and development.

In sum, and in light of our findings and reviewed literature, we postulate that: (a) more is better, but not always, for all children, in all circumstances (see Zarrett et al., 2009); (b) variety and quality produce a more optimal effect than low-participation or focusing on a single domain of activity; (c) quantity and diversity matter but quality is essential, children need secure, stimulating, playful activities occurring in different settings and providing constructive socialization experiences coupled with supportive relationships; (d) more optimal time use patterns are characterized by being dynamic, diverse, and moderately intense, not overscheduling the child, whereas less-than-optimal patterns can be stressful, strict, monotonous, and less stimulating and engaging, being overly focused on one domain of activity; and, (e) these enriching, growth-promoting experiences must fit children´s needs and characteristics (goodness-of-fit) encompassing an optimal, adaptive regulation of time use.

The integration of past, present, and future knowledge in this field must inform "the intentional design of the environmental contexts in which children grow, learn, and develop" (Osher et al., 2020, p. 19). Families, schools, and other child-serving systems can improve children´s everyday lives by adopting whole-child development approaches (socioemotional, cognitive, physical) where a comprehensive set of multi-level strategies are implemented to support effective change (Schonert-Reichl, 2011). A synthesis of multi-level repercussions of the present research findings is displayed in Table 36. The translational implications are organized by different ecological levels involving different agents and mechanisms of positive change, including children, families, schools, communities, and policy.

Table 36

Translational Implications of the Research Findings

Child	✓Children are included as relevant informants of their own lives, capable of contributing to a better school and after-school care and leisure arrangements ✓Children´s motivations, values, and needs are included in the family´s organization of everyday life ✓Children exert their autonomy in informing adults how to achieve the best person-environment fit (harmony between internal and external ecological assets)
Family	✓Parents adopt play (in its various forms) as a tool for healthy development of the child and integrate it into the family routines (fun, engaging, relaxing, stimulating) – adult facilitation of play ✓Families limit and monitor screen time (which can be playful and educational) and promote more active, healthy lifestyles (active play, sports, walking in the outdoors) ✓Parents avoid overscheduling children who experience learning difficulties or a chronic health condition with activities focused solely on educational compensation; parents avoid the displacement of development-enhancing activities
School	✓Schools create opportunities for safe, autonomous free play with peers ✓Schools are organized to provide a web of positive developmental relationships that serve as a base for learning, belonging, and inclusiveness during school activities ✓Recess is a time for active playing, where the physical and psychosocial development activities and games are key ✓Teachers integrate play as a scaffolding tool for exploring, learning, and skill-building (motor, cognitive, and social-emotional) in complement to the curricula
Community and Policy **(policies, services, programs, professionals)**	✓Public investment in healthy child development services (focused on well-being outcomes and developmental assets that serve as promotive factors) is directed at policies that promote: (a) work-family life balance and family quality time (increased parent-child time for bonding and skill-building, decreased screen time dependance and long after-school hours in organized care); (b) widely available/accessible high-quality sports, extracurriculars, and after-school programs (avoiding overscheduling); (c) the integration of family, school, and community efforts through effective, meaningful communication and synergies aimed at improving social capital and promoting asset - building communities ✓Communities are rich in developmental opportunities for children that are tailored to fit different child and family needs ✓Programs/practitioners help parents successfully apply beneficial parenting practices around family activities and routines that are cognitively and socioemotionally stimulating and nurturing ✓Clinicians/practitioners, in agreement with teachers and parents, adjust and optimize

	the time use of children experiencing learning/behavioral problems to optimize results ✓Programs/services/practitioners help parents overcome cognitive biases related to children´s developmental needs and the educational effectiveness of parent–child social and dyadic time ✓Programs/services/practitioners provide support to the improvement of parental practices, decision-making, and self-efficacy, offering behavioral tools related to a more optimal time use for children

Note. This set of implications is based on the present research findings integrated with previous literature (see Barbot et al., 2020; Benson et al., 2012; Bergen & Fromberg, 2008; Cooper et al., 2006; Dunst, 2022; Kalil & Ryan, 2020; Larson et al., 2004; Osher et al., 2020; Schonert-Reichl, 2011; Teixeira, 2009; VanderVen, 2008; Yogman et al., 2018).

Future Research

Middle childhood is an opportune time to optimize health and adjustment. However, the knowledge of the well-being status of Portuguese children and how they are growing and learning still needs to be explored. Research tapping into their everyday lives can be a fruitful endeavor with implications for intervention and policy, particularly how the adults present in children´s lives can co-construct their positive, healthy development. Additionally, a higher level of conceptual and methodological robustness of time use research is needed regarding: (a) the use of intervention/experimental designs about family time and organized after-school activities; (b) the use of social and culturally-situated longitudinal designs that assess the middle childhood years into adolescence; (c) the inclusion of children at the center of the research endeavors about their everyday lives and well-being, as informants and agents of change; (d) the need for research that informs and is informed by children, families, schools, and communities (services); (e) the implementation of preventive/promotive evidence-based interventions that are socially and culturally adapted to improve the health and development of children and their families, considering the needs of sub-groups of the population (e.g., low-income families); (f) the need for research to increase actionability, by communicating real-world value and impacts that influence policy; and, (g) the need to systematically monitor, at the population level, the well-being status of Portuguese children (i.e., time use, physical and mental health, socioemotional development, social connectedness, school experiences).

Limitations

The current research has several limitations to be considered. The correlational design impedes the inference of causality and the sampling procedures do not afford the generalization of findings beyond school-aged children from Northern Portugal. Additionally, self-report measures might have biased our results due to social desirability and measurement error. Time use estimates are influenced

by a multitude of factors that may lead to error (i.e., coding and categorization, sampling, seasonal variation) also limiting the generalization of findings. However, the 95% CI suggested a good precision of our estimates. Additionally, despite children being crucial informants regarding their everyday lives, well-being, and growth, the relative weight of the qualitative component in the research design was limited, which constitutes a constraint regarding the phenomenological and culturally-specific potential and robustness of the study. Nevertheless, the integration of variable- and person-centered approaches are a qualitatively robust way of understanding the time use ecology of middle childhood, and using statistical models that incorporated strong controls was a valid strategy to comprehend the developmental effects of time use.

Conclusion

The present research aimed at putting children at the center of the research and debate about their time use, well-being, and growth. We add to extant research by providing a real-world, holistic description of children´s time use during middle childhood, its developmental consequences, and the diverse ecological characteristics shaping it. The daily experiences of middle childhood are key steps to children´s well-being and can have relevant formative influences on future participation profiles and positive development during adolescence and adulthood. We identified avenues for intervention that may support a healthy, positive development: a constructive, meaningful, child-adjusted time use is a positive developmental asset for children in which the quality of daily activities supersedes quantity and where the child-environment fit is central. In sum, time is a finite but malleable resource that can be optimized to enhance children´s everyday lives and support thriving during middle childhood. The goal of actualizing children´s rights, where they live an enriching life in which they develop their fullest potential and are provided with appropriate and equal opportunities for participation in society, can be attained by educational policies and practices that promote a child-friendly use of time as a steppingstone for health and positive developmental pathways.

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APPENDIXES

Appendix 1

Parecer da Comissão de Ética da Universidade do Minho

[Declaration of the University´s Ethics Committee]

Universidade do Minho

Conselho de Ética

Comissão de Ética para a Investigação em Ciências Sociais e Humanas

Identificação do documento: CEICSH 063/2019

Relatores: Manuel José Jacinto Sarmento Pereira

Título do projeto: *As atividades quotidianas e o desenvolvimento saudável de crianças em idade escolar: a influência da desigualdade, cultura familiar e género (The interplay of daily activities and healthy child development: the influence of inequality, family culture and gender)*

Equipa de Investigação: Vitor Hugo Pereira de Oliveira, Programa Doutoral em Estudos da Criança, Instituto de Educação, Universidade do Minho; Maria da Graça Ferreira Simões de Carvalho (Orientador), Centro de Investigação em Estudos da Criança, Instituto de Educação, Universidade do Minho; Paula Cristina Marques Martins (Orientador), Escola de Psicologia, Universidade do Minho

PARECER

A Comissão de Ética para a Investigação em Ciências Sociais e Humanas (CEICSH) analisou o processo relativo ao projeto de investigação acima identificado, intitulado *As atividades quotidianas e o desenvolvimento saudável de crianças em idade escolar: a influência da desigualdade, cultura familiar e género.*

Os documentos apresentados revelam que o projeto obedece aos requisitos exigidos para as boas práticas na investigação com humanos, em conformidade com as normas nacionais e internacionais que regulam a investigação em Ciências Sociais e Humanas.

Face ao exposto, a Comissão de Ética para a Investigação em Ciências Sociais e Humanas (CEICSH) nada tem a opor à realização do projeto, emitindo o seu parecer favorável, que foi aprovado por unanimidade pelos seus membros.

Braga, 14 de outubro de 2019.

O Presidente da CEICSH

Assinado por : **ACÍLIO DA SILVA ESTANQUEIRO ROCHA**
Num. de Identificação: BI042754054
Data: 2019.10.18 17:45:19 Hora de Verão de GMT

CARTÃO DE CIDADÃO

Anexo: Formulário de identificação e caracterização do projeto

Appendix 2

Description of the Quality Indicators of Daily Activities

		3rd / 4th Grade		5th / 6th Grade	
Covariates	Items	*M* (*SD*)	α	*M* (*SD*)	α
Q25					
school environment	5	2.91(0.70)	.88	2.60(0.69)	.87
ECAs environment	5	2.89(0.71)	.93	3.11(0.58)	.92
ASPs environment	5	3.09(0.96)	.98	3.04(0.77)	.96
sports environment	5	3.17(0.69)	.95	3.24(0.61)	.95
EA environment	5	3.13(0.76)	.97	3.05(0.71)	.95
tutoring environment	5	2.90(0.76)	.95	3.05(0.82)	.94
youth group environment	5	3.02(0.70)	.95	3.02(0.74)	.95
OA overall	–	3.07(0.63)	–	3.13(0.60)	–
FES					
cohesion	9	8.18(1.30)	.67	8.20(1.38)	.70
organization	9	8.03(1.42)	.66	8.11(1.38)	.64
achievement orientation	9	5.34(1.70)	.55	5.79(1.65)	.50
intellectual-cultural orientation	9	5.67(2.11)	.69	5.21(2.12)	.67
active-recreational orientation	9	6.37(1.81)	.62	5.97(1.75)	.51

Appendix 3

Full Description of Child Outcome Variables and the Pre-Adjustment Indicator at the 3rd/4th Grade and 5th/6th Grade

		3rd/4th Grade					5th/6th Grade				
Measure *Variable*	Items	Range	*Mdn*	*M* (*SD*)	BCa 95%CI	α	Range	*Mdn*	*M* (*SD*)	BCa 95%CI	α
TRF (teacher-report)											
School achievement	4	1.50 – 5.00	3.29	3.55 (0.80)	[3.43, 3.67]	.95	1.67 – 5.00	3.50	3.68 (0.90)	[3.49, 3.87]	.93
Adaptive behavior	4	9.00 – 28.00	19.00	19.13 (3.76)	[18.59, 19.66]	.87	10 – 28	18.00	18.94 (4.32)	[18.05, 19.81]	.87
SDQ (parent-report)											
Prosocial behavior	5	5.00 – 10.00	10.00	9.11 (1.24)	[8.24, 9.28]	.63	3.00 – 10	9.00	8.74 (1.59)	[8.48, 9.01]	.68
Total behavioral difficulties	20	1.00 – 28.00	9.00	9.54 (4.92)	[8.95, 10.15]	.76	2.00 – 33	10.00	10.79 (5.64)	[9.94, 11.67]	.81
Internalizing	10	0.00 – 15.00	3.00	3.85 (2.94)	[3.46, 4.25]	.72	0.00 – 17	4.00	4.48 (3.40)	[3.98, 5.03]	.76
Externalizing	10	0.00 – 15.00	5.00	5.69 (3.25)	[5.30, 6.09]	.74	0.00 – 16	6.00	6.31 (3.59)	[5.70, 6.91]	.78
KIDSCREEN-27 (child-report)											
HRQoL total score	27	50.89 – 100	87.18	84.78 (10.42)	[83.13, 86.26]	.89	14.18 – 100	81.54	79.71 (13.19)	[76.90, 81.96]	.93
Physical well-being	5	30.00 – 100	85.00	80.92 (15.73)	[78.70, 82.93]	.77	20 – 100	80.00	78.10 (16.45)	[75.35, 80.81]	.79
Psychological well-being	7	50.00 – 100	89.29	86.75 (12.10)	[85.04, 88.33]	.76	10.71 – 100	82.14	77.93 (18.12)	[74.78, 80.89]	.88
Parent relations and autonomy	7	35.71 – 100	89.29	85.29 (13.25)	[83.43, 87.21]	.68	21.43 – 100	85.71	82.51 (14.38)	[80.05, 84.81]	.74
Social support and peers	4	18.75 – 100	87.50	86.07 (15.71)	[83.84, 88.10]	.80	18.75 – 100	87.50	85.43 (16.44)	[82.53, 88.20]	.80
School environment	4	0.00 – 100	87.50	84.89 (13.86)	[82.89, 86.73]	.74	0.00 – 100	75.00	74.41 (18.97)	[71.47, 77.67]	.83
Pre-adjustment (parent-report)											
Pre-adjustment indicator	2	1.50 – 5.00	3.50	3.80 (0.75)	[3.70, 3.89]	.67	1.00 – 5.00	3.50	3.62 (0.73)	[3.49, 3.75]	.55

Notes. α = Cronbach's alpha. BCa = Bias-corrected accelerated confidence intervals. KIDSCREEN-27 scores were standardized to a 0-100 scale.