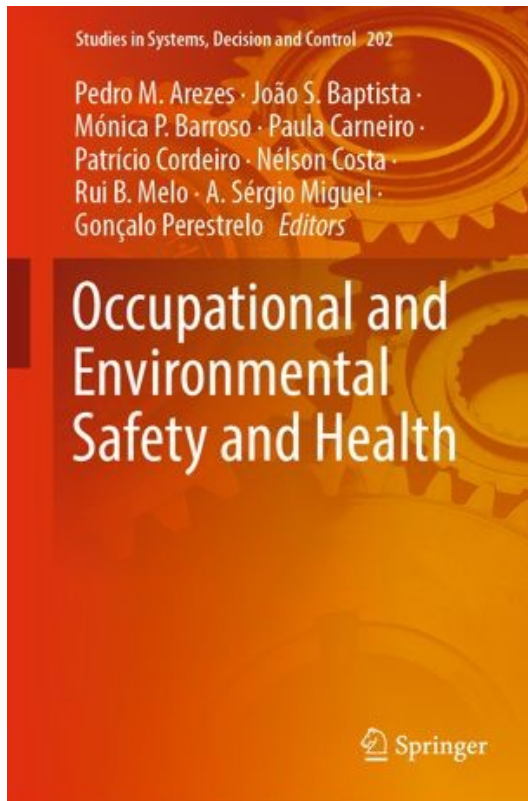


Citing this paper: Simões C., & Gomes, A. R. (2019). Psychological Distress on Nurses: The Role of Personal and Professional Characteristics. In P. Arezes et al. (Eds), *Occupational and Environmental Safety and Health* (pp. 601- 610). Cham: Springer. doi: 10.1007/978-3-030-14730-3_64.

Funding

Psychology Research Centre (UID/PSI/01662/2013), University of Minho COMPETE2020. PT2020 Partnership Agreement (POCI-01-0145-FEDER-007653) Project UID/MAT/00013/2013



Corresponding authors

A. Rui Gomes

Universidade do Minho

Escola de Psicologia

Campus de Gualtar

4710-057 Braga

Portugal

Telf. +253.604.232

Fax:+253.604.221

rgomes@psi.uminho.pt

Clara Simões

Universidade do Minho

Escola Superior de Enfermagem

Campus de Gualtar

4710-057 Braga

Portugal

Telf. (+351) 253.601.311

csimaes@ese.uminho.pt

Psychological Distress on Nurses: The Role of Personal and Professional Characteristics

Clara Simões^{1,2}[0000-0001-9856-2295] and A. Rui Gomes³[0000-0002-6390-9866]

¹ University of Minho, School of Nursing, Braga, Portugal

² Portuguese Catholic University, Institute of Health Sciences, Porto, Portugal
csimaes@ese.uminho.pt

³ University of Minho, School of Psychology, Braga, Portugal
rgomes@psi.uminho.pt

Abstract. This study explored the role of nurses' personal and professional characteristics on the expression of psychological distress, overcoming the limitations of studying humans' responses to work environments using the stress-strain approach. The sample consisted of 2203 registered nurses working in Portugal. The investigation protocol included a Sociodemographic and Professional Questionnaire and the Portuguese version of the General Health Questionnaire-12. A high percentage of nurses (79.3%) showed levels of psychological distress, deserving for clinical attention. Significant differences were found between nurses with and without clinical symptoms of psychological distress. Female nurses, those working in primary health care, and nurses with no hobby and no physical exercise behaviors, presented significant levels of distress, deserving for clinical attention. These nurses reported high levels of anxiety/depression and social dysfunction. More, the absence of a hobby and the lack of physical exercise behaviors constituted as risk factors for the experience of clinical symptoms of distress, anxiety/depression and social dysfunction. These findings represent an important issue in occupational stress research, suggesting that leisure activities may be a protective factor for nurses' mental health, acting as a "Daily Uplifts" for the stress recovery balance. Thus, in order to ensure the patients' safety and the quality of health care, health organizations must consider nurses' personal and professional characteristics that influence their mental health and global functioning when developing occupational health programs.

Keywords: Nurses, Occupational Stress, Psychological Distress.

1 Introduction

Occupational stress in health professionals has become a matter of public health, due to its negative effects on individuals' mental health, in such a way that job stress has been called for many the "plague of the century" [1]. Research has been pointing special attention for nurses, as a professional group continuously exposed to worrying levels of stress, in their work environment [2].

Nursing professionals have to face several hard burdens related to the nature of health care and work environments, characterized by high psychological, physical and emotional demands, allied to a reduced degree of control and rewards. In fact, nurses constitute the professional group with the closest relationship to patients and families, and have to deal constantly with life threatening events and adversity [3]. Moreover, the work in health care has been subject to an economic crisis, which seeks for profit in health organizations, with consecutive and dramatic budgetary cuts, in terms of human and material resources, resulting in considerable physical and emotional overload for nurses. Specifically, nurses had to face an increase of the patients' ratio per nurse per shift; an extension of the working period and working overtime, often unpaid; an increase in shifts with irregular patterns; insecurity in the working conditions; precarious employment contracts and the lack of career progression [3]. These sources of occupational stress, allied to a huge responsibility, low decision-making, irregular shift work, night shifts, high number of working hours per shift, workload, reduced salary and lack of recognition, are frequently perceived as surpassing the individuals' personal resources, and resulting in a negative adaptation to stress [4]. An important outcome of the negative adaptation process is the deterioration of the individuals' mental health and the expression of psychological distress, which in turn, affects the quality of health care, the organizational climate and productivity [1, 5].

Being nursing professionals highly vulnerable to the effects of occupational stress, nurses' psychological health is of a huge relevance in terms of occupational safety, due to its clinical power and effect on the person's health, functioning and safety [5, 6]. In detail, psychological distress has been conceptualized "as a negative state of mental health characterized by anxiety and depressive symptoms" [6], which can be viewed as an emotional disturbance that may impact social functioning and day-to-day living of individuals. Moreover, psychological distress can constitute a diagnostic criterion for some psychiatric disorders (e.g., post-traumatic stress disorder) or even as a marker of the symptoms' severity in other disorders (e.g., generalized anxiety disorder) when accompanied by impairment in daily living [7].

Studies on occupational stress, in health professionals, has shown to be valuable in predicting health outcomes, namely psychological distress [1, 5]. However, it has been too centered in studying the effect of psychosocial work characteristics [2, 8], based on several occupational stress models and in the study of humans' responses to work environments using the stress-strain approach [5]. This approach tends to simplify a phenomenon that is dynamic and individualized, buffering minor sources of stress, as the "daily hassles"[4], thus, disregarding the role of nurses' personal and professional characteristics. Therefore, surpassing the restrictions of the stress-strain approach, in this study we sought to explore the role of personal and professional variables on nurses' psychological distress. To do so, we established three main goals:

- (1) Explore the relation between the personal and professional variables and psychological distress in nurses;
- (2) Identify risk factors for clinical symptoms of psychological distress;
- (3) Identify risk factors for anxiety/depression and social dysfunction in nurses.

2 Method

2.1 Participants

A convenience sample of 2203 registered nurses, working in Portugal, was assessed through an online platform. With a mean age of 33.7 (SD = 9.39) years old, 82.1% of the nurses were female and 42.5% were married. Most of the nurses belonged to the institutional staff board (69.6%), 57% were working in a hospital, and 64.4% worked by shifts. Moreover, 50.9 % of the nurses reported not accomplish any type of physical exercise, nor having any hobby (27.9%).

2.2 Procedure

The research embraces a descriptive correlational cross-sectional study design. The study used an online questionnaire of self-reported measures, which was sent to all nurses working in Portugal, through the Professional Association network, inviting them to anonymously and voluntarily participate in the study. The study was conducted in harmony with the National and European regulations of research with humans.

3 Measures

Sociodemographic and Professional Questionnaire. It was based on previous studies of occupational stress in health professionals [1, 9, 10], evaluating personal (age, gender, marital status, education level, hobby, physical exercise) and professional (type of workplace, clinical specialty, professional category, type of contract, shift work, years in the profession, number of working hours, absenteeism) characteristics of nurses.

General Health Questionnaire-12 [GHQ-12; 11]. Measures the individuals' general psychological health and changes in affective and somatic symptoms relative to the usual levels of health [1, 12, 13]. In this study, we used the Portuguese version of the GHQ-12 [8], to assess nurses' psychological distress (e.g., severity of psychological distress; anxiety/depression, and social dysfunction). The instrument contains 12 items, where participants report how often they experience a specific symptom (1 = better than usual; to 4 = much less than usual). This study considered both the total value of the scale (12 items; $\alpha = .82$) and the two subscales: (a) anxiety/depression (six items; $\alpha = .82$); and (b) social dysfunction (six items; $\alpha = .76$). Confirmatory factor analysis showed an acceptable fit [14] for a two-factor model: $\chi^2(49 \text{ df}) = 205.31$, $\chi^2/\text{df} = 4.19$, $p < .001$; RMSEA = .037, $p(\text{RMSEA} \leq .05) = 0.99$, 90% C.I. [.032, .043]; NFI = .974; TLI = .973; CFI = .980; GFI = .985.

3.1 Data analysis

Data analysis was completed through IBM SPSS and AMOS Program (version 25). An exploratory data analysis revealed that the assumptions for using parametric tests were met, so we proceed with the statistical tests, assuming a 95% C.I., rejecting the null hypothesis for a p -value $< .05$. Regarding the severity of psychological distress,

by using the GHQ-12 cut-off threshold 2/3, as indicated in the manual [13] and in previous studies [1], we constituted two groups: with and without clinical symptoms of psychological distress. After these procedures, we tested the relation between the personal (age, gender, marital status, education level, hobby, physical exercise) and professional variables (type of workplace, clinical specialty, professional category, type of contract, shift work, years in the profession, number of working hours, absenteeism) and the dependent variables (severity of psychological distress; anxiety/depression; and social dysfunction) (study goal 1). Second, we performed a logistic regression analysis in order to identify risk factors for the clinical symptoms of psychological distress (study goal 2). Finally, we conducted a hierarchical linear regression analysis in order to identify risk factors for anxiety/depression and social dysfunction (study goal 3). The entrance of the variables followed previous indication of literature on occupational stress on nurses [9], according to the following steps: (1) in the first step, we introduced personal variables concerning sociodemographic characteristics (age, gender and marital status); (2) in the second step, we introduced personal variables concerning life style (hobby and physical exercise); and, (3) in the last step, we introduced professional variables (type of workplace). Type of workplace was divided on two groups (hospital and primary healthcare), as it seems to be an important variable in order to understand nurses' work environment [9, 10].

4 Results

4.1 Personal and Professional Characteristics and Psychological Distress

This section aims to explore the relation between nurses' personal and professional characteristics and psychological distress (study goal 1).

Severity of psychological distress: nurses with and without clinical symptoms. Regarding the total sample, the overall prevalence of psychological distress ($M = 5.31$, $SD = 2.94$) was higher to that reported in the literature [1], and more pronounced in anxiety/depression, compared to social dysfunction (see Table 1). Using the GHQ-12 cut off 2/3 for clinical cases [1, 13], 79.3% of the nurses showed clinical symptoms of psychological distress. Nurses with clinical symptoms showed a worse psychological profile, reporting more anxiety/depression ($t = -60.99$, $p < .001$) and social dysfunction ($t = -17.47$, $p < .001$), than nurses' without clinical symptoms. These results are presented in Table 1.

Personal characteristics. Significant differences were found between nurses with and without clinical symptoms in terms of gender, hobby, and physical exercise. Aside the highest age ($t = -1.86$, $p = .063$), we found more clinical cases in women, rather than in men ($\chi^2(1) = 4.49$, $p = .034$). On the contrary, we found a higher incidence of nurses without clinical symptoms among those that reported having a hobby ($\chi^2(1) = 12.62$, $p < .001$) and performed physical exercise ($\chi^2(1) = 19.75$, $p < .001$).

Professional characteristics. The incidence of clinical cases was not independent from the type of workplace ($\chi^2(1) = 5.16$, $p = .023$). A higher percentage of cases without clinical symptoms was observed in nurses that worked in the hospital setting.

Table 1. Significant differences between the Clinical and Non-Clinical groups of nurses, on the personal and professional variables, and psychological measures (N= 2203).

Nurses Characteristics	Total Sample (N = 2203)	Non-Clinical Group (n = 456, 20.7%)	Clinical Group (n = 1747, 79.3%)	<i>p</i>
Personal variables				
Age (y) M(SD)	33.7 (9.39)	32.9 (9.24)	33.9 (9.43)	.063
Gender				
<i>Male</i>	394 (17.9)	97 (21.3)	297 (17.0)	.034
<i>Female</i>	1809 (82.1)	359 (78.7)	1450 (83.0)	
Hobby				
<i>Yes</i>	1588 (72.1)	359 (78.7)	1229 (70.3)	< .001
<i>No</i>	615 (27.9)	97 (21.3%)	518 (29.7)	
Physical exercise				
<i>Yes</i>	1081 (49.1)	266 (58.3)	815 (46.7)	< .001
<i>No</i>	1122 (50.9)	190 (41.7)	932 (53.3)	
Professional variables				
Type of workplace				
<i>Hospital</i>	1255 (56.9)	268 (82.7)	987 (76.9)	.023
<i>Primary healthcare</i>	353 (16.0)	56 (17.3)	297 (23.1)	
Psychological variables				
GHQ-total M(SD)	5.31(2.94)	1.16(0.79)	6.40(2.25)	< .001
GHQ(Anxiety/Depression) M(SD)	4.11(1.97)	1.04(0.78)	4.91(1.29)	< .001
GHQ(Social Dysfunction) M(SD)	1.20(1.59)	0.11(0.33)	1.49(1.67)	< .001

Note. Continuous variables are presented as M (SD); categorical variables are presented as n (%). y = years, GHQ = General Health Questionnaire.

Anxiety/depression and social dysfunction. A MANOVA showed significant differences in anxiety/depression and in social dysfunction, in relation to marital status (Wilks' $\lambda = .999$, $F_{(2, 1955)} = 3.45$, $p = .032$, $\eta^2 = .004$; $\pi = .746$); having a hobby (Wilks' $\lambda = .994$, $F_{(2, 1955)} = 3.92$, $p = .003$, $\eta^2 = .006$; $\pi = .878$); and the type of professional contract (Wilks' $\lambda = .993$, $F_{(2, 1577)} = 5.37$, $p = .005$, $\eta^2 = .007$; $\pi = .843$). Despite the small effect size ($\eta^2 \leq .05$), the observed power of the tests was large ($\pi \geq .8$; [14]). The univariate tests showed that anxiety/depression was significantly higher in nurses with no hobby (M = 4.39, SD = .19), compared to those who had a hobby (M = 3.95 SD = .06; $F_{(1)} = 4.79$, $p = .029$). However, social dysfunction was significantly higher in nurses that were single (M = 1.45, SD = .13; $F_{(1)} = 6.86$, $p = .009$); that had no hobby (M = 1.50, SD = .15; $F_{(1)} = 10.52$, $p = .001$), and that held a permanent type of professional contract (M = 1.76, SD = .11; $F_{(1)} = 10.34$, $p = .001$). In comparison to nurses that were married (M = 1.02, SD = .10), had a hobby (M = 0.97, SD = .05), and, that held a precarious type of contract (M = 0.80, SD = .21).

4.2 Risk Factors for Clinical Symptoms of Psychological Distress

To identify personal and professional risk factors associated to clinical symptoms of psychological distress (study goal 2) we conducted a logistic regression analysis (Table 2). The Hosmer-Lemeshow Chi2 statistic ($\chi^2_{HL}(6) = 3.17$, $p = .79$) indicated a well-fitted model[14]. The model tested was significant in predicting clinical symptoms, and allowed to classify correctly an overall percentage of 79.9% of the cases.

Having no hobby, no physical exercise behaviors, and working in primary health care, was related to greater clinical symptoms of psychological distress.

Table 2. Logistic regression analysis for predictors of clinical symptoms of distress (N= 2203).

Predictors for Clinical Symptoms (GHQ-12)	B	Wald	Odds ratio [95% CI]	p
Step 1				
Gender ^a	-.295	3.588	.745 [.549, 1.010]	.058
Step 2				
Hobby ^b	-.371	5.392	.690 [.505, .944]	.020
Physical exercise ^c	-.342	6.459	.711 [.546, .925]	.011
Step 3 (Final Model)				
Gender ^a	-.190	1.438	.827 [.607, 1.128]	.230
Hobby ^b	-.364	5.196	.695 [.508, .950]	.023
Physical exercise ^c	-.336	6.254	.714 [.549, .930]	.012
Type of workplace ^d	-.327	4.052	.721 [.525, .991]	.044

% Corrected = 79.9 ; ($\chi^2_{(4)} = 26.561$; $p \leq .001$)

Note. ^aDichotomous variable: 0 = female, 1 = male. ^bDichotomous variable: 0 = no, 1 = yes. ^cDichotomous variable: 0 = no, 1 = yes. ^dDichotomous variable: 0 = primary health care, 1 = hospital.

4.3 Risk Factors for Anxiety/Depression and Social Dysfunction

To identify personal and professional risk factors for anxiety/depression and social dysfunction (study goal 3), we accomplished a hierarchical linear regression analysis (Table 3). Findings revealed that more age, having no hobby, and no physical exercise behaviors was associated to higher levels of anxiety/depression. In addition, being single and having no hobby was related to greater social dysfunction.

Table 3. Hierarchical linear regression analysis for predictors of anxiety/depression and social dysfunction (N = 2203)

RESULTS/PREDICTORS	ΔR^2	ΔF	β	t
ANXIETY/DEPRESSION (GHQ-12)				
Step 1				
Age ^a	.002	4.487*	.046	2.184*
Step 2				
Hobby ^b	.014	15.949***	.074	3.264***
Physical exercise ^c			.071	3.133**
$R^2 = .016$; $R^2_{\text{Adjusted}} = .015$; $F_{(3,2227)} = 12.149***$				
SOCIAL DYSFUNCTION (GHQ-12)				
Step 1				
Marital Status ^d	.001	2.633	-.059	-2.711**
Step 2				
Hobby ^b	.036	77.336***	.192	8.794***
$R^2 = .038$; $R^2_{\text{Adjusted}} = .037$; $F_{(2,2042)} = 40.030***$				

Note. ^aContinuous variable, in years. ^bDichotomous variable: 0 = yes, 1 = no. ^cDichotomous variable: 0 = yes, 1 = no. ^dDichotomous variable: 0 = not married, 1 = married. * $p < .05$. ** $p \leq .01$. *** $p \leq .001$.

5 Discussion

The present study explored the role of personal and professional variables on nurses' psychological distress. In order to do so, we formulated three main goals.

Regarding the first goal, results revealed significant differences between nurses with and without clinical symptoms of psychological distress. Older and female nurses, with no hobby, and no physical exercise behaviors, working in primary healthcare, were more likely to present clinical symptoms of distress. More, nurses with clinical symptoms showed a worse psychological profile, expressing more anxiety/depression and social dysfunction. Still, the experience of anxiety/depression was significantly higher in nurses with no hobby, but social dysfunction was greater in single nurses and in those with a permanent/full type of contract. These results are in line with research [1, 7] reporting that women and single workers show more tendency to experience problems related to work stress. This pattern is strongly associated to changes in employment status, marital status, and education across adulthood, which must be established as a required framework to research analysis [7], underlining the importance of considering a developmental perspective across the lifespan [15]. Thus, older nurses and those with a permanent/full contract can face serious difficulties in developing new coping strategies to adapt to unexpected living conditions (e.g., cuts in salaries; contractual restructuring), resulting in significant levels of distress.

Concerning the second goal, findings showed that working in primary healthcare, having no hobby and no physical exercise behaviors, constitute risk factors for clinical symptoms of distress. Hospital settings are known for its adversity [3, 5], so, it would be expected that hospital nurses showed a higher risk of experiencing psychological distress, and not primary healthcare nurses. These results can be understood in the light of the role of the family nurse, which implies a broader and demanding field of action and specialization that should be considered by health organizations.

Regarding the third goal, results showed that being single and having no hobby constitute risk factors for social dysfunction; while being older, having no hobby and no physical exercise behaviors constitute risk factors for anxiety/depression. Indeed, little is known about nurses lifestyle and leisure activities, as shown by a recent systematic review [16], emphasizing the paucity of research on nurses' health behaviors. Thus, in this study, aside the classical sociodemographic variables, we explored the role of leisure activities on nurses' distress, showing that these variables produced independent positive effects on nurses' psychological health. This represent an important issue in occupational stress research, pointing for the leisure activities as a protective factor for nurses' mental health, acting as the "daily uplifts" [17] for the stress recovery balance [18]. Although that, it is also important to consider the reverse chain. The experience of psychological distress, as an outcome of occupational stress, can lead to significant changes in nurses' daily living, resulting in the lack of leisure activities (e.g., exercise). Thus, in order to ensure the patients' safety and the quality of health care, health organizations must consider nurses' characteristics that are related to their mental health and global functioning when developing occupational health programs. Findings point for a professional group that requires reflection and consideration, in terms of occupational stress intervention, highlighting the role of

leisure activities for nurses' mental health, giving support to the need of healthy life styles, which must be promoted by health organizations to attain occupational safety.

6 References

1. McIntyre, S., et al.: Serving two masters: job characteristics as predictors of psychosocial and psychophysiological responses to stress in physicians and nurses in managerial positions. Bial Foundation, Maia (2007).
2. Circenis, K., Millere I.: Stress related work environment factors: nurses survey results. *Int J Collab Res Intern Med Public Health* 4(6), 1150-1157 (2012).
3. Jennings, B.: Work stress and burnout among nurses: role of the work environment and working conditions. In: Hughes, R. (eds.) *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*, pp. 1-12. Agency for Healthcare Research and Quality, Rockville (2008).
4. Gomes, A.R., Simões, C., Dias, O.A.: A theoretical approach of adaptation to stress and implications for evaluation and research. In: *Occupational Health*, pp. 2-59. Avid Science, India (2017).
5. Pisanti, R., et al.: Job characteristics, organizational conditions, and distress/well-being among Italian and Dutch nurses: A cross-national comparison. *Int J Nurs Stud* 48(7), 829-837 (2011).
6. Turner, N., et al.: Work-family interference, psychological distress, and workplace injuries. *J Occup Organ Psychol* 87(4), 715-732 (2014).
7. Drapeau, A., Marchand, A., Forest, C.: Gender differences in the age-cohort distribution of psychological distress in Canadian adults: findings from a national longitudinal survey. *BMC Psychol* 2(25), 1-13 (2014).
8. McIntyre, T., McIntyre, S., Redondo, R.: *Questionário Geral de Saúde*. Authors, Braga (1999).
9. Gomes, A.R., Faria, S., Lopes, H.: Stress and Psychological Health: Testing the Mediating Role of Cognitive Appraisal. *West J Nurs Res* 38(11), 1448-1468 (2016).
10. Gomes, A.R., Cruz, J., Cabanelas, C.: Estresse ocupacional em profissionais de saúde: um estudo com enfermeiros Portugueses. *Psic.: Teor. e Pesq.* 25(3), 307-318 (2009).
11. Goldberg, D., *General Health Questionnaire (GHQ-12)*. NFER-Nelson, Windsor (1992).
12. Gomes, A.R., Teixeira, P.M.: Stress, Cognitive Appraisal and Psychological Health: Testing Instruments for Health Professionals. *Stress Health* 27(4), 351-367 (2014).
13. Goldberg, D., Williams, P.: *A user's guide to the General Health Questionnaire*. NFER-Nelson, Windsor (1988).
14. Tabachnick, B.G., Fidell, L.S.: *Using Multivariate Statistics*. 6th edn. Pearson Education Inc., United States of America (2013).
15. Carter, B., Mcgoldrick, M.: Overview: The Expanded Family Life Cycle. In: Carter, B., Mcgoldrick, M. (eds) *The Expanded Family Life Cycle: Individual, Family and Social Perspectives*, pp. 1-26. Boston, Pearson (2005).
16. Chan, C.W., Perry, L.: Lifestyle health promotion interventions for the nursing workforce: a systematic review. *J Clin Nurs* 21(15/16), 2247-2261 (2012).
17. Lim, J., Hepworth, J., Bogossian, F.: A qualitative analysis of stress, uplifts and coping in the personal and professional lives of Singaporean nurses. *J Adv Nurs* 67(5), 1022-1033 (2011).
18. McEwen, B.S.: Physiology and neurobiology of stress and adaptation: central role of the brain. *Physiol Rev* 87(3), 873-904 (2007).