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Psychological Distress amongst Healthcare Workers in Douala

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Abstract

Introduction: Psychological distress can affect every worker's mental health or working ability, and specifically the healthcare workers. It is essential to prevent and treat it in order to anticipate predictable consequences. The aim of this study was to investigate the epidemiological characteristics of psychological distress among the healthcare workers in the city of Douala. **Material and Methods:** This cross-sectional study was carried out during the 1st semester of 2023 in two reference hospitals of the city of Douala. All volunteer staff from the targeted hospitals were involved. We collected data using a mixed questionnaire that included the working conditions, as of the socioprofessional and psychological characteristics of the healthcare workers. We measured the level of psychological distress using the Kessler scale. Analysis was performed using the Chi-2 test and multivariate analysis. Threshold value was & = 5%, $p < 5\%$. **Results:** The participation rate was 86.3%. Women (81.7%) and nurses (77.6%) predominated in the sample. The mean age was 35.38 ± 8.9 years, and individuals in their thirties accounted for 46.79% of the sample. The prevalence of psychological distress was 19.5%. The psychological distress was categorized as mild (48.72%), moderate (18.46%) or severe (32.82%). Risk factors for psychological distress included being of the catholic faith (OR = 3.6, $p = 0.04$), poor sleep quality (OR = 3.9, $p = 0.001$) and long working hours (OR = 2.2, $p = 0.002$). Overtime was the only protective factor identified (OR = 0.6, $p = 0.04$). **Conclusion:** Nearly 1 out of 5 healthcare workers suffered from psychological distress exacerbated by poor working and living conditions. There is an urgent need to improve their working conditions to prevent the development of more severe consequences.

Keywords

Psychological Distress, Healthcare Workers, Hospitals, Douala

1. Introduction

Psychological distress (PD) is a state of emotional suffering in response to stressful situations that can affect physical or psychological health [1]. PD combines signs of depression and in some cases, psychosomatic symptoms such as headaches, poor sleeping quality or severe fatigue [2]-[4]. In the absence of adequate treatment, or in front of persisting triggering factors, complications can arise in the form of dementia, even depression which is the ultimate complication [4]-[6]. In 2004, depression was considered as the 1st cause of disability in people aged 15 to 59 years in developing countries (77.6%), and the 3rd cause (98.7%) of disability in all ages worldwide [7]. PD can affect anyone, regardless of individual characteristics, living environment or occupation. In the general population, the overall prevalence varies from 5% to 27% [8]-[10]. In Canada, its prevalence was 21% in the general population [11]. In Spain, it was 65.1% among the non-healthcare workers during the COVID-19 pandemic [12].

PD also affects healthcare workers particularly during major epidemics such as COVID-19, Ebola or SARS [13]. PD affected 10.1% to 29.9% of the healthcare workers, during and after the 1st wave of COVID-19 in Canada [14]. Its prevalence was 41% among nurses in Jordan [15] and 72. 9% among those working in Saudi Arabia [16]. In Europe, the prevalence of PD was lower among nursing staff in France (12.3%) [17] and Italy (26.5%) [18]. In South Africa, PD was 57.4% among healthcare workers at the start of the COVID-19 pandemic [19].

The risk of suicide is higher in individuals suffering from PD [5]. It must be actively prevented in our context, as the prevalence of depression was high (43.5%) among Cameroonian caregivers during the COVID-19 pandemic [20]. Hence, the aim of this research is to investigate the epidemiological characteristics of psychological distress among healthcare workers (HCW) in the city of Douala in the post-COVID-19 period.

2. Material and Methods

- *Type, settings and duration of study.*

This cross-sectional study was designed and conducted during the 1st semester of 2023 to assess PD in Douala based reference hospitals. Laquintinie hospital and the Douala military hospital were randomly selected from a group of 4 reference hospitals. These settings were chosen based on criteria such as accessibility, patients' attendance, quality of services and accommodation capacity.

- *Study population and sampling.*

The study population consisted of HCW employed at the study settings. Volunteer HCW with at least 12 months of continuous work assignment were enrolled in the study after being informed of the study objectives and the absence of risks associated to the research. Participants were recruited non randomly, by convenience. The minimal sample size was calculated using Lorentz formula for descriptive studies ($n = Z^2.p.q/\&^2$), with p = 43.50% prevalence of PD among some Cameroonian HCW during the COVID-19 pandemic [20].

- *Data Collection.*

The study variables were related to specific objectives and included socio-professional data (age, sex, social status, family responsibilities, occupation, seniority), living and working conditions (working hours, salary, overtime, sleep quality) and variables of the Kessler K10 questionnaire. This questionnaire assessed the participant's psychological state of mind at work, during the month preceding the survey [21]. It is designed as an anonymous, self-administered tool to measure the prevalence of PD in people aged 18 years or older [22]-[24]. The scale consisted of 10 items rated from 1 to 4 according to the Likert scale [25]. The total score ranges from 0 to 40: 10 - 19: likely to be well; 20 - 24: likely to have a mild disorder; 25 - 29: likely to have a moderate disorder; 30 - 40: likely to have a severe disorder.

- *Data processing and analysis.*

All statistical analysis were calculated using SPSS software 20.0. Qualitative variables were analyzed according to their frequency and valid percentages while quantitative variables were analyzed to calculate the mean, standard deviation, median, minimum, and maximums. The relationship between PD and other characteristics was assessed using Pearson's Chi-2 test. A multivariate analysis was performed to identify the risk factors of PD. The error threshold was set at & = 5%, significance fixed at 5% and the confidence interval was set at 95%.

- *Ethical considerations.*

Ethical principles of health research were respected throughout the study. The research was approved by the Ethical Committee of the University of Douala under the number 1737 CEI-UY/05/202319/T.

3. Results

- *Socio-professional characteristics.*

The participation rate was 86.3%. The sample comprised 389 participants, including 274 from Laquintinie hospital (70.44%) and 115 from the military hospital (29.56%). Their distribution according to socio-professional characteristics is illustrated in **Table 1** below. Women (81.7%), nurses (77.6%) and singles (56.8%) predominated in the sample. The average age was 35.38 ± 8.95 years [19 - 60 years], with the modal group consisting of those aged 30 - 39 (46.8%). Regarding the religious faith, they were divided in 4 groups of Catholics (48.1%), Protestants (36.3%), Muslims (12.3%) and Animists. The majority of participants received salaries below 100.000 FCFA (63.2%).

- *Living and working conditions.*

More than 2/3 of participants had normal working time (67.6%). The majority worked overtime (63.7%) and reported poor sleep quality (54.3%).

- *Psychological distress and associated factors.*

The overall prevalence of PD was 19.5. PD was classified as mild (48.68%), moderate (18.42%), severe (32.89%) as shown in **Figure 1**. It's distribution according to socio-professional characteristics is illustrated in **Table 2** below. There were more cases of PD at Laquintinie hospital (n = 61; 80.26%) than at the military

hospital (n = 15; 19.74%). PD was associated with age < 30 years (p = 0.015), low salary < 100.000 FCFA (152.44€) (p < 0.0001), long working hours (p < 0.0001), poor sleep quality (p = 0.038), income generating activities (p < 0.021), the number of dependent children (p < 0.024) and the religious faith (p < 0.029) (Table 3). The multivariate analysis shown in Table 4 identified 3 risks factors and a single protective factor for PD in nursing staff. Long working hours [OR = 2.23 (1.33 - 3.72); p = 0.002], doubled (x2) the risk of PS. The risk tripled (x3) in catholic participants [OR = 3.6 (1.04 - 13.0); p = 0.04] and quadrupled (x4) in cases of poor sleep quality [OR = 3.98 (2.36 - 6.71); p = 0.001]. In contrast, overtime lowered the risk of PD in participants [OR = 0.60 (0.36 - 0.99); p = 0.99); p = 0.004].

Table 1. Sociodemographic characteristics.

Variables		(n)	(%)
Sex	Male	71	18.3
	Female	318	81.7
Age	<30 years	102	26.2
	30 - 39 years	182	46.8
	40 - 49 years	75	19.3
	≥50 years	30	7.7
Marital status	Single	221	56.8
	Married	160	41.1
	Widow	8	2.1
Occupation	Nurse	302	77.6
	Assistant-nurse	87	22.4
Religion	Animist	11	2.8
	Protestant	141	36.3
	Catholic	189	48.1
	Muslim	48	12.3

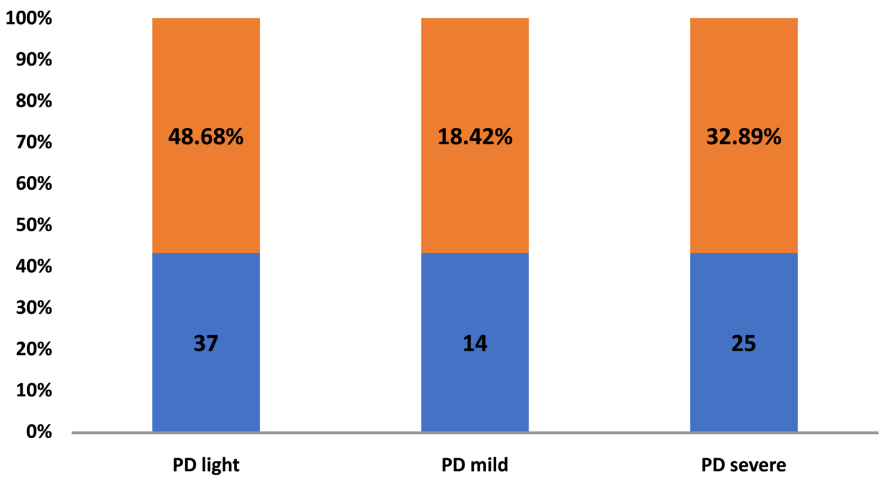

Figure 1. Prevalence of psychological distress.

Table 2. Living and working conditions.

Variables		(n)	(%)
Salary (CFA.F) (n = 329)	≤100,000	208	63.2
	100,000 - 200,000	68	20.7
	>200,000	53	16.1
Working hours	Normal (8 H)	263	67.6
	Extended (>8 H)	126	32.4
Extra-time	Yes	248	63.7
	No	141	36.3
Quality of sleep	Good	178	45.7
	Bad	211	54.3
Travel time home-hospital	<30 mins	104	26.7
	30 - 60 mins	173	44.5
	>60 mins	112	28.8
Income generating activities	Yes	95	24.4
	No	294	75.6
Physical and sporting activities	Yes	211	54.2
	No	178	45.8
Relaxation activities	<2 hours	271	69.7
	>2 hours	118	30.3
Dependent children	0	128	32.9
	1 to 4	209	53.7
	>4	52	13.4

Table 3. Distribution of psychological distress.

Variables		Psychological distress (−)	Psychological distress (+)			p-value
			Light (n, %)	Mild (n, %)	Severe (n, %)	
Hospital	**Laquintinie**	213 (68.1)	29 (78.4)	9 (64.3)	23 (**92.0**)	0.050
	Military Hospital	100 (31.9)	8 (21.6)	5 (35.7)	2 (8.0)	
Sex	**Female**	258 (82.4)	28 (75.7)	13 (92.9)	19 (76.)	0.436
	Male	55 (17.6)	9 (24.3)	1 (7.1)	6 (24)	
Age (years)	**<30**	81 (25.9)	12 (32.4)	7 (50.0)	2 (8.0)	**0.015**
	[30 - 39]	148 (47.3)	17 (45.9)	2 (14.3)	15 (60.0)	
	[40 - 49]	55 (17.6)	7 (18.9)	5 (35.7)	8 (32.0)	
	≥50 ans	29 (9.3)	1 (2.7)	0 (0.0)	0 (0.0)	
Religion	**Animist**	6 (1.9)	2 (5.4)	0 (0.0)	3 (12.0)	**0.029**
	Protestant	115 (36.7)	12 (32.4)	5 (35.7)	9 (36.0)	
	Catholiqc	157 (50.2)	19 (51.4)	7 (50.0)	6 (24.0)	
	Muslim	35 (11.2)	4 (10.8)	2 (14.3)	7 (28.0)	

Continued

Marital status	**Single**	169 (54)	29 (78.4)	8 (57.1)	15 (60)	0.157
	Married	136 (43.5)	8 (21.6)	6 (42.9)	10 (40)	
	Widow	8 (2.6)	0 (0.0)	0 (0.0)	0 (0.0)	
Dependent children	**0**	92 (29.4)	17 (46)	8 (57.1)	11 (44)	**0.024**
	1 - 4	172 (55)	17 (46)	6 (42.9)	14 (56)	
	>4	49 (15.7)	3 (8.1)	0 (0.0)	0 (0.0)	
Salary (n = 329)	<100,000	150	30	12	16	
	100 à 200,000	57	3	0	1	
	>200,000	42	3	0	4	
Income generating activities	**No**	234 (74.8)	26 (70.3)	9 (64.3)	25 (100)	**0.021**
	Yes	79 (25.2)	11 (29.7)	5 (35.7)	0 (0.0)	
Working time	**Extended**	90 (28.8)	11 (29.7)	6 (42.9)	19 (76)	**<0.0001**
	Normal	223 (71.3)	26 (70.3)	8 (57.1)	6 (24)	
Relaxation activities	**<2 hours**	217 (69.3)	27 (73.0)	11 (78.6)	16 (64.0)	0.774
	>2 hours	96 (30.7)	10 (27.0)	3 (21.4)	9 (36.0)	
Quality of sleep	**Good**	154 (49.2)	13 (35.1)	3 (21.4)	8 (32.0)	**0.038**
	Bad	159 (50.8)	24 (64.9)	11 (78.6)	17 (68.0)	

Table 4. Multivariate analysis.

Variables		OR (IC)	P-value
Sex	Female	0.79 (0.42 - 1.49)	0.48
	Male		
Occupation	Nurse	1.42 (0.82 - 2.53)	02.2
	Assistant nurse		
Religious faith	Animist	1	082
	Catholic	**3.6 (1.04 - 13.0)**	**0.04**
	Muslim	0.90 (0.50 - 1.59)	0.72
	Protestant	1.6 (0.76 - 3.53)	0.20
Marital status	Single	›10^6 (‹0.001 - › 10^6)	0.99
	Married		
Extra time	No	**0.60** (0.36 - 0.99)	**0.04**
	Yes		
Quality of sleep	Good	**3.98 (2.36 - 6.71)**	**‹ 0.001**
	Bad		
Working time	Extended	**2.23 (1.33 - 3.72)**	**0.002**
	Normal		

4. Discussion

4.1. Study Limits

The main difficulties were related to the unavailability of participants, as well as the information biases common to descriptive studies. The methodology used enabled us to minimize bias, and to collect and analyze data on working and living conditions, including the psychological state of participants in the month preceding the survey.

4.2. Socio-Professional Characteristics

Nurses (77.6%) and women were overrepresented in the sample (81.7%). PD was not associated to these characteristics despite the consistent evidences that exist about these risk factors [13]. This overrepresentation of nurses is also observed worldwide among the HCW (76.9%) [26]. Regarding gender, the feminization of healthcare human resources is underway globally. According to Stamar et al, the number of women in healthcare is increasing annually by 4.5% in low-income countries, 5.8% in middle-income countries and 1.1% in rich countries [27]. This trend of feminization is also observed in African countries [28], China [29], Brazil [30] and the USA [31]. According to Sirois and Owens, age is a significant risk factor for PD during infectious diseases outbreaks [13]. The participants in our study were young adults, with and average age of 35.38 ± 8.91 [19 - 60 years]. They were younger than nurses in the USA whose average age increased from 46.8 [31] to 52 [32] between 2004 and 2019. In terms of numbers, the WHO estimates that there are 30 millions nurses worldwide, with densities varying from 7/10.000 inhabitants to 95/10.000 inhabitants between low-income and high-income countries respectively [26]. The highest numbers are found in the USA (4.2 million nurses in 2019) [32]. and China (4.7 million in 2020) [29]. In our context, there were more than 15.000 nurses and assistant-nurses in 2011 [33]. Regarding the marital status, no significant association was found with PD as per the available evidences [13].

4.3. Living and Working Conditions

The majority of participants faced challenging living and working conditions, characterized by low wages, regular overtime and poor sleep quality. The salaries of the majority of participants (63.2%) were low and insufficient (<100.000 C.FAF ≈ €152) to cover their social responsibilities. In an environment of widespread poverty, some resorted to income generating activities (24.4%; $p < 0.021$) while others rely on overtime (63.7%; $p < 0.0001$). Regular overtime is not without risk to physical and psychological health. According to Ross, overtime exposes workers to excessive fatigue [34] [35] and physical and mental health disorders [35]. These includes chronic illnesses, minor psychiatric disorders, sleep disorders, family problems even social marginalization [36]. Sleep disorders need to be taken seriously as they can contribute to the onset of other pathologies such as metabolic

syndrome, hypertension, cardiovascular diseases, obesity and impaired glycemic regulation [37]. The poor sleep quality reported by the majority of participants (54.3%) could be caused by overtime [36]. Overtime can also lead to the reduction of alertness and cognitive performance [38] or interfere with nurses' abilities to achieve work's objectives, impacting the quantity of services provided, job satisfaction, engagement in operations and desire to continue working [39].

Giving that the practice of physical and sporting activities (54.2%) and recreational activities (30.7%) was average, the use of aroma inhalation therapy could benefit the nurses in our study because of its proven effectiveness against sleep disorders, stress, fatigue and depression [40].

4.4. Psychological Distress and Associated Factors

In the literature, the prevalence of PD in the general population varies from 5% to 27% [8]-[10] [41] [42]. Corresponding prevalence's have been obtained in Guandong, China (25.1%) [43] and Canada (20.74%) [11]. Among the workforce, prevalence's also varied, whether they were HCW or not. For the healthcare personnel involved in recent pandemics such as SARS, H1N1, MERS and COVID19, PD prevalence's ranged from 14.1% to 76.4% [13]. In terms of severity, the prevalence of severe PD was lower in our study [32.8%], than in Ethiopia (27.7%) [44]. India (35%) [45], Jordan (41%) [15], Malaysia (41%) [46] and Nigeria (44.1%) [47]. During the recent COVID-19 pandemic, working conditions were disrupted in several sectors, contributing to increased psychological pressure among workers. In the same context in Nigeria, Olagunju et al revealed a significant association between PD and sleeping problems that were reported by the HCW $r = 0.2$; $p = 0.001$) [48]. Higher levels of PD were also observed in South-Africa (57.4%) [49] and Wuhan, China (65%) [50]. In hospitals, nurses where the first line of defense in the fight against COVID-19. Their risk of contamination was very high, and they had to deal with suffering and death. The fear of contracting COVID-19 during care (ORa = 2.35, $p < 0.01$) [19] could explain the high prevalence of PD observed in this category of workers.

Out of hospitals, non-healthcare staff were also exposed to PD. Similar prevalence's of PD were observed among workers in private (65.1%, $p = 0.04$) and public (61%, $p = 0.04$) companies in Spain [12] and among young workers and professionals in Canada ($p < 0.01$) [51]. The prevalence of PD in our study (19.5%) is similar to those observed in other European and Northern American workers (15 - 20%) [52], and higher than the prevalence of severe PD in Akita workers in Japan (10.8%) [53].

Epidemiologically, PD may be caused by or associated with certain individual, social and occupational characteristics and working conditions. It was significantly associated with age, gender, smoking, alcohol consumption, sense of cohesion, place of control and stressful childhood events ($p < 0.01$) [51] and sleep disorders [54].

We identified 3 risk factors and one protective factor for PD in nurses. The

effects of long working hours [OR = 2.23 (1.33 - 3.72); p = 0.002] and poor sleep quality [OR = 3.98 (2.36 - 6.71); p = 0.001] can impact the functioning and metabolism of human body as already described by other authors [36] [55]. The majority of nurses in our study had poor sleep quality (54.3%). This poor sleep quality was also observed among their colleagues during the COVID-19 pandemic ($p < 0.05$) [54], and among nurses performing shift work in England [56]. At the organization level, sleep distress can induce complications such as metabolic syndrome [37] [57] and other pathologies such as high blood pressure, cardiovascular diseases, obesity and impaired glycemic regulation [37]. These disorders need to be corrected, as good sleep provides a sense of rest and normalcy, whereas poor sleep will induce fatigue, irritability, daytime dysfunction and slowed-down functioning [55].

The association of the catholic faith with PD [OR = 3.6 (1.04 - 13.0); p = 0.04] raises questions about the perception that nurses of the Catholic faith had regarding the true origin and significance of the COVID-19 pandemic, which some viewed as an apocalyptic event. Intrinsically, working overtime appeared to have a protective effect against PD [OR = 0.60 (0.36 - 0.99); p = 0.99); p = 0.004]. Some employees worked overtime to supplement their insufficient financial income which prevented them from meeting their social and economic obligations. Our result is controversial as working overtime is associated with increased risk of morbidity and mortality in workers [38]. Working overtime can also result in poor quality of nursing care (OR = 1.32), poor patient safety (OR = 1.67) and higher rates of care left undone (RR = 1.29) [58].

5. Conclusion

The participants in our study were predominantly female nurses in their thirties. Their working and living conditions were challenging, characterized by low incomes, long working hours and frequent overtime. Psychological distress was highly prevalent in our study and was associated with long working hours, poor sleep quality and adherence to the catholic faith. Improvements in the living and working conditions of these workers are essential to prevent the progression of this distress into traumatic psychosomatic complications.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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