Workload and the occurrence of depressive disorders and burnout syndrome among nurses

Nursing Workload KEGAˇc. 011KU-4/2024

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Introduction: Professional work significantly impacts an individual's quality of life. The nursing profession is particularly unique due to the emotional burden and physical strain it places on the musculoskeletal system. The condition in which both mental and physical exhaustion occur is known as occupational burnout. The consequences of burnout include a lack of motivation to work and a negative attitude toward colleagues and patients. Symptoms such as indifference, apathy, resentment, increased fatigue, and emotional exhaustion emerge, which, when combined with anxiety, can serve as a precursor to depression.
Objectives: The aim of this study was to assess the prevalence of depressive disorders and occupational burnout syndrome among nurses.
Material and methods: The study group consisted of 254 participants from various age groups. A diagnostic survey method was employed, utilizing standardized research tools, namely the Beck Depression Inventory (BDI) and the Maslach Burnout Inventory (MBI). Statistical analysis was performed using Chi-square, Phi, and Cramer's V tests, with a significance level set at $p \leq 0.05$.
Results: Almost all respondents (96.9%) reported that they find their work stressful. Of the respondents, 63.0% showed no symptoms of depression, 33.1% exhibited mild depression, and 3.1% were classified as having moderate depression. Additionally, 47.2% of respondents were found to be at high risk for professional burnout. The mean level of emotional exhaustion was 24.13 ± 5.60, with a minimum score of 9.00 and a maximum score of 36.00. The mean level of depersonalization was 11.29 ± 3.36, and the mean level of reduced personal accomplishment was 16.74 ± 4.73.
Conclusions: Among the nurses surveyed, sociodemographic factors, workplace, and work system did not significantly affect the prevalence of depressive disorders and burnout syndrome. As the risk of occupational burnout increases, so does the risk of depressive disorders. Furthermore, the higher the self-reported level of stress, the greater the risk of both depressive disorders and occupational burnout.

Keywords: Work. Nursing. Depression. Occupational burnout. Stress.

Introduction

In the modern world, the nursing profession has gained new dimensions and increased stature. It is now a regulated, medical, and independent profession that requires continuous education and professional development. The nature of nursing work is particularly unique due to emotional burdens, such as the need to cope with the difficult emotions triggered by daily contact with illness, challenging life situations, and often the death of patients, as well as the physical strain placed on the musculoskeletal system. Many of a nurse's tasks are carried out under arduous working conditions, including exposure to high temperatures, infection risks, physical exertion, shift work, stress, and exposure to biological and chemical agents. Nurses also face constant availability and the responsibility for the health and lives of patients, the necessity to operate advanced medical equipment, and potential exposure to aggression from dissatisfied patients or their families. These factors make the work of nurses both physically and mentally taxing [1,2].

A condition characterized by mental and physical exhaustion, which develops as a result of excessive responsibilities, the heavy responsibility for human health and life, exhaustion, persistent stress, time pressures, as well as pressure from superiors and a lack of respect from patients, is known as occupational burnout. The consequences of professional burnout include a lack of desire to work and negative attitudes toward the workplace, co-workers, superiors, and patients. A person suffering from burnout may develop indifference, resentment, and apathy. Despite their efforts and increased work intensity, medical workers may be unable to find a way to manage their growing overload, resulting in increasing fatigue and emotional exhaustion [3-4]. The multiplicity, intensity, and frequency of stressors experienced by nurses on a daily basis inevitably lead to an increase in negative emotions. Numerous studies show that anxiety, anger, or aggression in highly socialized individuals is often suppressed and directed inward, which, when combined with anxiety, can

form the basis for the development of depression [5-7].

Professional burnout has been a long-standing issue in the modern workforce. However, substantive and accessible research on the subject remains scarce. Despite this, the problem of burnout has been growing annually. The pace of work has accelerated, and the number and intensity of stressors seem to be increasing, with the boundaries between work and personal life becoming more blurred. Contrary to common stereotypes, occupational burnout can affect individuals in any profession, regardless of industry or position. Professional burnout is now recognized as one of the most significant challenges facing the modern labor market and society as a whole. The syndrome is classified by the World Health Organization as both an employment and health issue. This condition is receiving increasing attention from both scientific communities and the media. The rapid progress of civilization over recent decades has been unprecedented. However, this progress brings not only prosperity but also new challenges and problems that were either unforeseen or previously unrecognized. The overwhelming flow of information, chasing deadlines, and excessive workloads often lead to stress, which has become an everyday companion for many. In small amounts and in certain situations, stress can act as a motivating factor. However, when stress becomes uncontrollable, it begins to permeate all aspects of life, including the home environment, ultimately affecting personal well-being. Eventually, one may realize that a job that was once perceived as a dream job no longer provides satisfaction. Continuous fatigue and an overwhelming workload may indicate the onset of occupational burnout [8].

The relationship between burnout and depression remains an ongoing debate in the medical community. In fact, individuals experiencing burnout syndrome can be difficult to distinguish from those suffering from depression. There is no doubt that, as burnout progresses, the risk of developing depression increases. Studies indicate that the co-occurrence of both phenomena may reach as high as 90% [9]. In recent years, professional burnout has been recognized as one of the strongest predictors of depressive symptoms, and depressive symptoms, in turn, contribute to the development of burnout [10]. A study of healthcare workers found that depression was associated with all subscales of occupational burnout, even after accounting for the strong influence of demographic factors. A high level of job burnout was found in 16.5% of psychiatric patients with depressive symptoms. These findings suggest a strong association between professional burnout and depression, although the exact relationship between the two remains unclear [11]. Other studies have demonstrated a positive correlation between stress, depression, anxiety, and job burnout among nurses, with significant levels of depression reported among 3474 nurses in China [12]. These studies have indicated that the association between burnout and depression is influenced by a person's sense of coherence. However, other studies found no significant difference between burnout and depression [13].

It should be noted that while the WHO defines depression and occupational burnout separately, some of the symptoms of these two conditions may overlap. Furthermore, there is evidence suggesting a link between burnout and depression [14]. For example, Bianchi and Brisson [15] investigated the extent to which individuals with occupational burnout and depression attribute their feelings to their work. The study found that the number of participants who attributed their feelings of burnout to their work was proportional to those who also associated depressive symptoms with their work, indicating that burnout and depression may overlap depending on their origins. In their review, Kaschka et al. [14,16] discussed the diagnostic differentiation between burnout and depression, noting that correlations between the two conditions often appear in studies. This suggests that either burnout and depression overlap, or that burnout may serve as a risk factor for the development of depression.

Occupational burnout has been recognized as a significant and growing risk in various occupations for decades. Due to its severity, the World Health Organization included occupational burnout in the 11th revision of the International Classification of Diseases (ICD-11) as an occupational phenomenon. The ICD-11 defines occupational burnout as: "*a syndrome resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: feelings of exhaustion or depletion of energy; increased mental distance from work or feelings of negativity or cynicism related to work; and reduced professional efficacy. Occupational burnout specifically refers to phenomena in the occupational context and should not be used to describe experiences in other life areas*" [17].

Occupational burnout has attracted considerable attention due to its serious consequences, not only for staff productivity and customer satisfaction but also for the reputation of the institution. Factors contributing to the increased susceptibility of nurses to burnout may include the extra time required to meet the demands of patients and their families, a lack of respect and cooperation between nurses and other healthcare professionals, and insufficient stress management skills among nurses [18]. Moreover, professional burnout can significantly affect nurses' quality of life, as they are vulnerable to a variety of physical, psychological, and social stressors [13]. Other studies have explored the interaction between burnout and depression at the team level using traditional correlational methods, such as path analysis and multiple regression analysis. However, these methods assume a linear relationship and fail to capture the complex, non-linear interactions between symptoms of burnout and depression [19].

The aim of this study was to examine the extent of depressive disorders and professional burnout syndrome among nurses.

Material

The study was conducted in January 2024 and involved 254 active nurses. All respondents provided informed consent to participate in the study. The participants were residents of both rural (52.8%) and urban (47.2%) areas, spanning various age groups. The largest age group was between 41 and 50 years old, accounting for 33.1% of the respondents, followed by 26.8% who were between 31 and 40 years old. The next largest group was aged 20 to 30 years (24.4%), while 15.7% were over 51 years old. The majority of respondents were women (92.1%) and married (77.2%). Most participants worked as nurses or officers in various healthcare units, predominantly in hospitals, with shift work (83.5%). Respondents generally had extensive work experience and a university degree. Among the respondents, 34.6% had more than 20 years of experience, 27.6% had less than 5 years, 20.5% had between 11 and 20 years, and 17.3% had worked for 6 to 10 years. Additionally, 55.1% of the participants

held a master's degree in nursing. Of the 252 respondents, all reported that their work was stressful, with the majority describing the level of stress as moderate.

Methods

This study employed a diagnostic survey method, utilizing a survey technique. The research tools included a custom-designed survey questionnaire, which collected sociodemographic data, and two standardized instruments: the Maslach Burnout Inventory (MBI) and the Beck Depression Inventory (BDI). Participation in the study was both anonymous and voluntary.

The Maslach Burnout Inventory (MBI), developed by Christina Maslach, is designed to assess three dimensions of burnout: emotional exhaustion, depersonalization, and reduced personal accomplishment. The MBI consists of 22 items, each representing statements about the respondent's attitudes and feelings toward their professional work. The purpose of the inventory is to evaluate the intensity and frequency with which the respondent experiences symptoms of job burnout. A higher final score indicates a greater likelihood of occupational burnout. However, in the personal accomplishment subscale, lower scores reflect greater burnout. The inventory is divided into three subscales: emotional exhaustion (9 items), depersonalization (5 items), and reduced personal accomplishment (8 items). Each subscale measures a different aspect of the burnout syndrome.

The Beck Depression Inventory (BDI) was used to assess the level of depressive symptomatology among the respondents, focusing on key depressive symptoms such as mood, pessimism, and irritability. The BDI consists of 21 items, each rated from 0 to 3. Respondents are instructed to circle only one answer for each item. The items are grouped into four categories: somatic (physical) symptoms, affective (emotional) symptoms, cognitive symptoms, and vegetative symptoms (including changes in sleep patterns and appetite). The total score on the BDI is derived from the sum of the individual item scores, which range from 0 to 63. The severity of depressive symptoms is classified as follows: 0 to 11 points (no depression), 12 to 19 points (mild depression), 20 to 25 points (moderate depression), and 26 or more points (severe depression). The assessment refers to the respondent's well-being over the past month.

Statistical analysis

The primary statistical test employed in the analysis was the Chi-square test for independence, which was used to assess the relationships between categorical variables. For correlations between quantitative variables, where the assumptions for parametric tests were not met, Spearman's rho coefficient was applied. This coefficient indicates both the intensity and direction (positive or negative) of the relationship between the variables. Data analysis was conducted using the IBM SPSS Statistics software, version 26.0, with the Exact Tests module.

Characteristics of the study group

The largest group of respondents, 33.1%, was between the ages of 41 and 50. This was followed by 26.8% of respondents in the age range of 31 to 40. Additionally, 24.4% of the participants were aged 20 to 30 years, while 15.7% were over 51 years old. The majority of survey participants were women (92.1%), with men comprising 7.9% of the sample.

Regarding educational qualifications, 55.1% of respondents held a master's degree, 37.0% had a bachelor's degree, and 7.9% had completed high school. The majority of nursing staff in the survey were employed in public hospitals (83.5%), while 7.9% worked in private hospitals, 6.3% in primary health care, and the smallest group (2.4%) was employed in residential care facilities.

In terms of professional experience, 34.6% of respondents had more than 20 years of seniority, while 27.6% had been working for less than 5 years. Among the remaining respondents, 20.5% had between 11 and 20 years of experience, and 17.3% had between 6 and 10 years of work experience.

Most respondents were married (77.2%), with 20.5% identifying as single, 1.6% as divorced, and a small percentage (0.8%) as widowed. A significant proportion of the respondents (83.5%) reported working in shifts.

The largest group of respondents, 33.1%, are between the ages of 41 and 50. This was followed by 26.8% between the ages of 31 and 40. Between 20 and 30 years old were 24.4% of those surveyed, while 15.7% were in the age group above 51. The vast majority of survey participants were women - 92.1%, with men accounting for 7.9%.

Results of the Beck Depression Scale (BDI) questionnaire

The highest percentage of respondents (63%) scored within the range of 0-11, indicating no symptoms of depression. Half of the group (33.1%) scored between 12 and 26 points, which corresponds to mild depression. A smaller proportion (3.1%) scored between 27 and 49 points, indicating moderately severe depression. No participants scored between 50 and 63 points, which would indicate very severe depression (Figure 1).

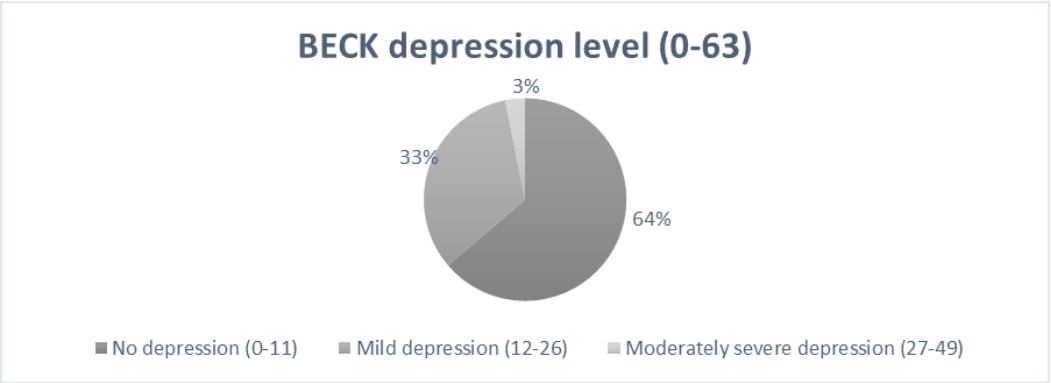

Figure 1. *Level of risk for depressive disorders.* Source: own.

Results of MBI Christina Maslach's standardized burnout questionnaire

Among the 254 respondents, 52.8% received a score indicating a low risk of occupational burnout, while 47.2% scored within the range suggesting a high risk of occupational burnout. The average level of occupational burnout risk was 52.16 ± 9.27. The minimum score in the study group was 33.00, and the maximum score was 78.00 (Table 1).

Table 1. *Average score of each component of job burnout (N=254).*

Variable	Frequency (N)	Mean	Median	Standard deviation	Minimum	Maximum
MBI burnout risk (22-88)	254	52.16	52.00	9.27	33.00	78.00
Emotional exhaustion (9-36)	254	24.13	24.00	5.60	9.00	36.00
Depersonalization (5-20)	254	11.29	11.00	3.36	5.00	20.00
Reduced sense of personal achievement (8-32)	254	16.74	16.00	4.73	8.00	32.00

Source: own.

The study also examined how emotional exhaustion, depersonalization, and a reduced sense of personal achievement contribute to the overall level of burnout. The mean level of emotional exhaustion was 24.13 ± 5.60, with a minimum score of 9.00 and a maximum score of 36.00. The mean level of depersonalization was 11.29 ± 3.36, with a minimum score of 5.00 and a maximum score of 20.00. The mean level of reduced sense of personal achievement was 16.74 ± 4.73, with a minimum score of 8.00 and a maximum score of 32.00.

A statistically significant correlation ($p < 0.001$) was found between the three domains of job burnout, demonstrating a strong association (rho-Spearman = 0.589). Higher levels of emotional exhaustion were associated with higher levels of depersonalization (Table 2).

Table 2. *Correlations of the components of occupational burnout*

			Emotional exhaustion (9-36)	Depersonalization (5-20)	Reduced sense of personal achievement (8-32)
Spearman's rho	Emotional exhaustion (9-36 pts.)	Correlation coefficient	1.000		
		Significance (two-tailed)			
		Frequency (N)	127		
	Depersonalization (5-20 pts.)	Correlation coefficient	0.589	1.000	
		Significance (two-tailed)	0.000		
		Frequency (N)	127	127	
	Reduced sense of personal achievement (8-32 pts.)	Correlation coefficient	0.114	-0.009	1.000
		Significance (two-tailed)	0.202	0.917	
		Frequency (N)	127	127	127

Source: own.

The study found that depressive disorders among nurses are influenced by occupational burnout syndrome, with stress being a major contributing factor to their development.

Table 3. *MBI burnout risk (22-88) vs. BECK depression level (0-63).*

Variable			BECK depression level (0-63)			Total
			No depression (0-11)	Mild depression (12-26)	Moderately severe depression (27-49)	
MBI burnout risk (22-88)	Up to the median (52 and below)	Percentage (%)	65.4	33.3	0.0	52.8
	Above the median (53 and above)	Percentage (%)	34.6	66.7	100.0	47.2
Total		Percentage (%)	100.0	100.0	100.0	100.0
Kendall's tau-c	0.337	0.081	4.174	0.000	0.000	
coefficient	value	standard error	approximate T	P	Monte Carlo p	

Source: own.

Higher levels of depression on the Beck Depression Scale are associated with a higher risk of burnout on the Maslach Burnout Inventory. The correlation is statistically significant ($p < 0.001$) and demonstrates a moderate strength of association (Kendall's Tau-c = 0.337) (Table 4).

Table 4. *Components of job burnout vs. level of depression on the Beck Depression Scale (N=254)*

Variables			BECK depression level (0-63)
Spearman's rho	MBI burnout risk (22-88)	Correlation coefficient	0.548
	Emotional exhaustion (9-36)	Correlation coefficient	0.510
	Depersonalization (5-20)	Correlation coefficient	0.286
	Decreased sense of personal accomplishment (8-32)	Correlation coefficient	0.300

Source: own.

Respondents with higher burnout levels in individual MBI domains exhibited higher levels of depression on the Beck Depression Scale. The correlations were statistically significant ($p < 0.01$), with the most significant relationships observed between the Beck depression score and the total MBI score (rho-Spearman = 0.548), as well as between the Beck depression score and emotional exhaustion (rho-Spearman = 0.510) (Table 5).

Table 5. *Level of perceived workplace stress and risk of depression on the Beck Depression Scale (0-63)*

Variable			On a scale of 0 to 10, please indicate what level of stress you feel at work (where 0 is no stress and 10 is very high stress)					Total
			0-2	3-4	5-6	7-8	9-10	
BECK depression level (0-63)	No depression (0-11)	Percentage (%)	83.3%	73.7%	72.9%	54.8%	33.3%	63.8%
	Mild depression (12-26)	Percentage (%)	16.7%	21.1%	27.1%	38.1%	66.7%	33.1%
	Moderately severe depression (27-49)	Percentage (%)	0.0%	5.3%	0.0%	7.1%	0.0%	3.1%
Total		Percentage (%)	Percentage (%)	100.0%	100.0%	100.0%	100.0%	100.0%
Kendall's tau-c	0.204	0.068	2.975	0.003	0.004			
coefficient	value	standard error	approximate T	P	Monte Carlo p			

Source: own.

Higher levels of perceived stress are associated with higher levels of depression on the Beck Depression Scale. The correlation is statistically significant ($p < 0.05$), although it indicates a weak strength of association (Kendall's Tau-c = 0.204) (Table 6).

Table 6. *The level of perceived stress in the workplace and the risk of job burnout MBI (22-88)*

Variable			On a scale of 0 to 10, please indicate what level of stress you feel at work (where 0 is no stress and 10 is very high stress)					Total
			0-2	3-4	5-6	7-8	9-10	
MBI burnout risk (22-88)	Up to the median (52 and below)	Percentage (%)	83.3	47.4	66.7	40.5	33.3	52.8
	Above the median (53 and above)	Percentage (%)	16.7	52.6	33.3	59.5	66.7	47.2
Total		Percentage (%)	Percentage (%)	100.0	100.0	100.0	100.0	100.0
Kendall's tau-c	0.223	0.096	2.335	0.020	0.025			
coefficient	value	standard error	approximate T	P	Monte Carlo p			

Source: own.

With higher levels of perceived stress, there is an increased risk of job burnout. The correlation coefficient is statistically significant ($p < 0.01$) but indicates a weak strength of association (Kendall's Tau-c = 0.223).

The study demonstrated that as the risk of occupational burnout increases, the risk of depressive disorders also rises. It was found that stress plays a significant role in the development of both conditions. The higher the respondents' reported level of stress, the greater the risk of both depressive disorders and occupational burnout.

Discussion

The incidence of professional burnout is multidimensional, and familiarity with the concept of burnout has no significant effect on reducing its incidence. A review of the available national scientific literature has shown that the problems related to professional burnout among nurses in the Polish healthcare system have already been sufficiently described. However, the variety of studies and research tools used, ranging from standardized questionnaires to self-authored surveys, often prevents direct comparisons of results obtained across studies [20].

The present study focused on examining the extent of depressive disorders and burnout syndrome among nurses and aimed to explore the relationships between these conditions and the factors contributing to their development. Our own research indicated that sociodemographic factors do not significantly impact the incidence of depressive disorders or occupational burnout syndrome among the surveyed nurses. However, a significant correlation was found for nurses living in rural areas. Statistical analysis showed that nurses from rural areas were more likely to be at risk of burnout, as measured by the MBI scale. The correlation coefficient is statistically significant, though weak (Phi = 0.20).

In a study by Nowakowska and Rasinskaya, the influence of sociodemographic factors on the appearance of professional burnout symptoms was noted. Among the most frequently mentioned factors were age, gender, education, marital status, and years of service [21]. Similarly, in a study by Antczak-Komoterska, Polak et al., sociodemographic factors significantly affected the occurrence of depressive disorders in their study group. A strong relationship was found between gender, age, and the depression measurement index [22].

Another hypothesis tested in our study was whether the shift work system has an impact on the incidence of depressive disorders and burnout syndrome among nurses. Rezmerska, Kochman, and Anaszewicz found that the majority of nurses working in single-shift jobs reported low levels of burnout (46.7%), while 16.4% of those working in shifts reported a high level of burnout [23]. However, our study did not support this finding, as 83.5% of respondents reported working in shifts, and statistical analysis showed no significant relationship between the twelve-hour work system and depression levels (BECKA scale) or professional burnout (MBI scale). Therefore, it can be concluded that the shift work system does not affect the incidence of depressive disorders and occupational burnout syndrome among the nurses surveyed.

Our analysis also examined whether the levels of depression and burnout among nurses were dependent on their perceived stress at work. Despite nearly all respondents (96.9%) indicating that they considered their work to be stressful, no statistically significant relationships were found between perceived stress and the levels of depression or burnout. In our study, 70.9% of respondents rated their perceived stress at an average level, 63.8% had no symptoms of depression, and 52.8% had a low risk of job burnout. Thus, the results do not support the hypothesis that the threat of occupational burnout and depression is dependent on respondents' perception of their work stress.

Other studies have shown that a significant proportion of nurses experience above-average stress levels. For example, half of the nurses in one study reported exceeding the average stress level [24], and in a study by Kovalchuk et al., 72.6% of respondents reported being exposed to stress [25].

Our own research indicated that the workplace had no effect on the incidence of depressive disorders and burnout syndrome. Respondents were employed in various workplaces: 83.5% worked in public hospitals, 7.9% in private hospitals, 6.3% in POZ (Primary Healthcare Units), and 2.4% in DPS/ZOL (Social Welfare Homes). The analysis showed no significant relationship between the workplace and depression levels on the BECKA scale or burnout risk on the MBI scale. Other studies, however, suggest that the workplace can influence the severity of burnout symptoms, particularly emotional exhaustion and a reduced sense of personal achievement. These studies, however, did not observe a significant effect of the workplace on depersonalization symptoms [11,26,27].

In contrast, our study found a significant relationship between higher levels of depression on the BECKA scale and higher risk of job burnout on the MBI scale. This correlation demonstrates a clear strength of association. Furthermore, respondents with higher burnout in individual MBI domains showed higher levels of depression on the BECK scale. Statistically significant correlations were found, with the most significant relationships being between Beck depression levels and the MBI total score and emotional exhaustion. Additionally, our study found a statistically significant correlation between the three components of job burnout, with higher levels of emotional exhaustion being strongly associated with higher levels of depersonalization. It was also confirmed that stress contributes significantly to the development of both conditions. Higher levels of stress, as reported by respondents, lead to a higher risk of both depressive disorders and occupational burnout.

Other authors have pointed out that both work-related stress and the professional burnout resulting from it have become increasingly common due to social and civilization changes. Stress is ubiquitous in the modern world, and it poses a growing threat to people's well-being. It can contribute significantly to the development of depression and professional burnout in nurses [27,28].

In studies by Debska and Cepuch (focusing on three dimensions of burnout: emotional exhaustion, self-esteem at work, and depersonalization) in nurses working in primary care institutions, professional burnout was not found to be highly prevalent. The mean values for emotional exhaustion support the view that this dimension is critical to burnout syndrome. Elevated levels of emotional exhaustion on the MBI scale indicate that the emotional costs of task performance are borne by the nurses themselves [29].

Anczewska, Switaj, and Roszczynska discussed the challenge of distinguishing burnout syndrome from other psychiatric conditions. In particular, the differentiation between burnout and

occupational stress, depression, reduced job satisfaction, and chronic fatigue syndrome remains controversial. Many of the symptoms described in burnout are also present in depression. Emotional exhaustion correlates strongly with depression, whereas the other two dimensions of burnout (depersonalization and reduced sense of personal achievement) show much weaker correlations. It is likely that these are related but distinct states. The more pronounced the burnout symptoms, the greater the similarity to depressive symptomatology. Kaczmarek also noted that occupational burnout can lead to various disorders, including addictions, anxiety disorders, and depression, and highlighted the interconnection between stress, depression, and chronic fatigue [30,31].

Conclusions

1. Sociodemographic factors do not have a significant impact on the incidence of depressive disorders and occupational burnout syndrome among the nurses surveyed.
2. An increase in the incidence of occupational burnout is associated with a higher risk of depressive disorders, with stress playing a significant role in their development.
3. Higher levels of stress, as declared by respondents, are linked to an increased risk of both depressive disorders and occupational burnout.

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