



## Occurrence of Depressive Symptoms among Nurses Working in the Family Health Program

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### Authors' contributions

This work was carried out in collaboration between all authors. Author JAA designed the study, wrote the protocol and author MIAM wrote the first draft of the manuscript. Authors MLA, ROC and INS managed the analyses of the study. Authors MECSA and SSVD performed the statistical analysis. Author FPR co-designed the study, managed the literature search and proof read the first draft manuscript. All authors read and approved the final manuscript.

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## ABSTRACT

**Introduction:** Depressive disorders in the general population are a matter for concern because of their increasing prevalence and high social cost. The healthcare professionals who are most susceptible to mental health problems are the ones who spend most of their time at work interacting with individuals who need help. Nurses are one such group, since they are affected directly through their exposure to and work with diseases. This constitutes a wearing and stressful process, and conscious or subconscious defense mechanisms become necessary, so that the disease and suffering of the other person do not interfere with the nurses' own physical and mental health.

**Objective:** To determine the rate of occurrence of depressive symptoms among nurses working at family healthcare units in the municipality of Aracaju.

**Materials and Methods:** The Beck Depression Inventory was applied to a sample of 90 nurses, among whom 91.1% (82) were female and 8.9% (8) were male, to screen for depressive symptoms, and a questionnaire was drawn up by the investigators to gather sociodemographic information. Descriptive statistics and analysis were performed by means of the chi-square test and logistic regression.

**Results:** The prevalence of depressive symptoms among nurses was 40.9%. After adjustment using simple logistic regression, insomnia was the variable with the biggest association with the appearance of depressive symptoms [OR = 6.22], followed by use of antidepressants [OR = 4.59] and working conditions [OR = 2.88].

**Conclusions:** The presence of depressive symptoms in nurses working at family healthcare units was significant and was strongly associated with insomnia, thus demonstrating that there is a need to implement preventive measures regarding occurrences of depressive symptoms among these professionals.

*Keywords: Depression; nurse; family health; disorders of falling asleep and remaining asleep; prevalence.*

## 1. INTRODUCTION

Among affective mood disorders, depression is the one highlighted most today. The World Health Organization (WHO) [1] has estimated that this disorder affects around 350 million people. Depression modifies the perception that people have of themselves and they react to their problems as if these were major catastrophes [2].

Scientific evidence has demonstrated that depression among nursing professionals may be related to organizational factors that are pertinent to the work process: The sectors of professional activity, work shift, interpersonal relationships, overload, type of service, problems with the rota, autonomy in carrying out tasks, assistance to clients, wear, social support, insecurity and conflicts of interest, along with the coping strategies that consequently are developed [3,4]. Rizvi et al. [5] investigated the factors associated with work status in MDD within primary and

tertiary care. They concluded that unemployment and disability rates in MDD are high. The presence of anhedonia and medical comorbidity significantly influenced work status, emphasizing the need for treatment strategies to alleviate the additional symptom burden in this subpopulation.

A shift working day is one of the factors that have most influenced the performance of nursing professionals' activities. Today, this reality has become more present, in view of the economic situation of the healthcare sector. It is motivated by the low salary levels of the healthcare system, which are insufficient to sustain professionals' families and lead these professionals to seek new sources of income [6]. In a study conducted at the Pediatric Oncology Hospital of Campinas in 2003, it was found that 53.9% of the 522 nurses had two jobs, which ends up having repercussions on the health of these professionals and on the attendance that they provide [7].

It has been demonstrated in the literature that depression also affects other groups of individuals. Among these, the groups that are most cited are pregnant women and students. In a sample of 100 pregnant women who were surveyed at the Dr. Vasco Barcelos Health Center, the prevalence of depression among them was 18%. A relationship between the presence of depressive symptoms in pregnant women and low birth weight and prematurity among their newborns was observed. Untreated depression in these women would increase the risks involved in using tobacco, alcohol and other drugs [8].

Discussion among students, especially at university level, is a subject that has been greatly discussed in the literature. In a study developed among medical students at a public university in Brazil, the prevalence of depression was found to be 40.5%, in a sample of 84 students. Bayati et al. [9] described the prevalence and related factors of depression in Iranian students as higher than compared to all population and in female exceed to male students. But there wasn't any difference between medical and non-medical students. So attention to financial and occupational future graduated and under graduated students is essential. The results obtained revealed that there was no significant difference between the depressive symptoms presented by females and those presented by males. However, a relationship with financial difficulties was diagnosed, such that the lower the family income was, the greater the depressive symptoms were [10]. This aspect was discussed by Mikolajczyk et al. [11] when studied the students in three European countries. The authors perceived burdens related to studying are positively associated with higher depression scores among students, not only by mediation through perceived stress but also directly. Among nursing students, Garro, Camillo and Nóbrega [12] found that 26.06% of the students interviewed had some symptoms of depression. These authors suggested that there was a need to implement psychological support programs among students, in order to prevent other possible mental disorders. Adewuya et al. [13] recognized that depression is common among Nigerian university students and significantly associated with sociodemographic factors.

Baba, Galperin and Lituchy [14] recognized the susceptibility of mental health problems among nurses and other professions that interact most of the time with individuals who need help

directly. Among the problems of mental health, several authors, including Brazilian, has particularly highlighted the occurrence of depression among nursing professionals. These problems seem to arise from factors such as work schedules, vocational training, salaries, social safety work and family [3,4,15-18]. In view of the relevance of the literature concerning the occurrence of depression among nursing professionals we consider necessary and important to research the presence of this mental disorder in the population of nurses working in health units of the family of Aracaju, capital of the state of Sergipe.

## 2. MATERIALS AND METHODS

A cross-sectional study was conducted to assess occurrences of depression among nurses working at family healthcare units in the municipality of Aracaju. Invitations to participate were issued to all of the 126 nursing professionals working in these units, among whom 20 refused to participate and 16 were on vacation or sick leave. The participation rate was therefore 71.42%. The individuals who were invited to participate in the study were informed about the objectives of the study and the voluntary nature of their participation, and were assured of anonymity. They were also informed that the data that they provided would be used for scientific purposes, in accordance with the precepts of resolution 196/96 of the National Health Council for research involving human beings.

To gather data, the Beck Depression Inventory (BDI) was used, as translated and validated for Portuguese by Gorestein and Andrade [19], in order to aid in screening for symptoms and identifying the severity of the depression. In addition, a questionnaire to gather sociodemographic information was applied to address aspects of the nurses' personal and professional lives. The BDI consists of a list of 21 items. Each of the items, according to the response, is assessed in terms of degrees of intensity by means of a scale going from zero to three, thus resulting in a final score that could range from 0 to 63. The items relate to sadness, pessimism, feelings of failure, dissatisfaction, feelings of guilt, feelings of self-punishment, self-depreciation, self-accusation, suicidal ideas, crises of crying, irritability, social withdrawal, indecision, distortion of body image, inhibition regarding work, sleep disorders, fatigue, loss of

appetite, weight loss, somatic worries and diminished libido.

To evaluate the results from the BDI, the following parameters indicating the degree of depression were used: 0-9, absence of depression; 10-18, mild depression; 19-29, moderate depression; and 30-63, severe depression. To analyze associations and conduct logistic regression, only the mild and moderate cases of depression were grouped.

The exploratory analysis consisted of description of the population by means of descriptive statistics, followed by bivariate analysis with calculation of crude odds ratios (OR). After this, multivariable analysis was performed by means of logistic regression. The criterion for entering factors in the model was  $p = 0.25$ , and they were kept in the model if the significance level reached  $p \leq 0.05$ . The modeling strategy used was the backward stepwise method. This study was approved by the research ethics committee of the Federal University of Sergipe, under protocol no. CAAE-0135.0.107.000-10.

### 3. RESULTS

Of the 90 nurses evaluated 91.1% (82) were female and 8.9% (8) were male. The ages of the female nurses ranged from 23 to 63, with a mean of  $41.09 \pm 9.88$  years, while the ages of the male nurses ranged from 29 to 37 years, with a mean of  $32.38 \pm 2.17$ . Taking the mild, moderate and severe degrees of depression together, the total occurrence rate among the population studied was 40.9%. Severe depression was only found in 1.1% (Table 1).

The presence of depression among the groups of nurses at the family healthcare units was not found to be associated with the following variables: sex, diabetes, hypertension, physical activity, use of tobacco, use of alcohol, use of illicit drugs, seeking psychiatric and psychological services, psychiatric history within the family, having more than one job or satisfaction with the immediate boss (Table 2).

However, the sociodemographic variables of marital status, obesity, use of antidepressants, insomnia and working conditions, as the actual shift working day, were associated with the presence of depression ( $p < 0.05$ ) (Table 3).

From the simple logistic regression calculation, in which the outcome variable (depression) and the

variables associated with this were considered separately, it was found that the presence of insomnia increased the chances of occurrence of depression by 6.22 times. Regarding the use of antidepressants, the nurses who said that they used these medications showed a 4.59 times greater chance of presenting depressive symptoms. This was followed by working conditions (OR = 2.88) (Table 4). Obesity and marital status did not reach the minimum values for the calculation. However, after the multiple logistic regression calculation, it was observed that presence of insomnia was the variable that presented the biggest relationship with the presence of depression.

**Table 1. Distribution of the degree of intensity of depression among the nurses at the family healthcare units, according to the Beck Depression Inventory**

Degree of depression	% (n)	95% CI
Absent (0 – 9)	58.9 (53)	48.9 – 68.9
Mild (10 – 18)	35.4 (32)	25.6 – 45.6
Moderate (19 – 29)	4.4 (4)	1.1 – 8.9
Severe (30 – 63)	1.1 (1)	0.0 – 3.3

### 4. DISCUSSION

Occurrences of depression are associated with factors such as age, marital status, social class and social conditions. Depression is a condition that affects individuals at some stage of life, either transitorily, at time of feeling dejected or melancholy, or as a more serious form that might harm physical and psychological performance [20].

The present study demonstrated that the prevalence of depression among the nurses working at the family healthcare units was 40.9%. This rate was higher than the findings from studies among nurses who were working in intensive care units and hospital care [17,18,21]. This surprisingly high frequency of depression that was found among the nurses at the family healthcare units in the city of Aracaju deserves some reflection regarding the reasons for this finding. This working environment is generally considered to be one that causes less physical and psychological wear than other environments within the healthcare sector.

Chiodi and Marziale [22] conducted a review of the Brazilian literature with the aim of seeking scientific evidence regarding the occupational risks to which the workers at family healthcare

**Table 2. Variables that did not present any association with the presence of depression among the nurses working at the family healthcare units in the city of Aracaju, 2012**

Variable		Depression		p
		Present (n = 37) % (n)	Absent (n = 53) % (n)	
Sex	Female	40.2% (33)	59.8% (49)	0.592
	Male	50.0% (4)	50.0% (4)	
Diabetes	Yes	8.1% (3)	1.9% (1)	0.159
	No	91.9% (34)	98.1% (52)	
Arterial hypertension	Yes	27.0% (10)	18.9% (10)	0.360
	No	73.0% (27)	81.1% (43)	
Physical activity	Yes	56.8% (21)	62.3% (33)	0.600
	No	43.2% (16)	37.7% (20)	
Use of tobacco	Yes	8.1% (3)	3.8% (2)	0.377
	No	91.9% (34)	96.2% (51)	
Use of alcohol	Yes	16.2% (6)	7.5% (4)	0.198
	No	83.8% (31)	92.5% (49)	
Use of illicit drugs	Yes	2.7% (1)	1.9% (1)	0.466
	No	97.3% (36)	98.1% (52)	
Seeking psychiatric or psychological services	Yes	51.4% (19)	32.1% (17)	0.066
	No	48.6% (18)	67.9% (36)	
Psychiatric history in the family	Yes	29.7% (11)	22.6% (12)	0.448
	No	70.3% (26)	77.4% (41)	
Having more than one job	Yes	45.9% (17)	41.5% (22)	0.676
	No	54.1% (20)	58.5% (31)	
Satisfaction with immediate boss	Yes	75.7% (28)	88.7% (47)	0.103
	No	24.3% (9)	11.3% (6)	

**Table 3. Sociodemographic variables that presented an association with depression among the nurses at the family healthcare units in the city of Aracaju, 2012**

Variable		Depression		p
		Present % (n)	Absent % (n)	
Marital status	Single	29.7% (11)	20.8% (11)	0.036
	Married	37.8% (14)	66.0% (35)	
	Separated	16.2% (6)	9.4% (5)	
	Others	16.2% (6)	3.8% (2)	
Obesity	Yes	16.2% (6)	3.8% (2)	0.041
	No	83.8% (31)	96.2% (51)	
Use of antidepressants	Yes	21.6% (8)	5.7% (3)	0.023
	No	78.4% (29)	94.3% (50)	
Presence of insomnia	Yes	48.6% (18)	13.2% (7)	<0.0001
	No	51.4% (19)	86.8% (46)	
Working conditions	Satisfied	16.2% (6)	35.8% (19)	0.041
	Dissatisfied	83.8% (31)	64.2% (34)	

*Chi-square test*

units are exposed. They observed that in 12 articles, the influence of physical, chemical, psychosocial, ergonomic and biological factors among those workers were discussed. The work at the family healthcare units was characterized as having "peaks of movement", i.e. in the intervals between these peaks, it tended to be monotonous and repetitive, thus making the work

unstimulating and tiring. The times of the peaks were considered to be tense and required physical and mental strength from the workers. The authors also reported that in 100% of these studies, histories of mental risks were found. According to Santos [23], nurses working in family healthcare units reported that on many occasions they reached the point of creating

emotional ties with the service users, which made the work burdensome and created a sensation of impotence in relation to their functions. Consequently, this work relationship could trigger a depressive state.

**Table 4. Variables associated with depression, expressed as odds ratios with their respective confidence intervals by means of simple logistic regression**

Variable	Odds ratio	95% CI	p
<b>Insomnia</b>			
Yes	6.22	2.23-17.32	< 0.0001
No	1		
<b>Use of antidepressants</b>			
Yes	4.59	1.13-18.71	0.033
No	1		
<b>Working conditions</b>			
Dissatisfied	2.88	1.02-8.16	0.045
Satisfied	1		

The factors that could trigger depressive symptoms were found more frequently among the women (40.2%), who made up the majority of the sample studied (91.1%). This finding corroborates other results from Brazil, which also show that women form most of the nursing team at family healthcare units (90%) [24]. Belancieri and Bianco [25] explained the massive presence of female nurses at family healthcare units as the result of the existence of sociocultural factors, in which nursing services are deemed to be appropriate for women to provide.

Although male nurses were not present in significant numbers in our sample, it needs to be emphasized that studies exploring this in greater depth would be important, given that the sample of the present study showed that half of these men had depressive symptoms. According to WHO [1], depression is the fourth greatest agent for incapacitation of social functions.

The data demonstrated that married women had lower predisposition towards depressive symptoms than did those with other types of marital status (single, separated, widowed and others). There was a similar finding among nurses working in intensive care units, where it was observed that individuals who lived without any type of companion presented a higher chance of depression (OR = 1.52) [26]. These characteristics may be associated with the fact that the presence of a companion seems to

contribute towards better coping with problems, along with generation of positive feelings and thoughts. Therefore, a stable couple is an important element of social support [27].

Depressive symptoms frequently accompany almost all chronic pathological conditions and when they are present, they end up leading to worse evolution worse adherence to the proposed treatments, poorer quality of life and greater morbidity and mortality [28]. In the present study, no correlation was found between diabetes and hypertension, but there was an association with obesity. For Agbir et al. [29] depression is a common psychiatric disorder among diabetic subjects environment. It was suggested that diabetic patients be screened for depression to allow for early detection and treatment. Kang et al. [30] in a present review about the comorbidity of depression with physical disorders, concluded that depression was prevalent in patients with physical disorders, particularly in those with severe disorders such as cancer, stroke, and acute coronary syndrome. For Ryu et al. [31] the depressive symptoms, both age and comorbid health burden were equally important, with decreasing deficits in depressive symptoms with increasing age. Gilsanz et al. [32] in a study of cohort, demonstrated that persistently high depressive symptoms were associated with increased stroke risk. Risk remained elevated even if depressive symptoms remitted over a 2-year period, suggesting cumulative etiologic mechanisms linking depression and stroke. Yet, depression has an adverse impact on the courses of these diseases that includes poor quality of life, more functional impairments, and a higher mortality rate. Patients with physical disorders are at higher risk of depression. The sample size did not allow us to make adequate generalized correlations. In a study on obese children, Luiz et al. [33] observed a correlation with depression and anxiety. However, Goldsamt et al. [34] related that although a majority of participants of your study reported depressive symptomatology but fewer report symptoms of anxiety. Risky sexual and drug use practices predicted both types of symptoms.

The presence of chronic pathological conditions and depression may be associated with lack of regular physical exercise practice. According to the results found by Vasconcelos et al. [35] depression and physical exercise are two variables that present an inverse relationship, i.e. when one of these variables increases, the other

tends to decrease significantly. In the present study, it was found that 56.8% of the total number of nurses with depressive symptoms practiced some type of physical activity. However, it was not possible to determine the frequency with which these physical activities were practiced, and this may have given rise to the difference between these two studies.

Another factor that contributed towards occurrences of depressive symptoms was the high emotional tension that derived from the subjective relationships and from the working conditions that had been provided. This situation contributed towards exacerbating the mental symptoms among the nurses, such that 83.8% of the individuals with depression in our sample declared that they were dissatisfied with their working conditions. Unfavorable working conditions were identified by Martins [36] as factors that contributed towards triggering mental problems and also occupational accidents.

Statistically, insomnia was the factor that was most associated with the presence of depression among nurses. This sleep alteration constitutes a risk factor for the appearance of anxiety disorders or depression [37]. It is characterized as inadequate and/or non-restorative sleep, with daytime consequences that include irritability, fatigue and deficits of concentration and memory. In parallel, insomnia may be an important indicator in evaluating subsequent development of depression: in the sample studied here, its presence made the chances six times greater that depressive symptoms might appear.

Use of antidepressants was correlated with the presence of depression, although our data did not allow any correlation with the frequency and quantity of medications administered. Farhangi et al. [38] studying patients during maintenance therapy, they found symptoms of depression in entire population, without significant relation between depressive symptoms, and age sex length of disease and type of treatment. The results they suggested a high prevalence of psychiatric disorders in children and adolescents. On the other hand, such correlations were found in a study conducted by Nascimento et al. [39] who showed that polypharmacy and the number of chronic complications from type 2 mellitus had a relationship with the indicators of depressive symptoms. These authors concluded that the reason why antidepressants were stress-producing agents was not the number of drugs

but, rather, the daily frequency with which they were administered. For Simon et al. [40] the frequencies of psychological and physical symptoms were similar.

In the light of the above data, it needs to be borne in mind that this non-random sample was of small size because of the number of nurses working within the primary healthcare network, and that this sample only provided us with a momentary snapshot of the situation. Nonetheless, the sample studied showed characteristics that made it possible to conclude that states of moderate and severe depression were present at a rate of 5.5%. In an international study Simon et al. [40] finding in 1146 patients a prevalence, 10.1 percent. It is possible, as reported in the literature, that these depressive states were interfering with these individuals' personal lives and professional performance. The results found here may also be important with regard to drawing up preventive measures aimed towards safeguarding the workers' health and thus enable them to continue to provide quality service for the community.

## 5. CONCLUSION

The presence of depressive symptoms among nurses working at family healthcare units was significant and strongly associated with insomnia. This therefore demonstrates that there is a need to implement preventive measures against occurrences of depressive symptoms among these professionals.

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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