

Depressive Symptoms among Psychiatric Nurses in a Hospital: An Analytical Research

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Abstract

Background: Psychiatric nurses are vulnerable to the menace of negative emotions due to the nature of their work and the closed environment in which they work. In this study, we aimed to investigate the incidence and influencing factors of depression among psychiatric nurses.

Methods: A cross-sectional survey method was adopted to investigate 64 nurses working in the psychiatric department of a hospital from June 2022 to June 2023. The Beck Depression Inventory (BDI) questionnaire was administered to all included respondents, who were divided into depressed group (>4 points) and non-depressed group (≤4 points) according to the BDI scores. General sociological and disease-related characteristics of these two groups were measured, and items with significant differences were analyzed by logistic regression to derive factors that have an impact on the occurrence of depression among psychiatric nurses.

Results: Twelve psychiatric nurses in the surveyed hospital exhibited signs of depressive symptoms, with a rate of 18.75%. The univariate analysis unveiled differences between the depressed group and the non-depressed group in terms of daily sleep time, weekly working hours, professional title, working pressure, physical exercise, length of service, and physical condition. Further analysis through logistic regression revealed that daily sleep time, weekly working hours, and physical condition were factors affecting the occurrence of depression among psychiatric nurses.

Conclusion: The vulnerability of psychiatric nurses to depression, which are potentially influenced by daily sleep hours, weekly working hours, and physical condition, deserves clinical attention so that countermeasures can be developed for early intervention.

Keywords

depression; psychiatric nurses; beck depression inventory; influencing factors

Introduction

Clinical nurses are highly vulnerable to depression and other negative emotions and psychological complications due to the high-intensity nursing work persisting for an extended period of time. In a survey on the prevalence of depressive symptoms among Chinese nurses [1], 43.83% of the sample had experienced depressive symptoms, with mild depressive symptoms accounting for 31.12%. Another survey revealed that 30.1% of nursing home staff had depressive symptoms [2]. These studies highlight the immense risk of depression in the nursing population. In particular, psychiatric nurses are susceptible to negative emotions due to the distinctive nature of their work being closely linked to psychiatric care and the closed environment in which they work. According to relevant statistics [3], the incidence rates of depression among psychiatric nurses in China and Australia accounted for 36.6% and 52.7%, respectively, which portrays the mental health challenge faced by psychiatric nurses.

Rather than affecting their own well-being, depressive symptoms in psychiatric nurses could also have a negative impact on patients. In fact, depression may adversely affect the physical and mental health of psychiatric nurses themselves, and may even render some of them suicidal [4]. The

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depressive symptoms can diminish the ability of psychiatric nurses as care providers, lowering the quality of treatment for their patients. A Canadian study showed that compared to their non-depressed counterparts, nurses with major depressive disorder had a higher rate of burnout [5], and excessive burnout can lead to a decrease in the empathy and quality of care, which can negatively affect patient care [6]. In light of the high prevalence of depression among psychiatric nurses and the deleterious repercussions, it can wreak on the victims, so it is necessary to investigate psychiatric nurses affected by depression and explore the related factors, which serve as the crucial reference basis for the development of relevant intervention measures in future.

Fortunately, current research trends showcase a gradual shift toward exploring the factors underlying the occurrence of depressive symptoms within the nursing profession. Lu *et al.* [7] pointed out that depressive symptoms among nurses are tightly intertwined with stressful work environments, taxing nature of their work, and the incommensurate reward for the effort made. In a cross-sectional study, Iwanowicz-Palus *et al.* [8] found that coping styles in response to stressors in the workplace constitute the key factor influencing nurses' depression. These studies took a general approach to investigate the risk factors of depressive symptoms among nurses, irrespective of their medical specialties or departments they work for. In order to further explore the causes affecting the depressive symptoms among psychiatric nurses, this study was designed to investigate 64 nurses working in the psychiatric department of our hospital from June 2022 to June 2023 by means of a cross-sectional survey. In the same study, we measured the prevalence of depression among psychiatric nurses and analyzed the factors underlying this mental health challenge, so as to provide a reference for the improvement of their mental health.

Materials and Methods

Data Source

The subjects of the survey were 64 nurses working in the psychiatric department of Chongqing Mental Health Center from June 2022 to June 2023. The Beck Depression Inventory (BDI) questionnaire was utilized to evaluate the depression of all psychiatric nurses; those who scored >4 were categorized under the depressed group, and those who scored ≤ 4 were under the non-depressed group. This study was approved by the Medical Ethics Committee of Chongqing Mental Health Center (Approval No.: 2019-yjkt-17), and all procedures were carried out in accordance with the ethical standards of the 1964 Decla-

ration of Helsinki and its subsequent amendments. This study adopted a cross-sectional design and did not administer medical interventions on the subjects or engage with the use of human tissue samples. All participants had provided informed consent prior to their participation.

Inclusion and Exclusion Criteria

This study included nurses who had a working experience of more than 1 year at the time of recruitment, and possess basic listening, speaking, reading and writing skills. Nurses with the following criteria were excluded from this study: (i) having a previous history of depression; (ii) having suffered from comorbid mental illness or cognitive impairment; and (iii) having an absenteeism history of more than three times in the recent past without any reasons.

Research Methods and Observation Indicators

Grouping Methods

All included nurses were requested to respond to the BDI questionnaire and were subsequently grouped according to their scores. This scale was developed by Beck *et al.* [9] and was modified in 1974, extending to 13 related items including self-guilt, depression, negative tendencies, feelings of failure, feelings of self-disappointment, and indecisiveness. This tool adopts the 4-point Likert scale, with responses graded as asymptomatic (0 point), mild (1 point), moderate (2 points), and severe (3 points). The total scores are used to determine the severity of depression: no depression (total score 0–4 points), mild depression (total score 5–7 points), moderate depression (total score 8–15 points), and severe depression (total score 16–39 points). In this study, the individuals scoring of >4 points each were classified in the depressed group, while those with a score of ≤ 4 points each were classified in the non-depressed group. The overall Cronbach's α coefficient of the scale was 0.871, and the split-half reliability coefficient was 0.903, which was satisfactory in terms of reliability and validity.

Observation Indicators

In this study, general social and disease-related characteristics of all nurses were collected, such as gender, age, marriage situation, body mass index, complications, residence, degree of education, monthly household income, daily sleep time, characteristics, the only child, weekly working hours, interpersonal relationship, working pressure, smoking, drinking, regular diet, physical exercise, professional title, length of service, religion, and physical condition and wellbeing. Factors affecting the occurrence

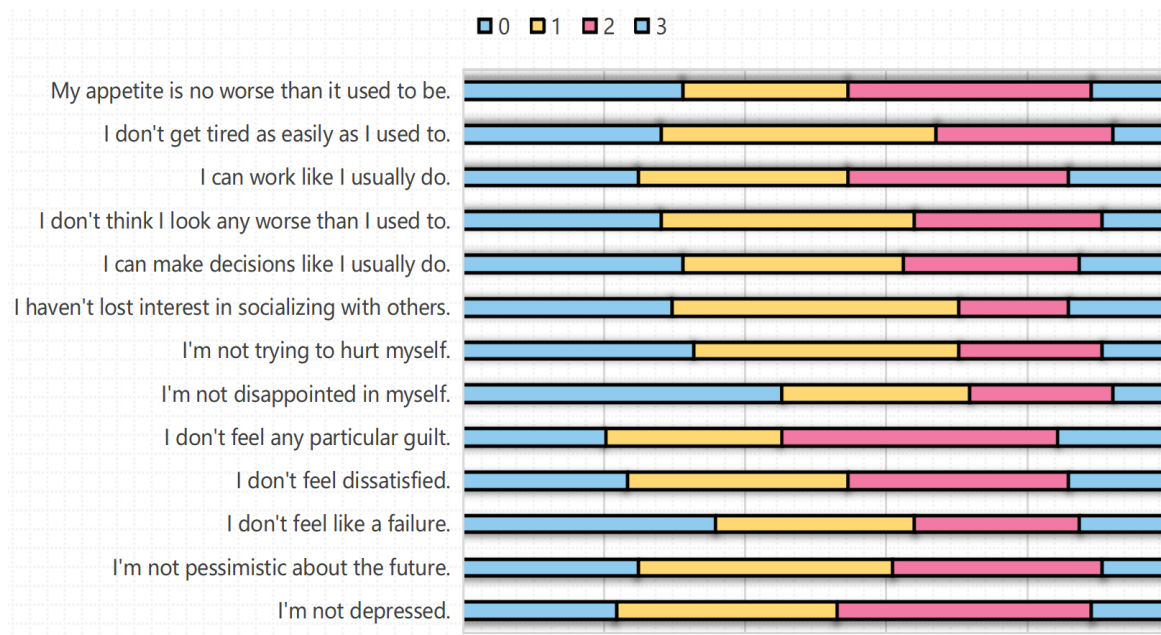


Fig. 1. The Beck Depression Inventory (BDI) scores of each item among the surveyed nurses.

of depression in psychiatric nurses were analyzed by comparing the clinical data obtained from the depressed and non-depressed groups.

(1) The Chinese Nurses' Work Stress Scale [10] was selected to measure work stress of the participants. Developed by Xiaomei Li and Yanjun Liu, this scale consists of 35 questions on work environment and resources, workload and time allocation, nursing work and profession, and patient management. Utilizing the 4-point Likert scale design, every question is scored from 1 to 4, ranging from "mild pressure" to "severe pressure." The maximum score of the assessment is 140 points, with higher scores indicating greater pressure. The overall Cronbach's α coefficient of the scale was 0.963, and the split-half reliability was 0.925, which meant that the reliability and validity were satisfactory. A total score of >70 is an indication of high work stress, whereas ≤ 70 is defined as average work stress.

(2) The Sub-Health Rating Scale [11] was chosen to assess physical condition of the participants. Compiled by Jun Xu, this scale covers social adaptation, energy, positive mood, cognitive function, organ function, and physical symptoms, with a total of 39 questions. Every question is scored on a 5-point Likert scale, with higher scores indicating better physical condition. A score >67 could be defined as sub-healthy. The overall Cronbach's α coefficient of the scale was 0.882, and the split-half reliability coefficient was 0.914, with reasonable reliability and validity.

(3) The General Well-Being Scale [12] was selected to measure respondents' well-being. The scale was developed by the National Center for Health Statistics in the U.S., covering aspects such as satisfaction and interest in life, energy status, worry about health, relaxation and tension, and control of emotions or behavior, with a total of 33 questions and a full score of 120 points. A score >48 indicates a high sense of well-being, whereas a score ≤ 48 indicates a low sense of well-being.

Statistical Analysis

The data were analyzed using SPSS statistical software (version 26.0, IBM Corp., Armonk, NY, USA). Count data are expressed as cases (n). A descriptive analysis was used to present the factors of BDI scores. Chi-squared test was used to compare the differences and explore the relationships between demographic, work-related, lifestyle and other factors. $p < 0.05$ was considered statistically significant. Factors demonstrating significant differences between the two groups were fed into logistic regression analysis. The incidence and influencing factors of depression among psychiatric nurses were analyzed by taking the occurrence of depression as the dependent variables and the clinical data as the independent variables, with $p = 0.05$ as the criterion for the gradual screening of the variables. The figures and tables were made using Microsoft Excel software (Office 2019, Microsoft Corp., Redmond, WA, USA).

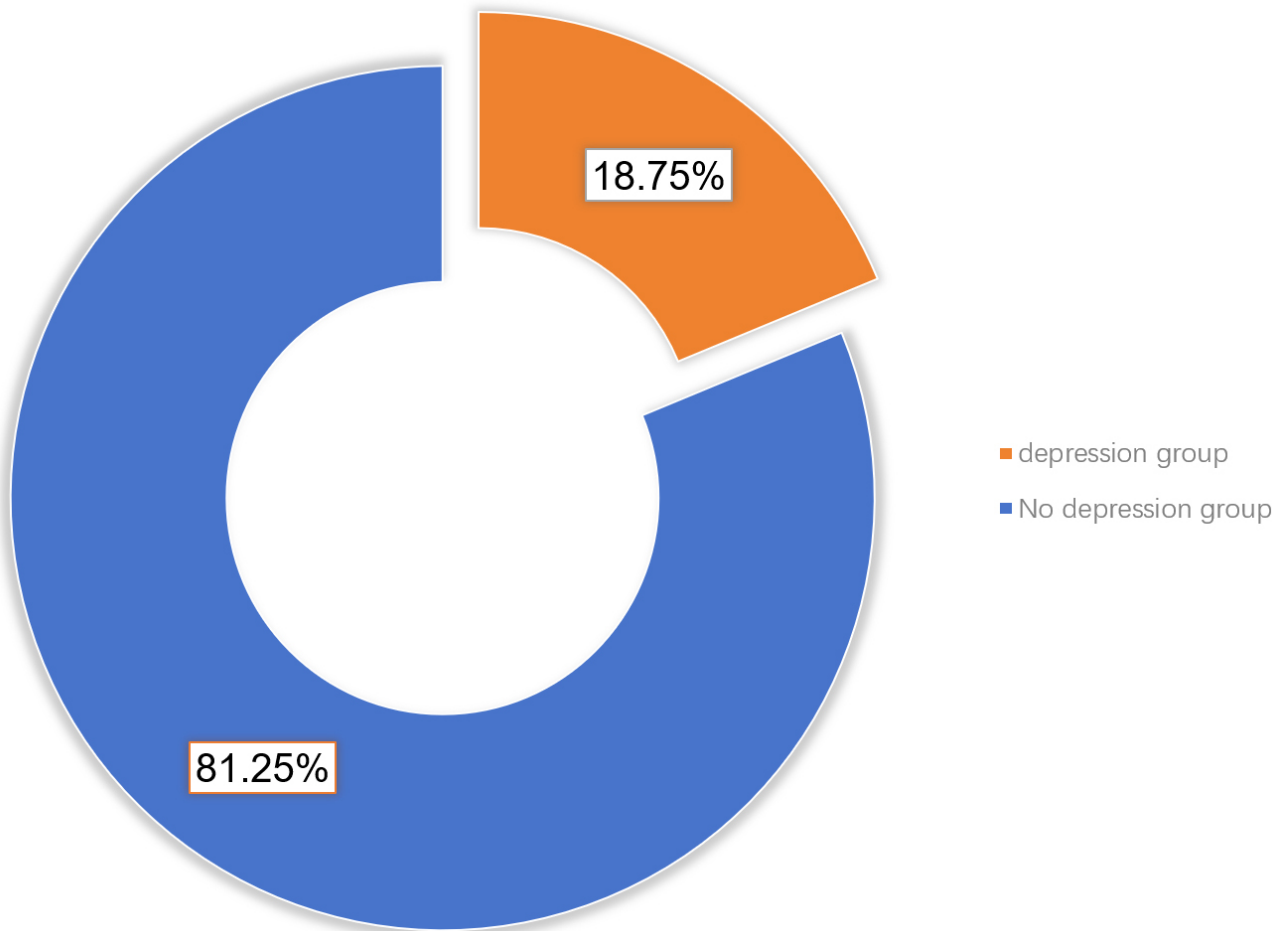


Fig. 2. Group situation.

Results

The BDI Scores of All the Nurses

A total of 64 psychiatric nurses was included in this study, with an average BDI score of 5.73 ± 1.61 . Twelve of them (18.75%), each scoring a BDI score of >4 , were categorized under the depressed group, and 52 (81.25%) with a BDI score of ≤ 4 each, were categorized under the non-depressed group. Details are shown in Figs. 1,2.

Comparison of the Clinical Data in Each Group

The depressed group was significantly different from the non-depressed group in terms of daily sleep time, weekly working hours, professional title, work pressure, exercise, length of service and physical condition ($p < 0.05$). Details are shown in Table 1.

Multivariate Analysis of Factors Affecting the Occurrence of Depression in Psychiatric Nurses

It was found that the variance expansion factor (VIF) values of length of service, exercise and physical fitness, professional title, and work pressure were 22.500, 22.852, 7.875, and 8.227, respectively, and the tolerances of the same variables (in the same order) were 0.044, 0.044, 0.127, and 0.122, respectively, all of which point to the covariance problem of the data. The details are depicted in Table 2. Logistic regression analysis revealed that daily sleep time, weekly working hours, and physical condition were factors affecting the occurrence of depression among psychiatric nurses (Table 3).

Discussion

The current study investigated the depression in 64 psychiatric nurses. We found that all 64 nurses had a BDI score of 5.73 ± 1.61 , of which 12 nurses (18.75%) scored

Table 1. Comparison of the clinical data between depressed and non-depressed group (n = 64).

Clinical data	n	Depressed group (n = 12)	Non-depressed group (n = 52)	χ^2	<i>p</i>	
Age (year)	>30	28	5	23	0.026	0.872
	≤30	36	7	29		
Gender ^b	Man	8	2	6	0.000	1.000
	Woman	56	10	46		
Marriage situation	Married/Divorced	33	8	25	1.349	0.245
	Unmarried	31	4	27		
Complications ^b	Present	38	7	31	0.000	1.000
	Absent	26	5	21		
Body mass index (kg/m ²) ^b	>23	26	6	20	0.166	0.684
	≤23	38	6	32		
Residence	City	37	8	29	0.475	0.491
	Rural area	27	4	23		
Degree of education ^b	Junior college and below	26	5	21	0.000	1.000
	Bachelor's degree or above	38	7	31		
Monthly household income (RMB)	>5000	31	6	25	0.014	0.904
	≤5000	33	6	27		
Daily sleep time (h) ^b	>7	40	4	36	3.938	0.047
	≤7	24	8	16		
Characteristics ^b	Introversion	22	3	19	0.178	0.673
	Extroversion	42	9	33		
The only child	Yes	34	8	26	1.088	0.297
	No	30	4	26		
Weekly working hours (h) ^b	>40	23	9	14	7.812	0.005
	≤0	41	3	38		
Length of service (unit) ^b	≤10	40	3	37	7.002	0.008
	>10	24	9	15		
Work pressure ^b	High	27	10	17	10.252	0.001
	Moderate	37	2	35		
Smoking habit	Yes	32	5	27	0.410	0.522
	No	32	7	25		
Drinking habit	Yes	35	6	29	0.131	0.717
	No	29	6	23		
Regular diet	Yes	36	8	28	0.651	0.420
	No	28	4	24		
Physical exercise ^b	Precious few	25	9	16	6.263	0.012
	Average	39	3	36		
Interpersonal relationship	Average	33	7	26	0.271	0.603
	Friendly	31	5	26		
Professional title ^b	Chief/Supervisor nurse	22	9	13	8.702	0.003
	Nurse/Nurse practitioner	42	3	39		
Religious affiliation ^b	Affiliated	39	9	30	0.608	0.436
	Not affiliated	25	3	22		
Physical condition ^b	Healthy	39	3	36	6.263	0.012
	Sub-healthy	25	9	16		

Note: b: correction for continuity. The exchange rate: 1 USD = 6.67 RMB.

>4 and 52 nurses (81.25%) ≤4, suggesting that nurses working in psychiatric department generally experience a relatively low level of depression, with a portion wrestling

with a moderately depressive condition that requires clinical attention. This finding is consistent with the results of a cross-sectional study on three psychiatric hospitals in

Table 2. Collinearity diagnostics results of factors affecting the occurrence of depression among psychiatric nurses.

Variables	Non-standardized coefficient (B)	Standard error	Standard coefficients (β)	<i>t</i>	<i>p</i>	Tolerance	Variance expansion factor (VIF)
(constant)	26.307	4.422		5.949	0.000		
Daily sleep time (h)	1.496	0.476	0.183	2.142	0.032	0.532	2.634
Weekly working hours (h)	1.807	0.689	0.216	2.624	0.009	0.717	2.609
Length of service	0.257	1.820	0.034	1.868	0.167	0.044	22.500
Work pressure	3.473	0.922	0.150	3.768	0.541	0.122	8.227
Physical exercise	0.335	1.436	0.021	1.203	0.352	0.044	22.852
Professional title	2.697	0.867	0.306	3.110	0.002	0.122	7.875
Physical condition	1.353	0.492	0.156	2.751	0.006	0.696	2.314

$R^2 = 0.31$, Adj $R^2 = 0.25$, $F = 4.050$.

Table 3. Multivariate analysis of factors affecting the occurrence of depression among psychiatric nurses.

Factors	Assignment	Regression coefficient (β)	Standard error (SE)	Wald χ^2	<i>p</i>	OR	An OR value of 95% CI
Daily sleep time	0 = >7	1.504	0.682	4.862	0.027	4.500	1.182–17.133
	1 = \leq 7						
Weekly working hours	0 = \leq 40	2.097	0.736	8.112	0.004	8.143	1.923–34.478
	1 = >40						
Physical condition	0 = healthy	1.981	0.724	7.487	0.006	7.250	1.754–29.965
	1 = sub-healthy						

OR, Odds Ratio; CI, Confidence Interval.

Ghana which demonstrated that 19.6% of psychiatric nurses experienced mild to severe depression [13]. The findings of this study indicate a significant decrease compared to previous research [14]. Notably, a systematic review and meta-analysis of the prevalence of depressive symptoms in Chinese nurses found that the incidence of depressive symptoms among psychiatric nurses was not as high as expected [1]. Such a finding points to the relative easiness of the hospital work and the accessibility of psychiatric nurses to professional mental health assistance [15].

Alreshidi *et al.* [16] postulated a close relationship among circadian rhythm disruption, sleep quality and depressive symptoms, on the grounds that night shifts may disrupt nurses' circadian rhythms and negatively affect sleep, subsequently inducing depressive symptoms. The current study offers an analysis from this point of view and identifies daily sleep duration as one of the factors influencing the occurrence of depression in psychiatric nurses, citing nurses with a sleep duration of \leq 7 h being at a relatively higher risk of depression compared to nurses with a daily sleep duration of >7 h per day. This finding is similar to the findings of Ibrahim *et al.* [17] that corroborate the presence of a strong correlation between sleep duration and depressive symptoms among nurses. It has been shown that nurses working in psychiatric hospitals suffer from worse sleep

compared to their counterparts working in general hospitals [18]. A study by Yin *et al.* [18] also shows that 255 (38.10%) of the 664 psychiatric nurses surveyed confronted with poor-quality sleep. Therefore, rational scheduling and ensuring adequate daily sleep for psychiatric nurses are key to reducing the occurrence of depression.

Based on the current results, weekly working hour is one of the factors underlying the occurrence of depression among psychiatric nurses; psychiatric nurses working over 40 hours per week were 2.097 times more likely to develop depression—a result in concordance with the findings of Du *et al.* [19], which indicates that long working time (more than 55 h per week) is a critical trigger of depression among nurses. Findings from Chu *et al.* [20] also agree that extended working time is one of the risk factors for increased depression among nursing staff. Given the challenging nature of the psychiatric nurses' work, designing an eight-hour workday schedule for them is almost impossible, and consequently, long working hours and extreme work intensity may deprive the nursing staff of enough rest time, thereby jeopardizing their physical and mental health and elevating the risk of depression. This predicament can be addressed by prioritizing the implementation of humanized management to enhance flexible scheduling and minimize the impact of frequent shifts on nurses.

Sub-health, defined as a poorly functional status between the state of health and disease, refers to significant deterioration of vigor and adaptability, despite the absence of a definite disease. If effective measures are not taken to intervene in a timely manner, sub-health can shift towards further deterioration, composing a direct impact on the overall health of an individual. Logistic regression analysis employed in this study identified physical condition as the main factor affecting the occurrence of depression in nurses. The risk of depression in sub-healthy psychiatric nurses was 2.001 times that of healthy nurses. This finding is similar to the results of a cross-sectional survey in China [21], which suggests that the physical and mental health status of primary healthcare workers is related to depression, and that nurses in poor health are more susceptible to psychological problems. A study by Brandt *et al.* [22] offers a mechanistic link in this respect that poorer physical health is associated with loneliness, which in turn precipitates depressive symptoms. Taken together, these studies point to a relationship between physical health and depression; therefore, clinical attention should be diverted to the physical condition of psychiatric nurses, and regular physical examinations should be carried out with the aim of reducing depression among nurses through creating health awareness.

Several limitations of this study should be acknowledged. This retrospective study employed a small sample size, which may be sufficient for regression analysis; however, with all study subjects recruited in same setting, there exists a limitation in the representation of participants in this study, restricting the extrapolation of the current set of findings to other populations. Additionally, long-term follow-up of patient was not conducted due to the inherent limitations of this study. Therefore, this limitation calls for the need to conduct a multi-center research with a bigger sample size, incorporated with elements such as rigorous clinical follow-up of patients and extensive range of clinical observation indicators, to facilitate the generation of more objective and credible results, which are more feasible and empirically grounded for clinical translation.

Conclusion

In conclusion, psychiatric nurses are vulnerable to depression due to inadequate daily sleep duration, extended weekly working period, and undesirable physical condition. This finding lends itself useful in the development of corresponding intervention measures to prevent depression among psychiatric nurses.

Availability of Data and Materials

The original contributions presented in the study are included in the article. Further inquiries can be directed to the corresponding author.

Author Contributions

WL: Conception, Design, Materials, Data Collection, Analysis, Literature Review, Writing. XD: Design, Data Collection, Analysis, Literature Review, Writing. AJ: Supervision, Materials, Analysis, Literature Review, Writing. ML: Materials, Data Collection, Analysis, Writing, Critical Review. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript. All authors have participated sufficiently in the work and agreed to be accountable for all aspects of the work.

Ethics Approval and Consent to Participate

This study has been approved by the Medical Ethics Committee of Chongqing Mental Health Center (Approval No.:2019-yjkt-17) and all procedures were carried out in accordance with the ethical standards of the 1964 Declaration of Helsinki and its subsequent amendments. The study was a cross-sectional investigation and did not involve medical interventions on the subjects or the use of human tissue samples. All participants provided informed consent.

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Conflict of Interest

The authors have no conflicts of interest to declare.

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