Scholar Publishing Group
International Journal of World Medicine
https://doi.org/10.38007/IJWM.2025.060104
ISSN 2789-7133 Vol. 6, Issue 1: 28-33

A Study on the Depressive Status of Logistic Service Staff in Medical Institutions

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Keywords: Major Depressive Disorder, Medical Logistic Staff, PHQ-9

Abstract: Major depressive disorder (MDD) is a psychiatric condition characterized by high recurrence and suicide rates. Early diagnosis facilitates timely intervention and effective management. Compared with other industries, employees in the service sector are at greater risk of developing mental health disorders and work absenteeism, a trend that has continued to grow. This study aims to examine the association between demographic variables and depression scores among logistical staff in medical institutions. By screening for depression, more targeted diagnostic, prognostic, and treatment strategies can be implemented for this population.

1. Introduction

Depression is a leading cause of disability worldwide and ranks among the top four contributors to the global burden of disease[1,2], with a lifetime prevalence of approximately 16.6%. It significantly impairs social, occupational, and educational functioning[3], second only to ischemic heart disease[4].

The service sector—including healthcare, social care, and education—accounts for a large proportion of employment in most countries. Employees in this sector face higher risks of mental illness and sick leave compared to other industries, with a growing trend observed over time[5]. Prior research has focused heavily on medical staff, especially concerning stress and violence in the workplace[6]. Poor working conditions, particularly verbal, physical, or psychological violence from patients or coworkers, are major contributors to higher risks in this sector.

Beyond clinical staff, logistics personnel such as security guards, caregivers, and cleaners in medical institutions are also subjected to comparable levels of stress and violence[5]. These stressors may impact emotional well-being, stress levels, and job satisfaction. Many lack formal education and coping strategies to manage workplace violence or emotional distress. When mental or physical warning signs emerge, limited knowledge often hinders their ability to seek help.

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Therefore, incorporating depression screening in primary care for this population is crucial. Despite its prevalence, depression is frequently underdiagnosed and undertreated.

Measurement tools like the PHQ-9, CES-D, and HAMD are widely used for depression screening. The PHQ-9, in particular, has gained popularity due to its brevity, reliability, and alignment with DSM criteria Compared with more complex diagnostic scales, PHQ-9[7,8] is more adaptable for community-based and occupational health studies. A meta-analysis by Kha et al. (2020) confirmed the clinical utility of PHQ-9 in detecting moderate-to-severe depressive symptoms among non-psychiatric populations.

Nevertheless, some researchers argue that self-report tools may underestimate symptom severity in populations with limited health literacy or mental health awareness[9–12]. This is particularly concerning for older workers and migrant laborers in healthcare settings, who may normalize emotional distress or hesitate to disclose psychological symptoms due to cultural stigma.

The literature consistently supports the need for comprehensive mental health interventions, including targeted screening, psychoeducation, organizational change, and systemic policy reform, to better support service workers vulnerable to depression.

2. Manuscript Preparation

2.1 Participants

This study included 148 logistical staff (security guards and caregivers) at a tertiary hospital in a metropolitan city. Inclusion criteria: aged 18–60, with basic language comprehension. Exclusion criteria: (1) history of psychiatric treatment, (2) undergoing treatment for other illnesses, (3) incomplete responses.

2.2 Instruments

The Patient Health Questionnaire-9 (PHQ-9) consists of 9 items based on DSM-IV diagnostic criteria: (1) anhedonia, (2) depressed mood, (3) sleep disturbances, (4) fatigue, (5) appetite changes, (6) feelings of worthlessness/guilt, (7) concentration difficulties, (8) psychomotor agitation/retardation, and (9) suicidal ideation. Each item is scored from 0 to 3 (not at all to nearly every day), with a total score of 0–27.

A PHQ-9 score ⩾5 was used to indicate a positive screen (5–9: mild; 10–14: moderate; ⩾15: severe). A score of ⩾10 was set as the threshold for recommending further intervention (Gilbody et al., 2007).

2.3 Statistical Analysis

Data were analyzed using SPSS 26.0. Categorical data were analyzed with chi-square tests, continuous variables with Fisher's exact test. A p-value < 0.05 was considered statistically significant.

3. Results

3.1. Descriptive Characteristics

All 148 participants completed the questionnaire (100% response rate). There were 84 males (56.75%) and 64 females (43.25%). Age distribution: 30 or younger (n = 4), 30–40 (n = 24), 40–50 (n = 53), 50–60 (n = 67).

Table 1: Demographic characteristics of participants

Age Group	Male	Female	Total
<30	2	2	4
30–40	3	21	24
40–50	22	31	53
50–60	57	10	67
Total	84	64	148

3.2. PHQ-9 Scores

The positive screening rate was 14.86%, with male positivity at 8.43% and female at 6.43%. No significant difference was found in PHQ-9 scores by gender or age group(table 2, table 3).

Table 2: PHQ-9 scores by gender.

Gender	Positive Cases	Mean Score (SD)
Male	12	9.08 ±6.16
Female	11	9.91 ±6.01
Chi-square		0.233
p-value		0.397

Table 3: PHQ-9 scores by age group.

Age Group	Positive Cases
Young	6
Middle	17
Chi-square	0.385
p-value	0.246

4. Discussion

This study reveals a moderate prevalence of depressive symptoms among medical logistics staff, aligning with prior research highlighting elevated psychological risks in service industries (Soria-Saucedo et al., 2018). Although statistical differences between gender and age groups were not significant, several interpretive insights can be drawn.

Firstly, the observed lack of statistical significance may reflect a homogeneous exposure to psychosocial stressors across demographic groups. Regardless of gender or age, staff in logistics roles often encounter unpredictable work demands, communication difficulties with patients or clinical teams, and insufficient organizational support. Secondly, it is possible that the PHQ-9, while useful for screening, may not fully capture the nuanced emotional burden experienced by logistics staff. For instance, items related to guilt or concentration may be interpreted differently by individuals with varying levels of education or life experience.

From a theoretical standpoint, the Job Demand-Control (JDC) model by Karasek provides a useful lens to understand the psychological vulnerability of hospital logistics staff[13]. The model posits that high job demands coupled with low decision-making autonomy can significantly elevate mental health risks. In this study, both security and caregiving roles are characterized by rigid work schedules, task overload, and limited control, placing them in the 'high strain' quadrant of the model.

Furthermore, the Conservation of Resources (COR) theory posits that psychological distress results from the threat of resource loss—such as time, energy, or social support[14]. Hospital

logistics personnel often report feeling undervalued, underpaid, and overlooked in institutional policies. These resource deficiencies compound over time and manifest as emotional exhaustion or depressive symptoms.

In the context of China's healthcare system, where logistical support is frequently outsourced or poorly integrated, the lack of structured mental health programs for non-clinical staff becomes a major concern. Addressing this gap requires systemic change, including routine mental health screening, increased awareness, and organizational investment in employee well-being.

Finally, cultural attitudes may also play a role. In many Asian societies, mental illness remains a taboo topic, particularly among older adults or blue-collar workers. This may contribute to underreporting of depressive symptoms and delay in seeking help.

Overall, this study underscores the need for targeted interventions, tailored mental health policies, and inclusive workplace wellness initiatives to improve the psychological well-being of hospital logistics staff.

Compared to other studies using the PHQ-9[7], this sample consisted of a particularly vulnerable group experiencing significant daily life stressors. The lack of significant differences in PHQ-9 scores may be due to: (1) small and unrepresentative sample from a single hospital; (2) occupational gender imbalance—security staff were mainly male, caregivers mainly female; and (3) absence of other demographic or stress-related variables, such as number of children, household income, or family structure.

Logistics staff in hospitals generally receive lower pay, are older, and have lower education levels[15]. Previous studies have shown that family stressors may be more strongly associated with severe depression than work or marital stressors[16]. Research supports that work and family stress are major contributors to depression[15,17]. Future research should consider modeling multiple stressors to better predict depression risk among service workers.

5. Future Directions

Diagnosis of depression still primarily depends on self-report scales and clinical experience[18,19]. However, mental disorders often exhibit overlapping symptoms, underscoring the need for objective diagnostic tools. Neuroimaging technologies such as fMRI and fNIRS can visualize hemodynamic responses during task performance, offering promise in improving diagnosis and treatment[20,21].

Numerous studies have reported cortical dysfunction in depression, particularly in the prefrontal cortex, anterior cingulate, hippocampus, and amygdala[22]. fMRI and PET studies have shown associations between PFC abnormalities and depressive symptoms[23]. fNIRS studies also report reduced HbO activation in depressed patients during cognitive tasks[3,19,24].

However, specific biomarkers for depression diagnosis remain lacking. Future research should explore integration of fNIRS with machine learning or brain stimulation technologies to enhance diagnostic accuracy and predict outcomes.

6. Conclusion

Older logistical staff (aged 50–60) in hospitals exhibit more depressive symptoms. The presence of multiple stressors—occupational, familial, and daily life—may increase their vulnerability to depression.

Funding

This project was supported by the Graduate Research Innovation Fund of Xinjiang Normal University

Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

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