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The impact of night shifts on the physical and mental health of psychiatric medical staff: the influence of occupational burnout

Chien-Chih Chen^{1†}, Lieh-Yung Ping^{2†}, Yu-Li Lan^{3*} and Chih-Yu Huang⁴

Abstract

Background The mental health of mental health care professionals has become a key area of research due to the increasing demands and stressors inherent in the work environment. This study explored the relationship between night shift work stress, burnout, social support, and physical and mental health among psychiatric medical staff.

Methods A cross-sectional survey was conducted among 244 psychiatric medical staff at a psychiatric specialty hospital in eastern Taiwan. The study utilized validated instruments, including the Effort-Reward Imbalance Questionnaire, the Maslach Burnout Inventory, the Social Support Scale, and the SF-12 Health Survey, to measure work stress, burnout, social support, and health outcomes. Descriptive statistics, Pearson correlation, and hierarchical regression analyses were employed to assess the relationships among these variables and the moderating effects of social support.

Results The findings revealed significant positive correlations between work stress and occupational burnout ($r=0.42, p<0.001$) and negative correlations with physical and mental health ($r=-0.23, p<0.001$). Occupational burnout is a negative significant predictor of physical and mental health ($\beta=-0.533, p<0.001$). Additionally, higher levels of social support were associated with better health outcomes ($r=0.18, p<0.01$), although its moderating effect on the relationship between stress and health was not significant.

Conclusion This study highlights the significant impact of night shifts on the physical and mental health of psychiatric medical staff. The findings suggest that interventions to reduce the negative impacts of night shifts are crucial, such as improving shift systems, increasing organizational support, and providing targeted mental health programs. These measures will help enhance night shift workers' health and job satisfaction, improving the overall quality of health care services.

Keywords Night shift, Work stress, Occupational burnout, Social support, Physical and mental health, Psychiatric medical staff

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Introduction

In recent years, the mental health of healthcare professionals, especially psychiatric medical staff, has received increasing attention. The relationship between work stress, burnout, social support and overall physical and mental health has become a focus area of research [1]. Psychiatric medical staff not only face the complex task of directly caring for patients, including dealing with patients' extreme emotional or crisis situations (e.g., suicidal tendencies or violent behavior), but they also must deal with heavy administrative burdens and high levels of uncertainty (e.g., high levels of dependence on patients' level of cooperation and variability in their condition) further exacerbates their stress levels [2]. Existing research indicates that prolonged exposure to high-stress work environments may lead to severe mental health issues among psychiatric medical staff, including anxiety, depression, and burnout [2, 3, 4, 5, 6, 7].

Despite extensive research on mental health issues in healthcare professionals, research specifically focusing on psychiatric medical staff remains relatively limited, particularly regarding the causal relationship between work stress and burnout and their impact on physical and mental health [8]. Literature shows that work stress positively correlates with occupational burnout, a significant factor affecting physical and mental health [9].

However, adequate social support can significantly reduce the negative impact of work stress on occupational burnout and indirectly improve medical staff's physical and mental health [10, 11, 12]. Specifically, for psychiatric medical staff, the lack of social support may exacerbate burnout caused by work stress. In contrast, an effective social support system can act as a protective factor and reduce the incidence of mental health problems [13, 14, 15].

The latest research shows that night shift work hurts the physical and mental health of medical professionals. Night shift work is associated with higher levels of anxiety, stress, and depression, and night shift workers have worse mental health and social relationships than day shift workers [16–17]. Another study also explored the impact of night shift nurses' sleep quality and shift-related factors on occupational stress and anxiety and found that sleep deprivation increased the difficulty of nurses in coping with work demands, thereby increasing stress and anxiety levels [18]. Therefore, improving work arrangements and providing appropriate support and interventions are critical to improving the health of night shift workers.

This study is based on the crucial role that psychiatric medical staff play in clinical practice, and understanding their mental health status has important academic and practical significance [19–20]. Therefore, to explore the relationship between job stress, burnout, social support,

and physical and mental health among psychiatric medical staff. By revealing the key role of social support in alleviating work stress and burnout, it will provide theoretical support for improving the working environment of psychiatric medical staff and enhancing physical and mental health. This helps improve the quality of medical services but also helps reduce the negative consequences of burnout, such as high staff turnover and increased medical errors [21]. Ultimately, this research will advance the field and promote healthier, more sustainable healthcare work environments [22, 23, 24, 25].

Methods

Study design

This cross-sectional survey explored the levels of work stress, social support, occupational burnout, and physical and mental health among psychiatric medical staff. The study also analyzed the correlations between these variables and their impact on physical and mental health. The study population comprised psychiatric medical staff from a psychiatric specialty hospital in eastern Taiwan, including psychiatrists, psychiatric nurses, social workers, psychologists, occupational therapists, pharmacists, medical technologists, radiologists, dietitians, and physical therapists.

A purposive sampling method was adopted, and the inclusion criteria were as follows: (1) Working in the case hospital for more than one year and having a professional medical license. (2) Agree to participate in interviews or complete questionnaires after explanation. Exclusions are those who have tendered their resignation.

This study conducted a questionnaire pre-test in July 2022 and collected questionnaire data from August to October. The number of various types of psychiatric medical staff (number of cases admitted) is psychiatrist 14 (9); psychiatric nurses 150 (142); occupational therapists 25 (25); social worker 18 (18); psychologist 13 (8); pharmacist 20 (12); medical technologist 12 (12); medical radiation technologist 9 (9). A total of 271 people, excluding those who refused to fill in or answered incomplete questions, the number of valid questionnaires was 244. The effective questionnaire recovery rate was 90%.

Instruments

The study utilized a structured questionnaire developed based on a review of relevant literature and designed according to the research framework. The measurement tools included: (1) Background information of research subjects, including gender, age, marital status, education level, number of children, whether they serve as supervisors, occupation category, work shift, length of service, etc. (2) **Work Stress Scale:** The study used the short version (16 items) of the "Effort-Reward Imbalance Questionnaire" (ERI) [26], which includes three items for

external effort, seven items for reward, and six items for internal effort, scored on a 4-point Likert scale (1 strongly disagree; 2 disagree; 3 agree; 4 strong agree). Effort-reward imbalance (ERI) assumes that when employees invest a lot of effort (external or internal) without receiving corresponding feedback, it will lead to adverse effects on physical and mental health, such as depression, anxiety, increased risk of cardiovascular disease, etc. Extrinsic effort refers to the time, energy, and pressure or challenges employees need to invest in their work. Intrinsic effort refers to the degree of effort employees actively invest due to personal traits, motivations, or inherent drives. High intrinsic givers are often prone to burnout and are at higher risk for psychological distress. Feedback refers to employees' rewards and recognition at work, including material, emotional, and career development levels. Insufficient feedback can lead to frustration, dissatisfaction, and mental health problems and can exacerbate the effort-return imbalance effect. The Cronbach's α coefficients for the subscales of external effort, reward, and internal effort were all above 0.7, indicating good internal consistency. (3) **Occupational Burnout Scale:** The Chinese version of the Maslach Burnout Inventory (MBI) [27], developed by Maslach et al. [28]. This scale consists of 22 items, including nine for emotional exhaustion, five for depersonalization, and 8 for personal accomplishment. Using a 6-point Likert scale, a higher score (6 points) indicates a more frequent feeling (every day); conversely, a lower score (0 points) indicates a less frequent feeling (never felt). The scale has been previously used in studies involving dentists [27] and psychiatric nurses [29], with Cronbach's α values exceeding 0.8. In this study, the Cronbach's α was 0.86, indicating good reliability. (4) **Social Support Scale:** The social support scale primarily references Yang [30], who investigated social support among medical social workers in Taiwan. The scale consists of four dimensions: colleague support, supervisor support, family support, and friend support. The Cronbach's α for each dimension ranges from 0.80 to 0.93, indicating good internal consistency. Additionally, the Multidimensional Scale of Perceived Social Support (MSPSS) was referenced to assess individuals' perceived social support from family, friends, and significant others. The overall Cronbach's α coefficient of the MSPSS is 0.88, with subscale Cronbach's α values ranging from 0.85 to 0.91, demonstrating strong internal reliability. The test-retest reliability coefficient is 0.85, and factor analysis results support the scale's construct validity [31]. This scale has also been used to assess frontline healthcare workers and patients during the COVID-19 pandemic, with Cronbach's α exceeding 0.79 in related studies [32–33]. This study categorized social support into four aspects: family support, peer support, supervisor support, and workplace support, comprising 18 items. A

5-point Likert scale is used for scoring (1 = strongly disagree; 2 = disagree; 5 = strongly agree). The overall Cronbach's α exceeds 0.82, demonstrating good reliability. (5) **Physical and mental health Scale:** The study used the SF-12 Physical and mental health Scale [34], a shortened version of the SF-36, to reduce respondent burden. This scale consists of 12 items, divided into six items for physical health and six for mental health, scored on a scale of 0 to 100. The higher the average of physical health and mental health, the better the health status. Previous studies conducted in different populations in the United States and the United Kingdom reported Cronbach's α values greater than 0.70. In this study, the Cronbach's α was 0.79, indicating good reliability.

Five experts reviewed the content of the questionnaire to assess its content validity. The experts rated each item's "importance," "clarity," and "appropriateness" and provided suggestions for wording modifications. The revised questionnaire was pre-tested with 30 respondents before finalizing the official questionnaire. The overall Content Validity Index (CVI) for the questionnaire was 0.88.

Protection of participant rights

This study was conducted by ethical standards and received approval from the hospital's Institutional Review Board (IRB) (No: IRB111-158-B). The questionnaire was anonymous, and the potential risks to participants did not exceed those faced by non-participants. The collected data were not linked to the participants, and the confidentiality of the information provided by the respondents was strictly maintained, ensuring that their rights were not compromised. All collected data were securely stored and kept confidential.

Statistical analysis

Statistical analysis was performed using SPSS version 26.0. Descriptive statistics were used to present the data distribution, including sample size, percentage, mean, and standard deviation. Independent sample t-tests and one-way analysis of variance (ANOVA) were conducted to examine differences in the physical and mental health of psychiatric medical staff across various demographic variables. If the ANOVA results indicated significant between-group differences ($p < 0.05$), the Scheffé post hoc test was performed to identify specific group differences. Pearson product-moment correlation was used to analyze the relationships between the variables. Hierarchical regression analysis was employed to verify the predictive power of the variables on physical and mental health.

Results

Demographic characteristics

This study analyzed the sample data of the respondents, and a total of 244 valid questionnaires were obtained.

Women account for the majority, 84.4% ($n = 206$). The age group of 31–40 accounted for 32.6% ($n = 79$), followed by those aged 20–30, accounting for 29.8% ($n = 72$). Most people with marital status were single, accounting for 52.9% ($n = 129$), followed by married people, accounting for 42.6% ($n = 104$). Most educational attainment is a university degree, accounting for 69.7% ($n = 170$), followed by graduate school or above, accounting for 16% ($n = 39$). As for the number of children in the family, 62.6% ($n = 152$) are childless. Among the occupational categories, nursing staff accounted for the majority at 58.2% ($n = 142$), followed by occupational therapists at 10.2% ($n = 25$). Non-supervisors account for the majority 92.6% ($n = 226$). The majority of people working in the day shift are 58.2% ($n = 142$). The majority (28.3%) ($n = 69$) were those who had served for more than 15 years, followed by 27.5% ($n = 67$) who had served for 2–5 years (Table 1).

Descriptive statistics of measurement constructs

The descriptive statistics of the scale are as follows: the average score of work pressure is 3.14 (range: 1–4), among which the average score of intrinsic effort is 3.53, which is the highest. The top two items with the highest scores were “I start thinking about work problems after I get up in the morning,” and “If I postpone what I want to do today, I won’t be able to sleep at night.”

The average burnout score is 4.09 points (range: 0–6), with depersonalization having the highest average score of 5.11. The top two items with the highest scores were “I feel that the people I serve will blame me for some of

their problems” and “Since I took this job, I have become more indifferent to others.”

The average social support score is 3.88 (range: 1–5), with the highest average score of 3.97 for peer support. The top two items with the highest scores were “When I encounter work bottlenecks in the workplace, I will understand each other and proactively cooperate with my colleagues to jointly solve work difficulties” and “Colleagues will help me analyze the problem and provide suggestions.”

Regarding physical and mental health, the average score was 75.76 points (range: 0–100), with the highest average score of 82.07 for physical health (Table 2).

Differences in physical and mental health across demographic variables

A one-way analysis of variance (ANOVA) was conducted to assess differences in physical and mental health across various demographic variables. The results indicated no statistically significant physical and mental health differences based on age, marital status, educational level, number of children, or occupational category ($p > 0.05$). However, a significant difference in physical and mental health was observed based on work shift patterns. Specifically, day-shift workers exhibited significantly better physical and mental health compared to night-shift workers ($F = 3.57$, $p < 0.05$) (Table 3).

Pearson correlation analysis

Pearson correlation analysis revealed significant relationships among the variables studied. Work stress was

Table 1 Demographic characteristics ($n = 244$)

Variable	Item	<i>n</i>	(%)	Variable	Item	<i>n</i>	(%)
Gender	male	38	15.6	Occupational Category	Psychiatrist	9	3.7
	female	206	84.4		Psychiatric nurses	142	58.2
Age	20–30	72	29.8		Occupational therapist	25	10.2
	31–40	79	32.6		Social worker	18	7.4
	41–50	68	27.8		Psychologist	8	3.3
	51–65	25	10.2		Pharmacist	12	4.9
Marital status	Unmarried	129	52.9		Medical technologist	12	4.9
	Married	104	42.6	Most common classes	Medical Radiation Technologist	9	3.7
	Divorce	10	4.1		Dietitian	4	1.6
	Widowed	1	0.4		Physical therapist	5	2.0
Education level	High school	3	1.2		Day shift	142	58.2
	College	32	13.1		Night shift	19	7.8
	University	170	69.7		Graveyard shift	18	7.4
	Master’s degree or above	39	16.0		Variable	65	26.6
Number of children	none	152	62.6	Years of service	1–2 years	30	12.3
	1	27	11.0		2–5 years	67	27.5
	2	47	19.3		5–10 years	43	17.6
	3 (above)	18	7.4		10–15 years	35	14.3
Supervisor	Manager	18	7.4		Above 15 years	69	28.3
	Non-supervisor	226	92.6				

Table 2 Descriptive statistics of measurement Constructs ($n = 244$)

Measurement constructs	Number of items	Mean
Work Stress (Range: 1–4)	16	3.14
External Effort	3	3.23
Feedback	7	2.56
Internal Effort	6	3.53
Occupational Burnout (Range: 0–6)	22	4.09
Emotional Exhaustion	9	4.46
Depersonalization	5	5.11
Personal Accomplishment	8	2.67
Social Support (Range: 1–5)	18	3.88
Family Support	4	3.91
Peer Support	5	3.97
Supervisor Support	6	3.73
Workplace Support	3	3.64
Physical and Mental Health (Range: 0–100)	12	75.76
Physical Health	6	82.07
Mental Health	6	69.48

positively correlated with occupational burnout ($r = 0.42$, $p < 0.001$) and negatively correlated with physical and mental health ($r = -0.23$, $p < 0.001$). Occupational burnout was also negatively correlated with physical and mental health ($r = -0.42$, $p < 0.001$). In contrast, social support was positively associated with physical and mental health ($r = 0.18$, $p < 0.01$) (Table 4).

Table 4 Pearson correlation analysis

Variable	Work Stress	Occupational Burnout	Social Support	Physical and mental health
Work Stress	—	0.42***	−0.27***	−0.23***
Occupational Burnout		—	−0.30***	−0.42***
Social Support			—	0.18**
Physical and mental health				—

** $p < 0.01$; *** $p < 0.001$

Hierarchical regression analysis of physical and mental health

The VIF values of each variable of “work stress,” “occupational burnout,” “social support,” and “mental and physical health” are all less than 10, so there is no problem of multicollinearity—a hierarchical regression analysis used “physical and mental health” as the dependent variable. In the first step, “work pressure” was added; in the second step, “job burnout” was added; in the third step, “social support” was added; and in the fourth step, “work pressure” was added. In the fifth step, the interaction variable between “job stress” and “social support” was added to the interaction variable of “job burnout.” The sixth step added the interaction variable between “job burnout” and “social support.”

The results show that Model 1: “Work stress” is the independent variable, and its impact on “physical and mental health” does not reach significance ($\beta = 0.113$, not significant), indicating that work stress is not the main factor explaining physical and mental health. Model 2:

Table 3 Differences in physical and mental health across demographic variables (One-way ANOVA)

Variable		SS	MS	F	Sig.	Scheffe's
Age	Between Groups Within Groups Total	576.48 27184.71 27761.19	192.16 114.22	1.68	0.17	
Marital status	Between Groups Within Groups Total	460.72 27389.10 27849.82	153.57 114.12	1.35	0.26	
Education level	Between Groups Within Groups Total	254.80 27595.01 27849.82	84.83 114.98	0.74	0.53	
Number of children	Between Groups Within Groups Total	96.02 27752.93 27848.95	32.01 116.12	0.28	0.84	
Occupational Category	Between Groups Within Groups Total	1990.96 25858.86 27849.82	199.10 110.98	1.79	0.06	
Most common classes	Between Groups Within Groups Total	14570.81 26279.00 27849.82	392.80 109.95	3.57*	< 0.05	Day Shift > Night Shift
Years of service	Between Groups Within Groups Total	1008.06 26841.76 27849.82	252.02 112.31	2.24	0.07	

* $p < 0.05$; SS: Sum of Squares; MS: Mean Square

Table 5 Hierarchical regression analysis of physical and mental health

Variables	Physical and mental health					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Work Stress	0.113	0.056	0.051	0.055	0.054	0.059
Occupational Burnout		-0.533***	-0.522***	-0.520***	-0.520***	-0.527***
Social Support			0.039	0.041	0.041	0.041
"Work Stress" x "Occupational Burnout"				-0.019	-0.019	-0.006
"Work Stress" x "Social Support"					0.004	0.003
"Occupational Burnout" x "Social Support"						-0.067
R ²	0.013	0.294	0.295	0.296	0.296	0.300
ΔR ²	0.013	0.281	0.001	0.000	0.000	0.004
F	3.146	50.185***	33.533***	25.086***	19.987***	16.926***

*** $p < 0.001$

Adding the variable "occupational burnout" has a significant negative correlation with physical and mental health ($\beta = -0.533^{***}$, $p < 0.001$), and the overall regression model reaches statistical significance ($F = 50.185$, $p < 0.001$), the overall regression model can explain 29.4% of the variation in "physical and mental health" ($R^2 = 0.294$), while "burnout" alone can explain 28.1% of the variation in "physical and mental health" ($\Delta R^2 = 0.281$), showing that the respondents "occupational burnout" and "physical and mental health" have a negative impact, ($\beta = -0.533$, $p < 0.001$), that is, the higher the respondent's degree of occupational burnout, the worse his physical and mental health. Model 3: "Social support" is added to Model 2, but its impact is not significant ($\beta = 0.039$, not significant). The explanatory power increased slightly ($R^2 = 0.295$, $\Delta R^2 = 0.001$), indicating that social support has a limited effect on physical and mental health at an individual level. Model 4: The interaction term of "work stress \times occupational burnout" was added, and the result was insignificant ($\beta = -0.019$, not significant). The explanatory power remains unchanged ($R^2 = 0.296$, $\Delta R^2 = 0.000$), indicating that the interaction between work stress and occupational burnout has a limited impact on physical and mental health. Model 5: Based on Model 4, the interaction term "work stress \times social support" is added, and the impact is still insignificant ($\beta = 0.004$, not significant). The explanatory power of the model remains unchanged ($R^2 = 0.296$, $\Delta R^2 = 0.000$), indicating that the interactive effect of work stress and social support does not significantly impact physical and mental health. Model 6: The interaction term "occupational burnout \times social support" is added, and its impact is insignificant ($\beta = -0.067$, trivial). The model's explanatory power is slightly improved ($R^2 = 0.300$, $\Delta R^2 = 0.004$), but the improvement is limited, indicating that the interactive effect of occupational burnout and social support is weak.

Overall, the main difference in the model focuses on the significant negative impact of "occupational burnout" on physical and mental health (Model 2). The subsequent addition of "social support" and interaction terms has

limited improvement in the model's explanatory power, showing that the direct or interactive effects of these factors on physical and mental health are not significant. "Occupational burnout" is the main negative influencing factor, while "work stress" and "social support" have weaker effects at the individual or interactive levels (Table 5).

Discussion

The findings indicate occupational burnout is a significant predictors of physical and mental health outcomes among psychiatric medical staff. Specifically, occupational burnout has been identified as an essential negative factor influencing overall health outcomes ($\beta = -0.533$, $p < 0.001$). This is consistent with recent research [35], which has shown that high levels of burnout are closely linked to increased risk of depression, anxiety, and physical health issues such as cardiovascular disease [14, 36–37]. The strong predictive power of occupational burnout underscores the need for targeted interventions to mitigate its impact on health outcomes. This study found that burnout was significantly negatively correlated with physical and mental health. Consistent with past research findings on nursing staff, the higher the sense of workload, the higher the degree of emotional exhaustion and dehumanization, the worse the mental health status; conversely, poor mental health status will also aggravate work burnout, thereby affecting Perceptions of workload [38].

This study found that burnout was significantly negatively correlated with physical and mental health. Psychiatric medical staff scored highest on burnout items such as "I feel completely exhausted after a whole day at work," "I feel fatigued when I think about facing another day at work," and "I feel that my clients often blame me for their problems." These findings are consistent with the literature, which indicates that high levels of burnout lead to physical and emotional exhaustion, resulting in poorer health outcomes [3, 21, 39–40]. This highlights the importance of addressing burnout through

organizational support and workload management to improve healthcare workers' physical and mental health. A high-quality working environment can also reduce occupational burnout and increase the medical staff's intention to stay [41].

The study also found a positive correlation between work stress and occupational burnout and a negative correlation with physical and mental health. psychiatric medical staff in this study reported high levels of work stress, particularly on items such as "In recent years, my job demands have increased significantly" and "I start thinking about work issues as soon as I wake up in the morning." These findings align with recent studies [42] that highlight the detrimental effects of prolonged work stress, which can exacerbate burnout and deteriorate health [2, 43–44]. The cumulative nature of these stressors suggests that managing work demands is crucial in preventing burnout and protecting health.

The study confirmed a positive correlation between social support and physical and mental health. Higher levels of perceived social support were associated with better health outcomes ($r=0.18^{**}$). This is in line with prior research, which has shown that social support is a protective factor against the negative impacts of work stress, helping individuals to maintain better health [45, 46, 47]. Psychiatric medical staff who receive strong social support from family, peers, and supervisors are better equipped to cope with the demands of their work, reducing the risk of burnout and promoting overall health [48–49]. These findings suggest that enhancing social support systems within healthcare settings can effectively improve workers' health.

However, in this study, although there is a significant correlation between "work stress," "occupational burnout," "social support," and "physical and mental health" of psychiatric medical staff, only "occupational burnout" is a significant predictor. Social Support is not a moderating factor. The possible reasons are: (1) The direct impact of work stress and occupational burnout on physical and mental health may exceed the indirect impact of social support. Occupational burnout explained 28.1% of the variance in the model, while the variance explained by social support was only 0.001, showing that the negative impact of occupational burnout far exceeds the positive impact of social support. (2) The interaction between occupational burnout and social support was insignificant ($\beta=-0.067$), indicating that social support may be insufficient or inconsistent in alleviating the negative impact of occupational burnout on physical and mental health. (3) Individual differences in social support acceptance may also affect the conditioning effect. Some psychiatric medical staff may not make effective use of available social support or may have personality traits (such as introversion or lack of trust) that reduce

the actual impact of support. (4) Job stress for psychiatric medical staff may be chronic rather than short-term or episodic. This stress may require more structural intervention (such as policy support or organizational improvements) rather than being mediated by individual-level social support alone.

Additionally, the study found significant differences in health outcomes based on work shifts, with day shift workers reporting significantly better physical and mental health than night shift workers. This is consistent with literature suggesting that night shifts are associated with higher stress levels, disrupted circadian rhythms, and more significant health risks [25, 47, 50]. The findings highlight the need for organizational policies that mitigate the adverse effects of night shifts, such as implementing shift rotation systems, providing adequate rest periods, and offering support programs tailored to the needs of night shift workers [8, 24, 51]. Addressing these issues can improve the healthcare professionals' physical and mental health and job satisfaction.

Limitations and recommendations

Firstly, this study employed a cross-sectional survey design, which limits the ability to infer causality between variables. Future research should consider longitudinal study designs to explore the causal relationships among these variables more deeply. Secondly, the sample was drawn from a psychiatric teaching hospital in Eastern Taiwan, which may limit the generalizability of the findings. It is recommended that future studies be conducted across more diverse geographic regions and healthcare institutions to validate these findings. The work stress measured in this study encompasses common stressors experienced by both daytime and nighttime workers and does not independently assess stressors specific to night shift work. Future research is recommended to employ more targeted night shift stress measurement scales.

Additionally, our study did not collect detailed information regarding the distribution of night versus day shifts among personnel. Future research should further examine the specific characteristics of night shift work—such as its frequency and continuity—to comprehensively understand its impact on physical and mental health. Based on the findings of this study, it is recommended that mental health institutions actively strengthen their social support systems by fostering support from family, colleagues, and management to alleviate work stress and occupational burnout among employees. Furthermore, special support measures should be developed for night shift workers to address the more significant health risks they face. Lastly, policymakers should consider these findings when improving the working conditions of psychiatric medical staff, focusing on reducing structural factors that contribute to burnout and stress, thereby

enhancing their overall health and physical and mental health.

Conclusion

This study highlights occupational burnout as a critical predictor of the physical and mental health outcomes of psychiatric medical staff. The findings indicate that burnout has a significant negative impact on overall health ($\beta = -0.533$, $p < 0.001$), reinforcing previous research linking high occupational burnout levels to increased risks of depression, anxiety, and cardiovascular diseases. The strong predictive power of occupational burnout underscores the urgent need for targeted interventions to mitigate its detrimental effects on healthcare workers' well-being.

Additionally, the study confirms that work-related stress is positively associated with occupational burnout and negatively associated with physical and mental health. Psychiatric medical staff reported high levels of work stress, particularly in response to increasing job demands and persistent work-related concerns. These findings align with existing literature emphasizing the harmful effects of prolonged occupational stress, which exacerbates burnout and deteriorates health outcomes. Therefore, effective management of job demands is essential for preventing burnout and safeguarding healthcare professionals' well-being.

While social support was positively correlated with physical and mental health ($r = 0.18$, $p < 0.01$), it did not serve as a moderating factor between occupational burnout and health outcomes. Possible explanations include the overwhelming direct impact of work-related stress and burnout, individual differences in utilizing social support, and the chronic nature of stress in psychiatric healthcare settings. Since occupational burnout accounted for 28.1% of the variance in physical and mental health, whereas social support contributed only 0.001%, these findings suggest that social support alone may not be sufficient to buffer against the adverse effects of occupational burnout. Structural interventions, such as organizational policy reforms and workplace improvements, may be necessary to provide meaningful relief.

Furthermore, this study identified significant health disparities across different work shifts, with day-shift workers exhibiting better physical and mental health than night-shift workers. This finding aligns with prior research linking night shifts to higher stress levels, circadian rhythm disruptions, and increased health risks. To mitigate the negative impact of night shifts, institutions should implement strategies such as structured shift rotations, adequate rest periods, and tailored support programs to address the specific needs of night-shift workers.

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Author contributions

Conceptualization (CCC, LYL), Methodology (CCC, LYL), Investigation (PLY, HCY), Validation (CCC, PLY, LYL, HCY), Statistical Analysis (CCC, LYL), Interpretation of the data (PLY, HCY), Resources (PLY), Data curation (CCC, LYL), Writing—Original draft (CCC, LYL), Writing—Review & Editing (CCC, LYL), Project Administration (CCC, PLY, YLL, HCY), All authors have read and approved the final manuscript.

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Data availability

The authors confirm that the data supporting the findings of this study are available within the article.

Declarations

Ethics approval and consent to participate

The study adhered to the ethical guidelines presented in the Declaration of Helsinki and obtained approval from the Research Ethics Committee of the Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation (vote number No. IRB111-158-B). Written informed consent was obtained from individual participants.

Consent for publication

Not Applicable.

Competing interests

The authors declare no competing interests.

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