

Psychological capital, work stress and burnout among Chinese clinical nurses

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Abstract

The COVID-19 pandemic placed an immense burden on the healthcare system, and clinical nurses, as well-trained essential participants, made significant contributions to providing healthcare while also facing tremendous pressure. The mental health issues of nurses became increasingly prominent, and nurse burnout emerged as a growing concern. This study employed a quantitative descriptive research design to conduct a psychological health assessment from three aspects: nurses' work stress, psychological capital, and professional burnout. A total of 743 clinical nurses from large tertiary hospitals participated in the study, and standardized questionnaires were used for data collection and analysis. Frequency counts, percentages, means, and standard deviations were used to determine the demographic characteristics of clinical nurses in terms of age, sex, marital status, years of service, professional title, and department. Independent sample t-tests or analysis of variance (ANOVA) were used to explore the impact of sociodemographic variables on psychological capital, work stress, and burnout. Correlation analysis was used to determine if there were significant relationships between psychological capital, work stress, and burnout. The demographic data revealed that the majority of nurses participating in the study were female, with 87% being under the age of 40. Most were married and held primary or intermediate professional titles. Most nurses had a moderate level of psychological capital, high levels of work stress, and a moderate level of burnout. Differences in psychological capital were observed in terms of age, marital status, years of service, professional title, and department. Work stress only showed differences in the department variable, while burnout exhibited differences in age, years of service, professional title, and department variables. Nurse psychological capital was negatively correlated with nurse work stress, negatively correlated with nurse burnout, and nurse work stress was positively correlated with nurse burnout. Nurse psychological capital and work stress were able to explain the variance in burnout and played an important role in the formation of nurse burnout. The study also proposed a series of psychological health intervention plans to enhance the development of nurses' psychological capital, reduce work stress, and minimize the occurrence of nursing burnout.

Keywords: psychological capital, work stress, burnout, nurses

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1. Introduction

The COVID-19 pandemic is an unprecedented global medical crisis and economic disaster (Khan, 2023). The physical and mental health of healthcare workers has become a serious concern during the widespread spread of COVID-19. Medical staff working in hospitals, especially clinical nurses, are most prone to various psychological symptoms, such as fatigue caused by long night shifts, excessive work stress, insufficient sleep, and insufficient emotional support (Li, 2023). Nurses are an essential part of the healthcare workforce, receiving well-deserved recognition for their integral role in providing conscientious, skilled, and compassionate care to patients throughout the pandemic (Lancet, 2023). At the same time, due to the nature of the work, there may be problems such as excessive workload, insufficient support, conflict between work responsibilities and family, verbal abuse, overtime and reverse team orientation. Under the influence of the crisis of COVID-19, clinical nurses' heavy overtime, staying up late, lack of sleep and imbalance between work and life may lead to faster work tempo and continuous increase of pressure (Riedel, 2021). Therefore, healthcare workers especially nurses have been under tremendous work stress or stress thus affecting their hope, resilience and sense of optimism or their psychological capital in general and are more prone to negative psychological consequences such as occupational burnout (Gupta, 2020).

Psychological capital first appeared in an investment literature in 1997. It is considered a personality trait that can affect individual productivity, such as self-esteem, self perception, and work attitude. It is a psychological characteristic that individuals tend to stabilize as they grow, a positive psychological state in the process of growth and continuous development, and a psychological resource that promotes individual growth and performance. A survey found that psychological capital can enhance nurses' ability to cope with stress and stabilize emotions, and reduce work fatigue (Liu, 2021). At present, the widely used concept of psychological capital was revised by Luthans in 2015 (Youssef, 2015). Psychological capital is considered a positive psychological state of an individual during their growth process, which includes four dimensions: hope, resilience, optimism, and self-efficacy.

In today's society, with the continuous increase of medical market demand, the pressure on nursing workers in China is also increasing. Therefore, the research on nursing workers is also increasing, which implies the seriousness of the group pressure of nursing workers. The greater the pressure experienced by clinical nurses in their work, the higher the degree of emotional exhaustion and personality disintegration. Stress refers to a psychological state that arises from a series of stresses caused by certain events on people's psychology or physiology (Costin, 2023).

Work stress is usually caused by the complexity, urgency, or high individual expectations for performance of work tasks. When the human body is unable to alleviate or handle sources of work stress from various dimensions, so-called work stress occurs (Guthier, 2020). The connotation of work stress of nursing staff refers to the subjective incompatibility caused by the loads that nursing workers bear from various aspects in their daily work, such as high risk of work, heavy work tasks, and complicated interpersonal relationships. And poor working conditions, etc., etc., all of which obviously increase their physical and energy burden, and easily form a workplace risks. However, all components that are different from the original psychological and physiological state of the body may cause Composition stressors (Ezenwaji, 2019; Kim, 2020; Murat, 2021). Relevant research results at home and abroad believe that the individual's work stress at work is an important antecedent variable of the individual's burnout at work. In addition, many researchers have studied the relationship between individual stress, positive psychological capital, and burnout in the workplace. Khalid et al. conducted a questionnaire survey on 1778 Pakistani bank employees and found a positive correlation between external effort and excessive engagement and emotional exhaustion and personality disintegration. Rewards and emotional exhaustion, as well

as rewards and personality disintegration, were negatively correlated, and rewards were positively correlated with low personal achievement. Relatedly, psychological capital has a mediating effect on work stress and burnout, with gender differences in this effect (Khalid, 2019). In the study of two child female nurses by Zhu et al. (2021), it was found that two child nurses have a high level of stress and burnout, and psychological capital partially mediates the relationship between stress and burnout. A study on 108 Korean psychiatric nurses also found (Kim, 2020) a significant correlation between work stress, psychological capital, and burnout, with psychological capital partially mediating the relationship between work stress and burnout.

Burnout was proposed by American psychologist Freudenberger in 1974, and it is used to refer to a state of extreme physical and emotional exhaustion in certain industries when facing continuous work stress, including despair, fatigue, anger, Negative attitude, etc. (Freudenberger, 1974). Subsequently, Maslach and others further developed burnout. They believed that burnout includes three aspects: reduced awareness of personal accomplishment, emotional exhaustion, and depersonalization. These three dimensions interact and distinguish burnout from stress and other psychological conditions with similar symptoms, including conditions like depression and burnout. In order to draw more attention, in the 11th revised edition of the International Classification of Diseases, the World Health Organization declared burnout as an "occupational phenomenon" related to occupational stress, clearly stating that burnout is a syndrome caused by "long term work stress that has not been successfully controlled". In our country, the research on burnout of nurses started relatively late, and most of the research focused on the influence of job stressors and organizational factors on it. There is still a lack of in-depth research on the positive psychological state and job burnout of clinical nurses. Moreover, further research should be conducted on the application of positive psychology methods in intervention for nurse burnout.

In recent years, with the rise of positive psychology, scholars have begun to focus on burnout itself and controllable psychological resource factors from the perspective of work environment and organizational factors, among which psychological capital has a great impact on burnout. Studies have shown that nurses' psychological capital is significantly negatively correlated with burnout, and nurses' burnout can be reduced by implementing various health care programs aimed at increasing psychological capital (Kim, 2020). At present, the research on psychological capital and burnout of nurses in our country is in the development stage, and the internal influence mechanism of psychological capital on work stress and burnout is still unclear and needs further research.

These studies have explored the connection between work stress, psychological capital and burnout, but these studies overlook the role of individual psychological capital as a positive psychological resource between stress and burnout. The connection between burnout, some only study nurses in specific departments and the sample size is small, and they have not conducted a thorough examination of the correlation between job stress, psychological capital and burnout. China's national conditions are different. Particularly in the aftermath of the COVID-19 pandemic, the mental health issues among nurses have become increasingly conspicuous.. It is a pairwise correlation study. This study takes clinical nurses in large tertiary hospitals in my country as the research object, further explores the relationship among work stress, psychological capital, and burnout, reveals their inner connections, and provides suggestions for reducing nurse burnout and maintaining the stability of the nursing team, to provide an effective theoretical basis for the intervention research on burnout.

Objectives of the study - This study determined the relationship of psychological capital, work stress and burnout among clinical nurses towards the development of psychological health program. Specifically, it aimed to describe the profile of the respondents in terms of sex, age, marital status, years of service, professional title, and work department; determined the respondents psychological capital, work stress and burnout experienced by them, tested the differences of the three variables when grouped according to their profile; established correlation among the three of the study and proposed a psychological health education program to the necessity and feasibility of strengthening clinical nurses mental health and psychological well-being.

2. Literature review

Psychological Capital - Psychological capital originated from the positive psychology movement advocated by Seligman in the 1990s, and it first appeared in literatures such as economics, investment and sociology (Yuan, 2023). Luthans suggested that psychological capital surpasses human capital, materialized capital, and social capital. It can be assessed, cultivated, and employed, yielding diverse satisfactory outcomes. Derived from the relative stability and developability, the individual's positive psychological ability is sorted out, and it is divided from "state" and "trait", showing four orientations, namely state theory, class-state theory, class-trait theory and trait theory. Argument. State theory tends to regard psychological capital as a changeable and transient feeling; quasi-state theory emphasizes the plasticity and developability of psychological capital; quasi-trait theory believes that it is relatively stable and not easy to be changed; trait theory They have a propensity to be enduring and steadfast positive psychological forces that are difficult to alter. The quasi-state theory is a relatively recognized concept within the realm of nursing at present. Proposed by Luthans et al., the concept posits that psychological capital serves as a foundational element in management, functioning as a positive psychological resource to enhance corporate performance and foster personal development. It can be attained through focused efforts, providing individuals with a competitive edge (Avey, 2010). According to Positive Organizational Behavior (POB) standards (positive, measurable, easy to change and easy to develop), the four components of psychological capital are listed: hope, self-efficacy, resilience and optimism (Luthans, 2022). These four components are synergistic and can be summarized as the following four mechanisms: (1) positive expectations of future outcomes, thereby generating higher motivation; (2) finding and developing multiple ways to achieve goals; (3) Positive responses that can arise from adversity or setbacks; (4) Prompting individuals to greater, additional effort. The present nursing sector commonly embraces Luthans' most recent revised definition, disregarding the impact of cultural variations and neglecting to integrate the professional attributes of nurses. This approach is not advantageous for a thorough comprehension and cultivation of nurses' psychological capital. Consequently, it is highly essential to delve into the distinctive concept of nurses' psychological capital in our country.

The research on the psychological capital of foreign nurses is slightly earlier than that in China. In terms of research content and methods, the research methods at home and abroad are generally similar, mainly descriptive research. However, the study about related factors abroad is more abundant than in China, such as Malik's authorization management (Malik, 2017). And foreign countries are gradually turning to the study about the intervention effect of related factors. For example, Dello proposed a set of research programs suitable for medical staff on the basis of the Luthans intervention model (Dello, 2015). In terms of research objects, both at home and abroad are gradually refined. Pan et al. conducted a study on male nurse groups (Pan, 2015). Most studies on the overall level of psychological capital of nurses are consistent. Kim et al. employed the PCQ scale to examine the psychological capital and role adaptation of new nurses in South Korea (Kim, 2020), and discovered that the psychological capital exceeded the moderate level, which is in line with the survey results of Wang Xiaoxi among Chinese clinical nurses (Wang, 2017). Yu Lanxian and Chen Xia and the PCQ-R scale measured that the overall psychological capital of the nurse group was above the middle level (Yu, 2017; Chen, 2017). Nevertheless, owing to diverse research subjects and geographical areas, the highest and lowest quantities of the four dimensions are different. Research indicates that an elevated level of psychological capital can lower the occurrence of anxiety and depression among nurses (Zhou, 2018; Liu, 2022). Guo et al. (2021) found that hope is negatively correlated with various negative emotions such as anxiety, depression, and loneliness. The study found that the work engagement status of nurses is at a low level, accompanied by decreased work performance, Issues such as burnout (Xiao, 2022; Kim, 2018).

Research has shown (Laschinger, 2014; Kim, 2018) that psychological capital exerts a substantial influence on nurses' sense of job engagement, job satisfaction, role adaptation, burnout and turnover intention. In the study concerning psychological capital and work engagement (Liu, 2019), it was found that the higher the level of self-efficacy of clinical nurses, the more confident they are in their work, they have hope in their work, and they

will continue to work hard to achieve their goals. Enhancing the psychological capital level among nurses can mitigate the incidence of burnout. Kim et al.'s research on newly recruited nurses found that a higher level of psychological capital can help them improve their professional adaptation and work efficiently (Kim, 2018). Research by He et al. (2017) found that clinical nurses with an elevated level of psychological capital are more self-disciplined, actively follow up the care of patients, take the initiative to take care of seriously unwell patients, and constantly evaluate and list nursing problems; Increase their own influence and possess a positive influence on colleagues.

Considered a significant breakthrough in the domain of positive psychology, psychological capital plays a crucial role in individuals' ability to withstand work-related stress. Higher psychological capital has the ability to improve individual job welfare and job contentment. Therefore, research on the status quo of nurses' psychological capital and the development of intervention measures is very necessary. In terms of nurses' psychological capital research, first of all, the sample size of the survey should be expanded in the research, and multi-regional and multi-disciplinary comprehensive research should be implemented to reflect the psychological capital level of Chinese nurses scientifically and comprehensively. Second, longitudinal studies should be conducted to periodically record the psychological capital degrees of nurse populations. In addition, existing intervention methods, such as positive psychological intervention and positive psychological lectures, should be used to improve the psychological capital level of nurses. In the context of management methods, nursing managers should truly implement the implementation of transformational leadership, apply authorization management combined with the "people-oriented" management concept, enhance the nurses' sense of belonging to the organization, and subsequently establish a harmonious organizational atmosphere, and ultimately improve the level of nursing services in our country, to encourage the comprehensive and stable development of my country's medical care industry.

Work Stress - Work stress is a state of mental or emotional strain caused by excessive demands on a person's cognitive abilities or physical capabilities. It can be caused by a variety of factors, including job demands that involves the amount of work that is required, the pace of work, and the level of responsibility, work environment that represents the physical environment, the social environment, and the corporate culture and personal factors which includes the individual's personality, coping mechanisms, and support system. The connotation of work stress of nursing staff refers to the subjective incompatibility caused by the loads that nursing workers bear from various aspects in their daily work, such as high risk of work, heavy work tasks, and complicated interpersonal relationships. And poor working conditions, etc., etc., all of which obviously increase their physical and energy burden, and easily form a workplace risk. However, all components that are distinct from the original psychological and physiological state of the body may cause Composition stressors (Ezenwaji, 2019; Kim, 2020, Murat, 2021).

Some research surveys have discovered that work-related stress is considered a significant associated factor contributing to burnout (Murat, 2021). Weiss categorized work stressors into five groups: organizational structure, career development, interpersonal relationships, organizational roles, and work itself (Liu, 2021). In another survey, Cooper and Marshall (1978) promoted the idea of six sources of job stressors: job-specific stressors, role stressors, interpersonal stressors, career development, organizational structure and development, and family, Work interaction part. Researchers such as Summers concluded that work stressors are divided into four categories: personality traits, organizational structure characteristics, organizational program characteristics, and role traits. Relevant exploration and research results domestically and internationally suggest that the work stressors of nursing workers can be roughly divided into the following aspects: heavy workload, limited knowledge level, intensified conflicts with other nursing workers, and absence of mastery of treatment methods and principles for patients. lack of cooperation with physicians, absence of social distinctions, etc. (Kim, 2018; Chen, 2020; Hwang, 2023). According to a study of Filipino nurses (Bautista, 2020), The Nursing Stress Scale exhibits a distinct factor structure. Specific nursing outcomes were only associated with workload and conflicts with nurses. Nurse managers should identify and reduce the stress experienced by nurses, which can lead to turnover and poor quality of care. The researchers surveyed the influence elements of the occupational stress of

nursing workers in Ningbo area and found that 90% of the nursing workers feel pressured at work, which is because of the current disharmonious doctor-patient relationship and the increasing demands of patients and their families. Correlation, at the same time, the work department is the main component that affects the occupational stress of nursing workers. Among different work departments, internal medicine and surgery have a very serious impact on the occupational stress level of nursing workers. Too many inspections and too frequent assessments are important causes of work stress. Middle-aged and elderly care workers suffer from more physical discomfort, greater work stress, compulsiveness and burnout. Simultaneously, due to physical problems, working hours are prolonged and work efficiency is reduced.

A study of nurses in the emergency department found that (Mirzaei, 2022) there is a close correlation between the stressor scores of nurses in the emergency department and burnout. There was a negative correlation between work stressors and depersonalization except for patient care. The researchers studied ICU nursing workers and discovered that: the greater the occupational pressure of ICU nursing workers, the more severe the extent of emotional exhaustion and depersonalization. Positive coping methods can improve the personal accomplishment of nursing workers, while negative coping methods can easily lead to emotional exhaustion. The level of depletion and depersonalization is quite high (Efil, 2022). In recent years, researches on the determining factors of nurses' burnout have achieved some results. However, thorough investigation of the related components leading to nurses' burnout, the correlation between associated factors and burnout, including research methodologies and subjects. In fact, further substantive research and follow-up research can be carried out, in order to understand how burnout is formed and its occurrence and development laws in essence.

Burnout - In 2019, the World Health Organization (WHO) designated burnout as an "occupational phenomenon" in the 11th revision of the International Classification of Diseases (ICD-11). The declaration outlined burnout as a syndrome resulting from "chronic workplace stress that has not been successfully managed. Global studies indicate that nurses undergo elevated levels of burnout. (Shah, 2021; Rezaei, 2018; Woo, 2020; Bruyneel, 2021). The prevalence of burnout among clinical nurses in Asian countries is 52%, while in China it is as high as 61.2% (See, 2018). Burnout is linked to depression, absenteeism, increased turnover, substance abuse, decreased professionalism, medical errors, and poor adherence to safety standards in healthcare personnel (Ward, 2022).

The word burnout in the dictionary generally refers to fatigue, fuel depletion and exhaustion. In 1974, Freudenberger, an American clinical psychologist, first used burnout as a term to refer to a state of exhaustion experienced by individuals in the helping industry due to excessive working hours, excessive workload, and excessive work intensity. Burnout involves a long-term response to interpersonal stress. Fredenberger summarized the symptoms of burnout as hopelessness, exhaustion, boredom, resentment, disillusionment, frustration, confusion, irritability, momentary irritability, frustration reactions, and outright negative attitudes. MASLACH et al. further developed burnout into three domains: emotional exhaustion (EE), depersonalization (DP) and personal achievement decline (PA) (Rotenstein, 2018). The interaction of these three domains makes burnout different from stress and Other psychological conditions with similar symptoms, such as depression and fatigue (Nunes, 2020). MASLACH et al. developed the Burnout Measurement Inventory (MBI). The questionnaire was sinicized by Yu Hua. The overall questionnaire has a high internal consistency and meets the requirements of psychometrics (Yao, 2021). The scale uses 3 subscales to measure the 3 dimensions of burnout, all items are scored from 0 to 6 points, and the scores of each dimension are calculated by adding up. Emotional exhaustion consists of 9 items and mainly assesses the emotional response to work stress. The job apathy consists of 5 items, mainly assessing the attitudes and feelings towards the clients caused by job stress. The elevated the score of the above two dimensions, the more serious the burnout. The sense of job accomplishment consists of 8 items, which mainly evaluate the perception of one's own work caused by work stress. Items in this dimension are reverse-scored, that is, the lower the score, the lower the job satisfaction. When all three dimensions are high, it is considered that there is a high degree of burnout. However, MASLACH believes that there is only a limited relationship between the 3 dimensions, so the scores of the 3 dimensions can be considered separately without calculating the total score, and can also be assessed using the subscales alone.

Research by Yu et al. (2022) demonstrated that nurses in the emergency department had a higher incidence of burnout than nurses in general wards, and burnout would lead to a rise in the incidence of functional enteropathy among nurses. Burnout is associated with reduced acceptance and acuity of nurses to follow treatment guidelines, leading to lower level of care and poorer patient outcomes (Prapanjaroensin, 2017). In the very few papers that studied the connection between nursing burnout and patient safety, emotional exhaustion and depersonalization among the three types of burnout were associated with adverse patient events, including falls, nosocomial infections, medication errors, and patient complaints (Prapanjaroensin, 2017). However, another survey found there is no substantial correlation between nurse burnout and the reporting of adverse events (Kakemam, 2021). Thus, there is insufficient and inconsistent evidence to substantiate the association between nurse burnout and patient safety, and the reasons for this relationship. Therefore, additional research is necessary to elucidate the connection between burnout and the quality of nursing care. Burnout can affect nurses' professional commitment (Chang, 2017), reduce nurses' self-efficacy (Chang, 2018), which may trigger career change or enhance turnover intention (Özkan, 2022). JIANG et al. (Jiang, 2017) found in a survey of 1137 emergency nurses in Shanghai that the turnover intention of emergency nurses within one year is intricately linked to their satisfaction and burnout, and the high burnout levels of EE and DP are important factors affecting turnover intention. risk factor. Jun et al. (Jun, 2021) pointed out that nurse burnout is a crucial factor affecting patients' satisfaction with nursing care, and its measurement indicators are emotional exhaustion and lack of personal accomplishment. Nurses, as the medical personnel with the highest frequent interaction with patients, their working status will directly affect patients, thus affecting patient satisfaction.

Research has indicated that unmarried nurses have a lower sense of personal or work fulfillment than married nurses, and nurses with children experience more personal fulfillment at work than nurses without children. And with age, the incidence of burnout will increase (Sillero, 2018). Evidence shows that physical and psychological symptoms including feelings of nervousness, irritability, sadness, low self-esteem, and trouble sleeping are the most significant predictors of burnout in Asia. Nurses' professional identity and mindfulness were negatively correlated with burnout (Zhao, 2019). The five major personality traits are valuable predictors of burnout (Grigorescu, 2018), high neuroticism and low life satisfaction are the main susceptibility factors for nurses' burnout, and openness and extraversion are protective factors for burnout. Shift patterns and work environment were significantly associated with burnout, and nurses who worked longer shifts had higher levels of burnout compared to nurses who worked 8-hour daily shifts (Giorgi, 2018). Poor sleep quality will exacerbate occupational fatigue, especially for night shift nurses. High demands on work and low control significantly increase the possibility of occupational burnout (Vidotti, 2018). A study by MOLONEY et al. found that high workload leads to higher burnout and is the strongest predictor of nurses' turnover intention (Moloney, 2018). Burnout can occur when nurses lack autonomy and control over their practice; developing nurses and encouraging their participation in decision-making can effectively reduce emotional exhaustion (Mudallal, 2017). In addition, relational coordination (RC) was significantly negatively correlated with emotional exhaustion and significantly positively correlated with professional efficacy; respect was the most important and statistically significant RC dimension for both emotional exhaustion and professional efficacy (Havens, 2018). Research by LIU et al confirmed that workplace violence can negatively impact nurses' attitudes toward work; nurses reported stress, burnout, and job dissatisfaction after experiencing violence (Liu, 2019). The shortage of nurses is a major challenge for healthcare facilities around the world. The shortage may be affected by the aging population, rising incidence of chronic diseases, aging nursing workforce and insufficient number of newly trained nurses. By 2030, the global shortage of nurses may reach 7.6 million. The survey shows that when the proportion of patients and nurses increases, when the workload increases, the job satisfaction and mental health of nurses are poor, and the operating efficiency of the hospital is low (Schlak, 2022). Studies have found that mindfulness-based programs or cognitive behavioral training can help individuals engage in long-term emotional relaxation and change, thereby reducing the occurrence of burnout (Kemper, 2019; Salvarani, 2019; Suleiman-Martos, 2020; Tu, 2022). While increasing focus, yoga can improve self-care, ease emotional exhaustion, and reduce depersonalization (Cocchiara, 2019).

3. Methods

Research Design - In view of the characteristics of the research problem, this study employed a descriptive research design using a survey method. The objective of a descriptive study is to depict individuals, events, or conditions by observing them in their natural state (Siedlecki, 2020). The researcher did not manipulate any of the variables but rather only described the sample and/or the variables. Even though a descriptive study has the capacity to investigate various variables, it is the sole design capable of examining a single variable as well. This study adopted the online survey to collect data. This method is very flexible in terms of when and where to investigate, and is time-efficient and efficient, allowing researchers to collect large amounts of data in a relatively short period of time. The questionnaire used in this research included five parts: general population information, Chinese version of MBI scale, Chinese version of work stress scale, Chinese version of stress perception scale and Chinese version of psychological capital scale.

Participants - Using convenient sampling method, nurses from different front-line departments of a large-scale 3A hospital in China were taken as the research participants. With the help of the nursing department, nurses in the hospital were selected, and questionnaires were distributed pertinently and universally. The questionnaires were filled out voluntarily by employees. The survey contents included sex, age, marital status, length of Working Experience, educational attainment, area of assignment and so on. Before the investigation, the purpose and requirements of this investigation was explained to the participants, and anonymous investigation was adopted on the premise of informed consent of the participants, so as to ensure the authenticity and reliability of the collected data. The sample size for examining the factors influencing variables should be at least 5-10 times the number of variables (Hulley, 2017). Consider a loss rate of 10% to 20% and sampling error. The number of variables used in this study was 77, therefore a convenient sampling design was used with a sample size of 385-770 nurses. The final sample size included in the study was 740 nurses.

Measures

Psychological Capital Questionnaire: The revised Chinese Nurse Psychological Capital Scale (Luo, 2010) was adopted based on PCQ-24 developed by Luthans. This scale has been widely used in China, and the reliability of the total scale is 0.819, with 20 questions in total. They are self-efficacy dimension (questions 1-6), hope dimension (questions 7-12), resilience or resilience dimension (questions 13-17), and optimism dimension (questions 18-20). This scale uses a 6-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree," with scores of 1-6 respectively. The total score ranges from 20 to 120, with all 20 items being positively scored. A higher score indicates a higher level of psychological capital. The criteria for assessing psychological capital are as follows: an average score below 2.25 is considered extremely low; 2.26-3.5 is considered low; 3.51-4.75 is considered moderate; and an average score above 4.76 is considered high. The Cronbach's alpha coefficient for the total scale ranges from 0.718 to 0.923.

Chinese Nurses Stressor Scale. The Chinese Nurse Work Stress Scale revised by Li Xiaomei (Li, 2000) was adopted, which is based on the Nurse Work Stress Scale developed by Grey Toft. The scale includes 35 items and 5 dimensions, including nursing work and specialty (7 items), workload and time allocation (5 items), working environment and equipment (3 items), patient care (11 items), management and interpersonal relationship (9 items). The scale adopts a four level scoring method, from 1 to 4, which are no pressure, general pressure, high pressure and very high pressure, and the higher the score, the greater the pressure. The total score is 35 ~ 140, of which 35 ~ 70 are mild pressure, 71 ~ 105 are moderate pressure and 106 ~ 140 are high pressure. Cronbach's of the scale α the coefficient is 0.98, and the content validity of the scale is 0.97 after evaluation by experts. Confirmatory factor analysis shows that the cumulative contribution rate of the five factors is 68.61%, and the factor load value of the items is more than 0.5.

Maslach Burnout Inventory scale (MBI). The Maslach Burnout Inventory, compiled by American scholars Maslach and Jackson (Maslach, 1996), was translated and revised into Chinese by domestic scholars Yu Hua

(2007). It has been proved to have good reliability and validity. This scale includes three dimensions: emotional exhaustion dimension, which contains 9 (1, 2, 3, 6, 8, 13, 14, 16, 20) questions, depersonalization dimension, which contains 5(5,10,11,15,22) questions and lack of personal accomplishment dimension, which contains 8 (4, 7, 9, 12, 17, 18, 19, 21) questions. Using Likert 7(0~6) scoring method, the higher the scores of emotional exhaustion and depersonalization dimensions, the lower the scores of personal accomplishment, indicating the more serious the burnout. Scoring standard of emotional exhaustion grade: < 19 points are mild, 19 ~ 26 points are moderate, and > 26 points are severe; Scoring criteria of depersonalization grade: < 6 points are mild, 6 ~ 9 points are moderate, and > 9 points are severe; Scoring criteria of personal sense of accomplishment: > 39 points are mild, 34 ~ 39 points are moderate, and < 34 points are severe. Evaluation of each dimension scores are separate and cannot be added together to calculate the total score. The Cronbach's α coefficients of each subscale ranged from 0.80 to 0.87.

Procedure - The nurses in different departments of a large third class hospital in China were the target participants of the study. This survey was conducted online. First, the researchers established a questionnaire through the online questionnaire survey platform and generated a link to the online questionnaire. A link to the online questionnaire was then sent to the on-the-job nurses in different departments of the hospital. The questionnaires were distributed pertinently and popularly. The way of individual voluntary filling was adopted. Moreover, to ensure that the contents were filled out completely, accurately, and correctly, the researcher supervised the whole process, and all questions were clarified. To eliminate the concerns of the participants and protect their privacy, confidentiality were observed. Informed consent was secured. Lastly, to ensure the accuracy of investigation data entry, double checking of entries was adopted.

Data Analysis - Survey data were processed using the Excel spreadsheet and SPSS software tool. Before the survey data were encoded to Excel, they were first codified. Coding proceeded in two ways. First, for questions with given indicators they were immediately codified, but for open-ended questions the answers were first listed and then collapsed before they were codified. The data encoded in Excel were processed using the SPSS software tool and subjected to statistical treatment. The output of the processed data was in the form of survey marginal. In statistical treatment, use frequency counting, percentage ratio, mean, and standard deviation to determine the demographic characteristics of clinical nurses in terms of age, sex, marital status, years of service, professional title, and work department. Using independent sample t-tests or analysis of variance to explore the impact of sociodemographic related variables (age, sex, marital status, years of service, professional title, and work department) on psychological capital (4 dimensions), work stress, and burnout (3 dimensions). Using Spearman rank correlation to determine whether there was a significant relationship between the psychological capital (4 dimensions), work stress, and burnout (3 dimensions). Multiple stepwise regression analysis was used to investigate the effects of demographic variables (age, sex, marital status, years of service, professional title, and work department), psychological capital (4 dimensions), work stress, and burnout (3 dimensions).

Ethical Consideration - In view of the fact that during the COVID-19 pandemic, every nurse group in the hospital bears a great physical and mental burden and is extremely vulnerable, the researcher was very careful at all stages of the research and was fully aware of moral considerations. First, the researchers applied to the Ethics Committee of the Affiliated Hospital of Zunyi Medical University for ethical review and obtained research permission. Secondly, this survey was conducted online. First, the researchers established a questionnaire through the online questionnaire survey platform and generated a link to the online questionnaire. A link to the online questionnaire was then sent to participants. The survey platform checked whether the answer format is correct or complete, and only if the questionnaire was completed correctly can they be successfully submitted. In the actual investigation and research, the participants were informed of the research purpose and significance first, and the participants' right of informed consent was guaranteed, and the principle of voluntary participation followed. Those who disagreed may not participate in the investigation. Lastly, each participant answered the questionnaire anonymously and all observation data were kept in a proper password to avoid the disclosure of personal information of participants.

4. Results and discussion

Table 1 displays the frequency of demographic characteristics among surveyed clinical nurses. In terms of age, nurses under 29 years old account for 33.5%, while those aged 30-39 were a substantial 53.8%. Nurses aged 40-49 represented 10.2% of the total, while those over 50 years old were only 2%. For nurses under 29 years old, they were typically recent nursing school graduates, still in the early stages of their career development. Due to their limited practical experience, they may face challenges in adapting to the clinical environment and mastering medical skills.

Table 1

Frequency Table for the Respondent's Demographic Profile (n=743)

	f	%
Sex		
Male	35	4.7
Female	708	95.3
Age		
29 years old and below	249	33.5
30 – 39 years old	400	53.8
40 – 49 years old	76	10.2
50 years old and above	18	2.4
Marital Status		
Married	567	76.3
Unmarried	154	20.7
Divorced	22	3.0
Years of Service		
Less than 5 years	227	30.6
6 – 10 years	207	27.9
11 – 15 years	188	25.3
16 – 20 years	79	10.6
More than 20 years	42	5.7
Professional Title		
To be evaluated	16	2.2
Junior	453	61.0
Intermediate	249	33.5
Senior	25	3.4
Work Department		
Emergency Department	110	14.8
Outpatient Department	109	14.7
Intensive Care Unit (ICU)	49	6.6
General Ward	475	63.9

In the age group of 30 to 39, clinical nurses were the most numerous. This was likely because they generally had accumulated some clinical experience and have become relatively proficient in their professional skills. They were able to possess the ability to handle various diseases and emergency situations, making them highly valuable in clinical work. However, as their careers progressed, they may also face challenges in balancing family and work life, especially for those who were already married. In the age group of 40 to 49, the number of nurses was relatively low. Many nurses in this age group may be in a significant stage of taking care of their families and may choose to reduce their working hours or transition to relatively flexible work patterns to better care for their family members. Some may even opt to transition to other fields such as education, management, or research to pursue different career opportunities. Clinical nurses over 50 years old were relatively fewer in number. This could be due to the fact that as they age, some nurses may face issues related to physical health and stamina, making them less suitable for high-intensity clinical work. Additionally, family responsibilities and personal preferences may lead them to choose to reduce their working hours or transition to alternative career paths. Nurses in this age group may also be more inclined to retire early or seek more flexible job opportunities in other fields. Furthermore, technological advancements and the need to learn new skills may also contribute to the lower representation of nurses over 50 years old.

In terms of sex, female nurses (95.3%) far outnumbered male nurses (4.7%) in clinical settings. This sex

imbalance in clinical nursing is a phenomenon observed globally. It involves various factors, including social and cultural influences, educational backgrounds, sex roles, and occupational preferences. Nursing has traditionally been viewed as a profession aligned with feminine characteristics and societal expectations, potentially leading more women to choose nursing as their profession (Zhang, 2020). This perception may, to some extent, influence men's choices regarding a career in nursing. Educational background is also a significant factor influencing the sex distribution in clinical nursing.

Regarding marital status, married nurses accounted for 76.3%, while unmarried nurses were 20.7%. It is noteworthy that the divorce rate among clinical nurses (3%) was significantly higher than the average rate (2%). Meanwhile, in terms of years of service, nurses with less than 5 years of experience accounted for 30.6%, those with 6-10 years make up 27.9%, those with 11-15 years constituted 25.3%, those with 16-20 years represented 10.6%, and those with more than 20 years of experience were 5.7%. As years of experience increase, the number of clinical nurses decreased. On one hand, with accumulated professional experience, some nurses may choose to transition to non-clinical fields such as management, education, or research, seeking new career development opportunities. On the other hand, as nurses age, they may face issues like professional burnout and work-related stress, leading them to consider early retirement or reducing their working hours, thereby decreasing the number of clinical nurses.

Regarding professional titles, 2.2% of nurses had not been evaluated for their titles, 61% held junior titles, 33.5% held intermediate titles, and 3.4% held senior titles. Nurses without an evaluated title were relatively few, which may be due to factors such as insufficient education, work experience, or professional skills, making them ineligible for title evaluation. It could also be due to personal choices or career planning, with some nurses preferring to focus their time and energy on other areas of learning and development. Due to busy work schedules or other urgent personal matters, these nurses may find it difficult to dedicate enough time and energy to participate in the title evaluation process.

In terms of work department, nurses originating from general wards accounted for the highest percentage (63.9%), followed by the emergency department (14.8%) and outpatient department (14.7%), with the ICU having the lowest representation (6.6%). ICU nurses work in the intensive care unit, dealing with critically ill patients. Since the ICU is where highly specialized care is provided to critically ill patients, a relatively higher level of nursing staff is typically required to ensure that patients receive adequate monitoring and care. Additionally, the capacity of ICU wards is usually relatively limited, so the number of clinical nurses in the ICU may be relatively lower compared to other departments. Nurses in the emergency department typically bear the important responsibility of providing emergency medical services.

Table 2
Respondent's Psychological Capital

	Mean	St.dev.	Interpretation	Rank
Self-efficacy	4.64	0.95	Moderate	1
Hope	4.52	0.98	Moderate	4
Resilience	4.57	0.89	Moderate	2
Optimism	4.56	0.97	Moderate	3
Overall (PsychCap)	91.47	15.55	Moderate	

Legend: For the subscales : below 2.25 (extremely low), 2.26 – 3.5 (low), 3.51 – 4.75 (moderate), above 4.76 (high); Overall: below 45 (extremely low), 46-70 (low), 71– 95 (moderate), 96-120 (high)

Table 2 present the respondents level of psychological capital. In this study, the total score of nurses' psychological capital was (91.47±15.55) points. The scores of the four dimensions, from low to high, were self-efficacy (4.64±0.95) points, hope (4.52±0.98) points, resilience (4.57±0.89) points, and optimism (4.56±0.97) points. Both the total score and the four dimensions were at a moderate level, as detailed in Table 2. The research results were higher than the average score of 86.21±13.45 found by Chinese scholar Cheng (2023) in a 2023 survey on nurses' psychological capital. It was slightly lower than the average score of 91.96±15.29 found by scholars such as Li Weifang (2023) in their survey. The research results showed a significant difference from the

score of 102.01 ± 13.11 reported by Yang Yunfang (2020) and others in a survey conducted in October 2019. This was considered to be due to the profound impact of the COVID-19 pandemic on the work and life of nurses, which may lead to variations in nurses' psychological capital in different pandemic periods.

Self-efficacy refers to the confidence and belief of nurses in their ability to successfully complete specific tasks or face specific situations. This trait plays a crucial role in the nursing profession. Self-efficacy is not blind arrogance but is based on a rational assessment of individual abilities and experiences. It stems from past successful experiences, self-observation, and evaluations from others, thus having a relatively accurate self-assessment characteristic (Yuan, 2023). The formation and development of self-efficacy in nurses is a gradual process. As nurses gain experience and skills in clinical practice, they gradually build confidence in their abilities. Studies have found that nurses tend to have higher self-efficacy in specific areas such as emergency care and nursing skills (Xue, 2023). This indicates that self-efficacy may vary in different domains and tasks, depending on the nurse's professional knowledge and practical experience. Nurses' self-efficacy is also influenced by the work environment and organizational atmosphere. A supportive and encouraging work environment can promote the improvement of nurses' self-efficacy (Li, 2019). The support of organizational leaders, cooperation and recognition from colleagues can enhance the confidence of nurses. Nurses with high self-efficacy demonstrate a proactive attitude at work. They are willing to take on responsibilities, face challenges bravely, and are not quick to give up. Their confident attitude enables them to effectively solve problems and also enhances the quality of nursing care, providing patients with stronger support and care (Zeng, 2023). Nurses' self-efficacy can also affect interactions and communication with patients, families, and colleagues. Nurses with higher self-efficacy may find it easier to establish good patient trust relationships and are more capable of effective collaboration and communication with colleagues (Guo, 2021). In this study, nurses' self-efficacy was at a moderate level, indicating that nurses have a certain level of confidence in their abilities, but may need to continuously accumulate experience and improve skills in practice to further enhance their confidence.

Hope refers to the positive expectations and confidence of nurses for the future, as well as the ability to maintain a positive attitude when facing challenges and setbacks. Hope is a powerful psychological resource that has a significant impact on nurses' coping abilities and job performance in clinical work. Hope enables nurses to face the future positively. When faced with medical nursing work, nurses often encounter various challenges and difficulties, such as heavy workloads and complex medical conditions. Nurses with high levels of hope often maintain positive expectations for the future, believing that they can overcome difficulties through effort and perseverance to achieve success (Wang, 2023). This positive mindset helps boost the motivation and confidence of nurses in their work, allowing them to better accomplish their tasks. Hope has the characteristic of enduring resilience. Nurses with high levels of hope often demonstrate unwavering determination when facing challenges and setbacks, and are not quick to give up. Research indicates that hope is closely related to resilience and the ability to cope with difficulties (Li, 2021). Possessing the trait of resilience enables nurses to maintain composure and seek solutions when faced with complex medical situations and emergencies. Hope is closely related to goals. Nurses typically set a series of goals in their work, such as providing quality care and improving patients' health. Nurses with high levels of hope tend to closely link these goals to their own values and professional missions, thereby maintaining the pursuit and perseverance of these goals (Jin, 2022). In this study, nurses' hope was at a moderate level, indicating that nurses are able to maintain a certain degree of optimism when facing challenges, but may need further development and cultivation of confidence in the future.

Resilience refers to the ability of nurses to maintain a stable mindset, recover quickly, and sustain their work motivation when facing challenges, setbacks, and pressure. Resilience is an important psychological trait that is crucial for nurses' adaptability and sustained development in clinical work. Resilience equips nurses with the ability to adapt to setbacks. The nursing profession often comes with high-intensity work stresses, unexpected situations, and emotional challenges. Nurses with high levels of resilience can remain calm when faced with difficulties, respond promptly, and are not defeated by setbacks (Zeng, 2023). This adaptability enables nurses to maintain stable performance in complex medical environments, ensuring the safety and health of patients.

Resilience possesses the characteristic of positive emotional regulation. Nurses with high levels of resilience are often able to effectively handle negative emotions at work and maintain a positive mindset. Research indicates a significant positive correlation between resilience and mental health, as well as emotional stability (Ma, 2023). This means that nurses with the trait of resilience are more likely to maintain emotional stability and positivity, providing patients with warmer and more caring nursing services. Resilience provides nurses with the motivation for continuous growth. Nurses need to constantly learn and adapt to new medical technologies, nursing models, and more in their work. Nurses with high levels of resilience actively seek opportunities for learning and growth, ensuring the continuous updating and improvement of their professional knowledge and skills (Liu, 2022). This drive for continuous growth enables nurses to remain competitive in the ever-changing medical environment, ultimately enhancing the quality of nursing care. In this study, nurses' resilience was at a moderate level, indicating that nurses are able to maintain a certain level of adaptability when facing pressure and challenges, but may need further development of their ability to cope with challenges.

Table 3

Respondent's level of Stress

	Mean	Std.dev.	Interpretation	Rank
1.The social status of nursing work is too low.	3.09	0.76	High Pressure	2.5
3.Low wages and other benefits.	3.15	0.78	High Pressure	1
5.Frequent shifts.	3.00	0.95	High Pressure	4
8.Too much work.	3.09	0.82	High Pressure	2.5
9.The number of nurses working is small.	2.93	0.86	High Pressure	5
31.Lack of understanding and support among colleagues.	2.22	0.86	Average Pressure	6
32.Conflict with nursing managers.	2.14	0.94	Average Pressure	7
33.It is difficult to work with some nurses in the ward.	2.11	0.89	Average Pressure	8
34.Conflict with a doctor.	2.09	0.89	Average Pressure	10
35.There is a lack of friendly cooperation among colleagues.	2.10	0.89	Average Pressure	9
Composite Mean	91.03	High Stress		

Table 3 presents the sources of stress for clinical nurses. The top-ranked source was "low salary and other benefits" (3.15); "low social status of nursing work" and "excessive workload" tied for second place (3.09), while "frequent shifts" ranked fourth (3.00), and "limited number of nurses on duty" ranked fifth (2.93). These five are identified as high-level stressors. The remaining options were sources of moderate-level stress: "lack of understanding and support among colleagues" (2.22), "conflicts with nursing managers" (2.14), "difficulty working with certain nurses on the ward" (2.11), "lack of friendly cooperation among colleagues" (2.19), and "conflicts with doctors" (2.09). The findings of this study were higher than those of Yang (2020) conducted before the outbreak of the COVID-19 pandemic, but lower than the studies by Zheng (2020) during the outbreak in January and February 2020. The discrepancy may be attributed to the different periods of data collection during the COVID-19 pandemic. In the early stages of the pandemic, due to a surge in the number of cases, hospitals needed to set up temporary wards or specific isolation areas to meet the demand for admitting infected patients. This meant restructuring and redeployment of nurse teams from different departments. Nurses had to adapt to new work environments, medical equipment, and teams in a short period. In addition to caring for patients, they had to undertake additional work related to setting up new wards. This led to extended working hours and frequent overtime, further exacerbating the already strained nursing resources. Additionally, in the early stages of the pandemic, public awareness and understanding of the virus were relatively low, leading to reluctance in cooperating with nurses' infection control measures. Consequently, allocating work hours and managing workload became the biggest challenges for nurses in the initial phase of the pandemic. On the other hand, prior to the COVID-19 pandemic, many hospitals focused more on critical care nursing, with insufficient emphasis on infection prevention and control nursing. This was a common issue, but it became more pronounced in the early stages of the COVID-19 pandemic. Many hospitals may have faced problems such as shortages of protective equipment, inadequate training in infection prevention and control, and imperfect infection prevention and control protocols and procedures (Zhou, 2022).

Salary and benefits are the material rewards that nurses receive in their careers, directly impacting their financial stability and quality of life. Low wages and inadequate benefits can increase nurses' financial pressure.

Nurses bear significant responsibilities and pressures in their work, and relatively low levels of compensation may lead to feelings of financial strain and anxiety. Research indicates that economic pressure is one of the important factors leading to increased work-related stress among nurses (Gao, 2020). Faced with rising living costs and pressure on family expenses, nurses may feel a heavy financial burden, which directly affects their work attitude and emotional state. Low wages and benefits can also affect nurses' job satisfaction. Job satisfaction for nurses is closely related to the rewards they receive in their careers. If nurses feel that their level of compensation does not match their efforts and responsibilities, they may become dissatisfied, express complaints, and even consider seeking more attractive career opportunities. Studies have found that salary and benefits are important factors influencing nurse job satisfaction (Guo, 2022). Low wages and benefits may reduce nurses' dedication and loyalty to their work, subsequently affecting the quality and efficiency of nursing services. Low wages and benefits may also lead to increased work-related stress for nurses. Nurses often face heavy workloads, complex medical situations, and high-stress work environments. If they feel that their efforts are not fairly rewarded, they may experience professional burnout and emotional fatigue, thus increasing their perception of work-related stress. Research shows a significant negative correlation between salary levels and work-related stress (Wu, 2019). Lower wages and benefits may intensify the pressure that nurses experience in their work, impacting their professional and psychological well-being.

The social status of nursing work is closely related to the work-related stress experienced by nurses. Social status reflects the position and level of recognition of a profession within the societal hierarchy, directly affecting the work experience and job satisfaction of practitioners. Nursing, as a crucial component of the healthcare industry, is directly impacted by the level of social status, which in turn affects nurses' work experience and professional stress levels. A lower social status of nursing work may lead nurses to feel a lack of professional recognition and respect, thereby increasing work-related stress. In comparison to some higher-paying, higher-status medical professions, nursing may hold a relatively lower position in terms of social status. Research indicates that professional recognition and respect play a significant role in nurse job satisfaction and motivation (Li, 2017). Nurses may feel frustrated and undervalued due to a lack of professional recognition, thereby increasing their psychological stress in the workplace. A lower social status of nursing work may also affect nurses' opportunities for career development and advancement. In contrast to some higher-paying, higher-status medical professions, nursing often lacks corresponding channels for promotion and opportunities for professional development. This may lead some nurses to perceive limited career prospects, thereby increasing their feelings of uncertainty and anxiety in their work. Research shows that opportunities for career development are crucial factors influencing nurse job satisfaction and motivation (Zhang, 2022). A lack of opportunities for career development may increase work-related stress for nurses, affecting their job satisfaction and professional motivation.

Excessive workload for nurses can lead to various pressures and challenges in their careers, including physical and mental stress, and even negative impacts on patient safety. The heavy workload requires nurses to complete numerous tasks in a short period of time, potentially increasing both their physical and mental stress levels. Nurses often face busy work environments and are responsible for a variety of medical tasks, including basic patient care, medication management, and monitoring of patient conditions, among others. Having to complete an excessive number of tasks in a limited time frame may leave nurses feeling physically and mentally exhausted, and it may even increase the risk of injury or fatigue. Research has shown a significant positive correlation between excessive workload and nurses' professional stress and mental health issues (Chen, 2023). Excessive workload can affect nurses' job satisfaction, motivation, and potentially impact their professional safety. Moreover, an excessive workload may hinder nurses' opportunities for professional development and advancement. If nurses are required to invest long hours in heavy workloads, it may affect their ability to participate in further education and training opportunities, thereby influencing their career development. Studies have indicated that nurses' career development is closely associated with their access to learning and training opportunities (Li, 2021). If nurses are unable to participate in further education and training due to heavy workloads, it may limit their chances for promotion and career development, adding to their professional stress.

Additionally, an excessive workload may have negative implications for patient safety. Nurses play a crucial role in healthcare, responsible for patient safety and well-being. If nurses are unable to focus on each patient due to an excessive workload, it may increase the risk of medical errors and adverse events. Research has found a significant negative correlation between workload and patient safety (Han, 2017). An excessive workload may adversely affect nurses' sense of professional responsibility and patient safety, thereby increasing professional stress.

Frequent shifts for nurses may have an impact on their biological rhythms, lifestyle, and psychological well-being, increasing their professional stress. Frequent shifts can have adverse effects on nurses' biological rhythms and lifestyle. Nurses often have to work various shifts, including morning, evening, and night shifts. The rotating and irregular shifts may disrupt nurses' circadian rhythms, affecting their sleep quality and lifestyle. Research indicates that irregular work schedules are negatively correlated with nurses' quality of life and sleep quality (Zhang, 2022). Disrupted biological rhythms and lifestyles may leave nurses feeling fatigued and disoriented in both their work and personal lives, contributing to professional stress. Frequent shifts may also impact nurses' psychological well-being. Irregular work schedules may lead to emotional fluctuations and psychological fatigue among nurses. Studies have shown an association between frequent night shifts and psychological health issues in nurses (Zhang, 2022). Over time, nurses working frequent shifts may experience anxiety, depression, and other psychological health issues, directly influencing their job satisfaction and motivation. Frequent shifts may also affect the balance between nurses' work and family, as well as social lives. Irregular work schedules may make it challenging for nurses to engage in normal social activities and family life, increasing the pressure of balancing work and family responsibilities. Research has found a negative correlation between work schedule and nurses' work-family balance (Ke, 2023). Frequent shifts may leave nurses feeling conflicted and overwhelmed between their professional and family roles, adding to professional stress.

The option "limited number of nurses on duty" ranks fifth, and research indicates that when healthcare institutions are severely understaffed with nurses, nurses often have to shoulder an overwhelming workload, including patient care, medication administration, and monitoring of patient conditions. The other five options with moderate levels of association were also closely related to nurses' stress. These options describe various sources of stress that nurses may encounter in their work environment. "Lack of understanding and support among colleagues" suggests that there may be challenges in communication or a lack of mutual support within the team, leading nurses to feel isolated and misunderstood in their work. "Conflicts with nursing managers" indicates that nurses may face difficulties in communicating and cooperating with management, potentially creating an unstable and tense work environment, exacerbating nurses' psychological stress. "Difficulty working with certain nurses on the ward" emphasizes the challenges nurses may face when collaborating with specific colleagues. This may involve interpersonal issues or mismatches in work styles, which can impact work efficiency and emotional state. "Lack of friendly cooperation among colleagues" reiterates the importance of teamwork. If there is a lack of a friendly and supportive atmosphere among colleagues, nurses may feel the work environment is tense and unpleasant, increasing their work-related stress. "Conflicts with doctors" points out that nurses may encounter disagreements or communication barriers when working with doctors. This may lead to disruptions in workflow and add to nurses' emotional stress. These five options all reflect potential interpersonal issues that nurses may face in their work environment, including challenges in cooperation with superiors, colleagues, and doctors. These issues directly impact nurses' psychological well-being and work efficiency, underscoring the need for measures to improve the work environment and alleviate nurses' work-related stress.

Table 4 displays the scores of nurses' fatigue levels across different dimensions. The dimension of emotional exhaustion was moderate (19.5 ± 7.86), depersonalization is moderate (5.40 ± 4.22), personal accomplishment is high (26.06 ± 6.95), and the total score was moderate (50.96 ± 9.98). The research findings were slightly lower than those reported by other scholars in China (Yang, 2020; Yao, 2021). This may be attributed to the fact that the surveyed nurses were mostly junior and intermediate level nurses who entered the profession with high expectations. However, when their professional knowledge and skills were insufficient to deal with complex clinical situations, they may experience a sense of helplessness and a gap in personal accomplishment, leading to

a decrease in personal accomplishment. Additionally, with the recent conclusion of the COVID-19 pandemic, nurses faced many negative events, resulting in high work stress. This may lead to emotional exhaustion, further manifesting as a lack of interest in work, apathy towards people, and an exacerbation of occupational burnout. This study found that the dimension of emotional exhaustion was at a moderate level, possibly influenced by various factors. Nurses often face heavy workloads and stressful work environments, which may lead to the onset of emotional fatigue. They need to take care of patients' physical and mental health, perform medical procedures, and handle emergencies, all of which require a high level of professional skill and patience. If the work stress becomes too great, nurses may feel unable to effectively cope, resulting in emotional fatigue (Lee, 2023).

Table 4*Respondent's Level of Burnout*

Subscale	Mean	Std.dev.	Interpretation	Rank
Emotional Exhaustion	19.50	7.86	Moderate	2
Depersonalization	5.40	4.22	Moderate	3
Personal Accomplishment	26.06	6.95	High	1
<i>Overall Burnout</i>	<i>50.96</i>	<i>9.98</i>	<i>Moderate</i>	

Legend: For the subscales; Emotional Exhaustion: below 19 low, 19 – 29 moderate, above 30 high; Depersonalization below 5 low, 5 – 11 moderate, above 12 high; Personal accomplishment above 39 low, 34 – 39 moderate, below 34 high

The interaction between nurses and patients, as well as their families, was also a significant source of emotional fatigue. Nurses need to establish an emotional connection with patients, understand their needs and emotions, while also addressing the concerns and expectations of the patients' families. If nurses lack support in this regard or face complex emotional interactions, it may lead to the onset of emotional fatigue (Yu, 2022). Nurses may also encounter challenges in teamwork and communication, which can also influence emotional fatigue. If the team's collaborative atmosphere is poor, or if there is tension among colleagues, it may lead to the emergence of emotional fatigue.

Interactions with patients and their families may also be a significant factor contributing to depersonalization. Nurses need to communicate with and care for patients and their families in various situations, sometimes facing emotional or challenging circumstances. If nurses lack effective communication skills and emotional regulation abilities, it may increase their sense of detachment and indifference towards patients (Diehl, 2021). Individual traits and psychological factors may also influence depersonalization. Personal traits, psychological resilience, and coping mechanisms may all impact nurses' attitudes and emotional expressions towards patients. Some studies suggest that individuals may tend to experience emotional detachment when coping with work stress, thereby affecting their emotional involvement with patients (Chen, 2021). Organizational culture and management style may also be significant factors contributing to depersonalization. If there is an unhealthy work culture, a lack of effective managerial support, or a lack of care and respect for nurses within the organization, it may lead to nurses feeling detached and displaying an indifferent attitude towards their work (Haahr, 2020).

In this study, it was observed that nurses' personal accomplishment dimension was at a low level, which may imply some underlying issues. The characteristics of the hospital work environment may be a crucial factor leading to a lack of personal accomplishment among nurses. Hospitals are often highly complex and busy workplaces, where nurses are faced with a wide range of medical conditions and patient needs. If the working conditions in the hospital are suboptimal, such as a shortage of resources, equipment, and staffing support, nurses may find it challenging to achieve significant accomplishments in their work, thereby impacting the formation of a sense of personal accomplishment (Dyrbye, 2020).

Work stress and workload may also be another significant factor contributing to a lack of personal accomplishment among nurses. Nurses often have to deal with high levels of work stress, especially in busy ICU wards and emergency departments. Prolonged periods of high-intensity work may lead nurses to feel fatigued and unable to fully utilize their professional capabilities, thereby affecting the generation of a sense of personal

accomplishment (Zhang, 2019). Patient satisfaction and recognition may also have a positive impact on nurses' sense of personal accomplishment. Nurses often derive a sense of accomplishment from their interactions with patients and their families. If they receive praise and recognition from patients, they will feel that they have achieved something in their work, thereby enhancing their sense of personal accomplishment (Liu, 2019). Individual career motivation and values may also be significant factors contributing to a lack of personal accomplishment. If nurses have a strong sense of responsibility and mission towards their work, they will place greater emphasis on the achievements they make in their profession, thereby boosting their sense of personal accomplishment.

Table 5

Differences on the Respondent's Psychological Capital when compared according to Profile

	Self efficacy		Hope		Resilience		Optimism		Overall Capital		Psychological Capital
	t/F	p-value	t/F	p-value	t/F	p-value	t/F	p-value	t/F	p-value	
Age	6.255	.000	4.092	.007	5.749	.001	5.082	.002	5.665	.001	
Sex	-.104	.917	.037	.970	-.261	.794	-1.99	.057	-.439	.660	
Marital Status	3.104	.045	2.452	.087	4.028	.018	2.135	.119	3.321	.037	
Years of Service	6.709	.000	3.681	.006	3.875	.004	4.586	.001	5.178	.000	
Professional Title	5.167	.002	2.155	.092	3.843	.010	3.421	.017	3.849	.009	
Work Dept.	4.400	.004	4.193	.006	4.803	.003	5.793	.001	5.277	.001	

Legend: Difference is significant at 0.05 alpha level

Table 5 illustrates the comparison of psychological capital based on the general information of nurses. It can be seen from the table that, except for sex, which did not have an impact on psychological capital and its dimensions, there were differences in psychological capital and its dimensions among different age groups, marital statuses, years of service, professional titles, and length of service.

In terms of age, the P-value for self-confidence dimension was 0.000, for hope dimension it was 0.007, for resilience dimension it was 0.001, for optimism dimension it was 0.002, and for the total score of psychological capital it was 0.001. This indicated that there were differences in nurses' psychological capital and its various dimensions across different age groups. This may be due to the different challenges and pressures individuals face at different stages of their careers. The study found that with increasing age, nurses tended to show a gradual increase in both the total score and individual dimensions of psychological capital, which aligned with previous research (Yuan, 2023). This may be attributed to the accumulation of knowledge and skills as nurses gain more work and life experience with age. They may also be more inclined to maintain an optimistic, resilient, and self-confident attitude. As nurses grow older, they may place more emphasis on their professional development and personal achievements. Over their long-term careers, nurses may enhance their professional competence through continuous learning and training, leading to a greater sense of accomplishment. This emphasis on personal achievement may contribute to the gradual increase in scores in the hope and self-confidence dimensions of psychological capital. With age, nurses may become more adept at dealing with challenges and setbacks in both work and life. They may maintain an optimistic attitude through their experiences and accumulations, better overcoming difficulties. This proactive approach to challenges may result in a gradual increase in scores for the optimism and resilience dimensions of psychological capital. As nurses age, they may also become more self-assured and confident. With familiarity and experience in their work, they may have greater belief in their abilities and find it easier to maintain a confident demeanor. This self-assuredness may lead to a gradual increase in scores in the self-confidence dimension of psychological capital.

In terms of sex, the P-value for self-confidence dimension was 0.917, for hope dimension it was 0.970, for resilience dimension it was 0.794, for optimism dimension it was 0.057, and for the total score of psychological capital it was 0.660. None of these P-values were below 0.05. Consistent with previous research (Wang, 2023), this study indicates that there are no significant differences in the total score and dimensions of psychological capital between different sexes among nurses. This result may reflect that male and female nurses in the nursing profession exhibit similar performance in terms of psychological capital, and sex is not a primary factor

influencing psychological capital.

In terms of marital status, the P-value for self-confidence dimension was 0.045, for hope dimension it was 0.087, for resilience dimension it was 0.018, for optimism dimension it was 0.119, and for the total score of psychological capital it was 0.037. The study showed that there were significant differences in the total score and dimensions of psychological capital among nurses with different marital statuses. Among these groups, married nurses had the highest scores, followed by divorced nurses, and unmarried nurses had the lowest scores. This phenomenon may reflect the impact of marital status on the accumulation and development of nurses' psychological resources. Married nurses may receive more support and stability in their family life, which can influence their level of psychological capital. Marriage can provide emotional support and a sense of security, enabling nurses to be more resilient and optimistic when facing work stress and difficulties (Liu, 2023). This stability and support in their family life may lead to higher levels of psychological capital in married nurses. Divorced nurses may go through a process of psychological adjustment after the end of a marriage, which may affect their level of psychological capital. Divorce may bring about a certain degree of psychological pressure and confusion, but over time, divorced nurses may gradually adjust their mental state and rebuild confidence in their work and life (Chang, 2023). The level of psychological capital in divorced nurses may fall between that of married and unmarried nurses. Unmarried nurses may have relatively lower levels of family support and stability, which may influence their level of psychological capital. The lack of marital relationships may cause some unmarried nurses to lack a support system when facing work stress, which may impact their performance in various dimensions of psychological capital.

In terms of years of service, the P-value for the self-confidence dimension was 0.000, for hope dimension it was 0.006, for resilience dimension it was 0.004, for optimism dimension it was 0.001, and for the total score of psychological capital it was 0.000. This study indicated that with an increase in years of service, nurses tended to exhibit a gradual improvement in both the total score and individual dimensions of psychological capital. There were significant differences in the levels of psychological capital among nurses with different lengths of service. This trend may reflect that as nurses engage in clinical nursing work over the long term, they develop stronger psychological capital through the accumulation of rich experience and continuous learning. Nurses accumulate extensive professional knowledge and skills in clinical nursing work, making them more confident and capable of handling various complex situations in their work, and giving them higher confidence in their professional abilities and career development (Yao, 2022). Long-term professional experience also equips nurses with the capacity to face difficulties and pressure, thus maintaining an optimistic attitude. They accumulate numerous experiences of success and coping with adversity, leading to positive expectations and attitudes towards work and life. With an increase in years of service, nurses also gain extensive experience in teamwork and interpersonal relationships, fostering a hopeful mindset. Through interactions with colleagues, patients, and other members of the healthcare team, nurses build strong interpersonal relationships and develop positive expectations for work and life.

This study also demonstrated that professional title had an impact on the self-confidence dimension with a P-value of 0.002, while for hope dimension it was 0.092, for resilience dimension it was 0.010, for optimism dimension it was 0.017, and for the total score of psychological capital it was 0.009. In other words, a higher professional title corresponds to higher psychological capital. This trend may reflect that as nurses progress in their careers, by continuously learning, enhancing professional skills, and expanding their professional roles, they gradually cultivate and develop a more abundant and robust psychological capital (Liu, 2022). Nurses with higher professional titles often go through more stages of career development and receive more specialized training, accumulating richer clinical experience and professional knowledge. This enables them to be more confident and capable in handling various complex situations with confidence. Nurses with higher professional titles may take on more important and complex responsibilities in the field of nursing, necessitating them to face higher work stress and challenges. Through continuous learning and career development, they may gradually develop the ability to maintain an optimistic and resilient attitude when facing difficulties. Nurses with higher professional titles often possess stronger qualities in teamwork, leadership, and interpersonal relationships. They

may take on leadership and guidance responsibilities for other nurses, requiring good interpersonal communication and teamwork abilities (Jeong, 2022).

Regarding the work department, the P-value for the self-confidence dimension was 0.004, for hope dimension it was 0.006, for resilience dimension it was 0.003, for optimism dimension it was 0.001, and for the total score of psychological capital it was 0.001. The results indicated that nurses in outpatient and general wards tended to have higher levels of psychological capital, while nurses in the emergency room (ER) and ICU tended to have lower levels. This difference may be influenced by the work environment and characteristics of the job (Yao, 2022). Nurses in outpatient and general ward settings typically work in relatively stable environments, with more regular schedules, allowing for ample time for nursing duties. They also have the opportunity to establish relatively stable nurse-patient relationships, which contributes to the development of their self-confidence and optimism. In contrast, nurses in the ICU and ER often face high-intensity work stress, requiring them to respond to emergencies at any time. The work environment is relatively tense, which may have a certain impact on the psychological capital of nurses. Nurses in the ICU and ER may be more likely to encounter severe medical conditions and unstable patient situations, necessitating them to bear greater psychological pressure. This may affect their level of psychological capital. In contrast, nurses in outpatient and general ward settings usually deal with relatively stable medical conditions, and thus may experience less psychological pressure. This helps maintain their higher levels of psychological capital. Additionally, the different characteristics of nursing work in different departments can also influence the level of psychological capital among nurses. For example, nurses in the ICU and ER may need to possess stronger clinical skills and emergency response capabilities, while nurses in outpatient and general wards may place more emphasis on communication with patients and nursing skills. This may also lead to differences in the level of psychological capital.

Table 6

Differences on the Respondent's Level of Stress when compared according to Profile

	t/F	p-value	Interpretation
Age	.637	.591	Not Significant
Sex	1.359	.175	Not Significant
Marital Status	.455	.635	Not Significant
Years of Service	1.141	.336	Not Significant
Professional Title	1.195	.311	Not Significant
Work Dept.	6.955	.000	Significant

Legend: Difference is significant at 0.05 alpha level

Table 6 presents a comparison of nurse stress levels based on individual profiles. From the above research results, it can be observed that, except for the p-value for the department of work being less than 0.05, none of the p-values for age, sex, marital status, years of service, or professional title were below 0.05. This indicated that regardless of a nurse's age, sex, marital status, years of service, or professional title, their stress levels were not affected. This study demonstrated that there was no significant difference in the total score of the stress scale among nurses of different ages, sexes, marital status, years of service, and professional titles. This conclusion aligned with the findings of several scholars (Xu, 2020; Hao, 2018). This discovery may be influenced by various factors. As a professional group, nurses may experience work-related stress influenced by the overall healthcare system and medical environment. In the field of healthcare, nurses often face high-intensity work stress, complex medical environments, and various emergencies, which may lead to an overall high-pressure work situation, resulting in no significant differences in specific individual characteristics. The nature and responsibilities of nursing work are relatively fixed, whether in clinical nursing, healthcare management, or education and research. This requires nurses to handle a certain level of work stress. This may explain why there are no significant differences in age, sex, marital status, years of service, and professional title. The adaptability and psychological qualities of individual nurses can also influence their level of stress at work. Some studies suggest that psychological factors such as resilience and self-efficacy may play a positive role in coping with work-related stress, reducing sensitivity to stress, and thus resulting in no significant differences among different individuals.

In terms of age, the P-value for stress was 0.591, indicating no significant difference between different age groups. The prevalence of stress in the medical environment is a common feature, and nurses may face similar work stress regardless of their age. The modern healthcare system is characterized by high intensity and high risk, leading nurses to generally experience stress at work. This pressure does not necessarily decrease with age. Studies have also found that stress factors related to work are often closely related to patient safety, workload, and interpersonal relationships, which are not necessarily associated with the nurse's age (Cheng, 2023).

Regarding sex, the P-value for stress is 0.175, indicating no significant difference between different sex groups. The research results are consistent with other scholars' studies (Li, 2021). The nature of healthcare work means that nurses generally face similar work stresses, such as high workloads, communication and coordination with patients and their families, and the risk of medical errors. These factors are not influenced by sex differences. The modern healthcare environment generally involves a certain level of work stress, which is not necessarily linked to the nurse's sex.

In terms of marital status, the P-value for stress is 0.635, indicating no significant difference between different marital status groups. The pressure faced by nurses primarily arises from the unique nature of the healthcare work environment and emotional interactions with patients and their families. Whether married, divorced, or unmarried, nurses collectively bear the high-stress healthcare work environment, including fast-paced work rhythms and the continual updating of medical technology. Additionally, nurses also need to handle emotional interactions with patients and their families, which may affect their emotional state and psychological pressure. Therefore, differences in marital status among nurses do not have a significant impact when facing professional stress. This may reflect the specificity of healthcare work and the universality of occupational stress.

The results of this study indicate that in terms of years of service, the P-value for stress is 0.336, and there is no significant difference between different tenure groups. However, there exists a certain relationship between a nurse's years of service and the level of work-related stress, although this relationship is not simply linear. With the accumulation of work experience, nurses may acquire stronger coping abilities and professional skills, thus becoming more composed and effective in handling difficult situations, which in turn alleviates some of the work-related stress. On the other hand, as time progresses, nurses may assume more responsibilities and managerial tasks, leading to an increase in work-related stress. Therefore, the relationship between years of service and nurse stress is a complex and multidimensional issue that requires considering the influence of various factors.

Regarding professional titles, the P-value for stress is 0.311, and there is no significant difference between different professional title groups. There is a certain relationship between a nurse's different professional titles and the level of work-related stress, influenced by various factors. Nurses with higher professional titles may shoulder more responsibilities and specialized tasks, potentially leading to higher levels of stress at work. Additionally, nurses with advanced professional titles often play leadership and decision-making roles, which may bring additional psychological pressure. However, nurses with higher professional titles typically possess richer clinical experience and professional knowledge, enabling them to handle various situations with greater composure and effectiveness, thereby alleviating some of the work-related stress. Furthermore, organizational support, training, and opportunities for career development within the organization can also impact the level of work-related stress experienced by nurses of different professional titles.

This study demonstrates that in terms of work departments, the P-value for stress is 0.000, indicating significant differences in nurse stress levels among different departments. The distinct characteristics of nursing work in different departments may directly influence the level of work-related stress experienced by nurses. For instance, nurses in the emergency department (ED) and intensive care unit (ICU) often face urgent and complex patient conditions, as well as a tense working environment, which may result in a greater level of work-related stress. In contrast, nurses in outpatient departments and general wards may deal with relatively stable patient

conditions and work environments, potentially experiencing lower levels of work-related stress. The intensity and workload of work in different departments also impact nurse stress levels. For example, nurses in the ICU and ED may require stronger clinical skills and emergency response abilities, while nurses in outpatient departments and general wards may place greater emphasis on communication with patients and nursing skills, potentially leading to differences in stress scores. The distinctive features of work in different departments may also influence nurses' emotional experiences and job satisfaction, indirectly affecting their perception of work-related stress. For example, ED and ICU nurses may more frequently encounter critical patient conditions and emotional fluctuations from patients' families, potentially increasing their work-related stress (Shen, 2020).

Table 7

Differences on the Respondent's Level of Burnout when compared according to Profile

	Emotional Exhaustion		Depersonalization		Personal Accomplishment		Overall Burnout	
	t/F	p-value	t/F	p-value	t/F	p-value	t/F	p-value
Age	3.079	.027	4.930	.002	5.209	.001	.619	.603
Sex	1.381	.168	1.766	.078	.196	.845	1.972	.049
Marital Status	1.634	.196	1.616	.199	1.984	.138	2.056	.129
Years of Service	2.212	.066	4.951	.001	6.007	.000	.419	.795
Professional Title	1.281	.280	1.940	.122	3.422	.017	.931	.425
Work Dept.	5.387	.001	3.004	.030	.564	.639	4.104	.007

Legend: Difference is significant at 0.05 alpha level

Table 7 presents a comparison of burnout based on nurses' general information grouping. From the table, it can be observed that age has a certain influence on exhaustion, depersonalization, and personal accomplishment. Length of service only significantly affects depersonalization and personal accomplishment, while professional title only significantly affects personal accomplishment. Work department influences exhaustion and depersonalization. sex and marital status do not have an impact on any of the three dimensions of burnout. These findings align with those of Chinese scholars (Ye, 2017).

Regarding age, the P-value for the exhaustion dimension is 0.027, for depersonalization it is 0.002, and for personal accomplishment, it is 0.001. The research results indicate that as age increases, the levels of all three dimensions of burnout show a decreasing trend. This aligns with previous research (Shi, 2022). Older nurses may accumulate extensive work experience and clinical skills, gradually building professional confidence and self-assurance, leading to more adept handling of various clinical situations, thus reducing the degree of emotional exhaustion and low personal accomplishment. Older nurses may also become more mature and composed, better equipped to handle work-related pressures and challenges, lowering the level of burnout. With increasing age, individuals' professional positioning and career planning may also become clearer, potentially resulting in clearer career development goals, enhancing personal feelings of accomplishment and work enthusiasm, and reducing the degree of occupational burnout.

In terms of sex, the P-value for the exhaustion dimension is 0.168, for depersonalization it is 0.078, and for personal accomplishment, it is 0.845. The research results show that sex is not an influencing factor for burnout. This aligns with the findings of Chinese scholars (Sun, 2022), indicating that increased awareness of sex equality in the nursing field has led to more equitable treatment of male and female nurses, with opportunities for career development and resource allocation trending towards balance. This fairness may contribute to a lack of significant differences in occupational burnout between sexes. Additionally, nursing work itself requires a certain level of professionalism and technical competence, necessitating all practitioners to possess similar clinical nursing skills and a sense of responsibility. Therefore, regardless of sex, nurses may face similar work-related pressures and experiences of occupational burnout. Furthermore, occupational burnout is also influenced by individual psychological traits and coping strategies. sex may result in differences in individual psychological traits, but this does not necessarily directly impact the manifestation of occupational burnout. For instance, research suggests that women may be more inclined to seek social support when dealing with work-related stress, while men may be more inclined to adopt active problem-solving strategies (Xie, 2021). However, these differences may not necessarily lead to disparities in occupational burnout, as individual coping strategies may

be influenced by multiple factors.

Regarding marital status, the P-value for the exhaustion dimension is 0.196, for depersonalization it is 0.199, and for personal accomplishment, it is 0.138. The research results also indicate that marital status is not an influencing factor for burnout. This is consistent with the findings of many studies (Gao, 2023), suggesting that marital status does not directly influence individuals' attitudes and performance in their careers. Whether married, unmarried, or divorced, nurses may face similar work-related pressures and responsibilities. Therefore, marital status itself may not necessarily lead to differences in occupational burnout. Individual attitudes towards their profession and job satisfaction are also influenced by various factors, including the work environment, job characteristics, and leadership style, which may to some extent overshadow the impact of marital status on occupational burnout. Individual psychological qualities and mindsets may also demonstrate differences with regard to marital status. Married nurses may seek a better balance between family life and career development, while unmarried or divorced nurses may be more focused on career advancement. However, these differences do not necessarily directly lead to disparities in occupational burnout, as individual psychological qualities are influenced by various factors.

In terms of length of service, the P-value for the exhaustion dimension is 0.066, for depersonalization it is 0.001, and for personal accomplishment, it is 0.000. The research results indicate that with increasing length of service, nurses may accumulate extensive clinical experience and professional skills, becoming more adept at handling various medical situations, thereby reducing emotional exhaustion and low personal accomplishment resulting from work difficulties. Nurses with longer service records often exhibit a stronger sense of responsibility and confidence in their work. They may be more familiar with work processes and possess enhanced capabilities in dealing with unexpected situations, thus alleviating the level of occupational burnout. As nurses progress in their careers with increasing length of service, they may also develop a relatively stable professional positioning and planning, gaining a clearer understanding of their career development. This may enhance their work enthusiasm and sense of accomplishment, ultimately reducing levels of occupational burnout (Jarosz, 2022).

Regarding professional title, the P-value for the exhaustion dimension is 0.280, for depersonalization it is 0.122, and for personal accomplishment, it is 0.017. The research findings show that professional title only has an impact on the personal accomplishment dimension. This aligns with the research of (Xie, 2021), indicating that nurses with higher professional titles often possess more extensive clinical experience and professional skills, potentially achieving greater accomplishments in their work, hence having higher levels of personal accomplishment. The promotion of professional titles often requires nurses to have a certain academic background and research ability, involving themselves in research projects and academic exchanges. These activities may enhance the personal sense of accomplishment for nurses, enabling them to achieve more in their career development. Nurses with higher professional titles often take on more clinical responsibilities and management tasks, which may also lead to a greater sense of accomplishment in their work, thereby reducing levels of burnout in the personal accomplishment dimension.

This study demonstrates that, in terms of work department, the P-value for the exhaustion dimension is 0.001, for depersonalization it is 0.030, and for personal accomplishment, it is 0.639. Specifically, nurses in the Emergency Department (ED) and Intensive Care Unit (ICU) tend to experience higher levels of exhaustion, whereas nurses in the Outpatient Department and regular wards tend to have lower exhaustion scores. This is consistent with the findings of domestic scholars (Wang, 2021). Different departments exhibit significant variations in work nature and environment, which may directly impact the levels of occupational burnout experienced by nurses. High-risk departments like the ED and ICU may face more intense and high-pressure work environments, which can lead to a decrease in emotional exhaustion and personal accomplishment. Workloads and tasks also significantly differ across departments, potentially influencing the emotional experiences and attitudes of nurses. Departments such as the ED and ICU may need to deal with emergency situations, requiring quick decision-making and handling, which may increase emotional pressure on nurses.

Table 8*Correlation Matrix of the Variables of the Study*

	Stress			Burnout		
	rx _y	P-value	Interpretation	rx _y	P-value	Interpretation
Psychological Capital	-0.274	.000	HS	-0.191	.0000	HS
Stress	-	-	--	0.316	.000	HS
Burnout	0.316	.000	HS	-	-	-

Legend: Relationship is significant at 0.05 alpha level

Table 8 displays the relationships between nurses' psychological capital, stress, and burnout. As observed from the table, there was a negative correlation between psychological capital and work-related stress ($r=-0.274$, $P=0.000$), as well as between psychological capital and burnout ($r=-0.191$, $P=0.000$), while work-related stress showed a positive correlation with burnout ($r=0.316$, $P=0.000$). Therefore, all calculated P-values were less than 0.05. The results of this study demonstrated a correlation coefficient of $r=-0.191$ ($P=0.000$) between psychological capital and burnout, indicating a negative correlation between nurses' occupational burnout and their psychological capital. In other words, higher levels of psychological capital are associated with lower levels of occupational burnout, aligning with the findings of other scholars (Liu, 2021).

Occupational burnout refers to a negative emotional state and attitude that arises in the workplace, encompassing emotional exhaustion, lack of enthusiasm, and reduced engagement in work. Conversely, psychological capital is a positive psychological resource, including confidence, resilience, optimism, and self-efficacy, which assist individuals in coping with stress, enhancing mental well-being, and improving job performance. The positive mindset and psychological qualities within psychological capital can aid nurses in more effectively addressing professional stress and challenges. For instance, possessing high levels of confidence and self-efficacy can make nurses more resilient in the face of difficulties and setbacks, instilling them with confidence to overcome challenges, thereby mitigating the negative impact of occupational stress (Li, 2019). Furthermore, optimism has been shown to be associated with better coping abilities and psychological adaptability, enabling nurses to approach difficulties and challenges in their work more positively, thereby reducing the occurrence of occupational burnout.

Psychological capital can enhance nurses' job satisfaction and sense of well-being, thereby mitigating the occurrence of occupational burnout. Research indicates that having higher psychological capital can promote individuals' active involvement and participation in their work, leading to increased job satisfaction and reduced occurrence of occupational burnout. Psychological capital can inspire nurses to realize their potential in their work, better achieving a sense of self-worth, and ultimately reducing the incidence of occupational burnout. Psychological capital also exerts a positive influence on the mental health of nurses, reducing the occurrence of negative emotions such as anxiety and depression. Possessing a positive mindset and psychological capital can make nurses more optimistic and resilient, enhancing their ability to resist negative emotions, thereby reducing the risk of occupational burnout (Tang, 2023).

The negative correlation between nurses' occupational burnout and psychological capital may stem from the positive role of psychological capital in coping with professional stress, enhancing job satisfaction, and promoting mental well-being. Psychological capital provides nurses with a positive mindset and psychological qualities, enabling them to better handle challenges in their profession, thereby reducing the risk of occupational burnout.

As vital members of the healthcare team, nurses bear significant responsibilities such as caring for patients and ensuring the quality of healthcare. However, this also means that nurses often face a variety of pressures in their work. The results of this study revealed a correlation coefficient of $r=-0.274$ ($P=0.000$) between psychological capital and work-related stress, indicating a negative correlation between nurses' psychological capital and the work-related stress they experienced. In other words, higher levels of psychological capital were associated with lower levels of work-related stress experienced by nurses.

The positive mindset and psychological qualities within psychological capital equip nurses with a positive attitude and mindset to face work-related stress. For instance, confidence empowers nurses to confidently confront various challenges and difficulties in their work, resilience instills them with perseverance, optimism enables them to approach adversity positively, and self-efficacy strengthens their trust in their own abilities, believing that they can effectively accomplish their tasks (Yao, 2022). These psychological qualities enable nurses to face various pressures in their work with calmness and confidence, thereby reducing the negative impact of work-related stress on their mental well-being. Psychological capital contributes to enhancing nurses' emotional regulation abilities, enabling them to better handle challenges in areas such as emotional communication in their work. Nurses need to maintain rationality and composure in their communication with patients and their families, while also expressing care and support for patients. This requires nurses to possess strong emotional management abilities. Having higher levels of psychological capital enables nurses to better control their emotions, engage in effective emotional communication, and alleviate the negative impact of emotional communication on their mental well-being (Du, 2022). Psychological capital also aids in boosting nurses' self-efficacy and self-motivation, enabling them to actively engage in their work. High levels of self-efficacy make nurses believe in their ability to perform their job tasks, leading to greater involvement and a more positive approach to work, thereby mitigating the negative impact of work-related stress. Additionally, psychological capital can stimulate nurses' intrinsic motivation, instilling them with a sense of work motivation and purpose, making them more proactive in facing various challenges in their work (Hao, 2020).

This study further revealed a correlation coefficient of $r=0.316$ ($P=0.000$) between nurses' burnout levels and work-related stress, indicating a positive correlation between nurses' occupational burnout and the stress they experience in a highly demanding work environment. The work environment is one of the crucial factors contributing to the positive correlation between nurses' occupational burnout and work-related stress. Healthcare institutions are typically high-intensity, high-risk workplaces where nurses need to handle various medical tasks in a busy medical environment while ensuring healthcare quality and safety (Yuan, 2023). This high-pressure work environment may impose a heavy psychological burden on nurses, increasing the occurrence of occupational burnout. Nurses may also face certain work-related stress in their emotional communication with patients and their families. Nurses need to handle the emotions of patients and their families, including understanding, comforting, and supporting them. This requires nurses to possess strong emotional management abilities, but it may also subject them to emotional fatigue and emotional pressure (Cecere, 2023). Extended working hours are another factor contributing to the positive correlation between nurses' occupational burnout and work-related stress. Nurses often work in shifts and may need to work at night or on weekends, which may affect their circadian rhythms and quality of life, adding to their work-related stress (Chen, 2020). The mental health status of individual nurses may also affect their ability to cope with work-related stress. Mental health issues such as anxiety and depression may make nurses more susceptible to work-related stress and increase the risk of occupational burnout (Liu, 2019).

Table 9

Regression Analysis of Stress and Psychological Capital on Burnout

Predictor Variable	Dependent Variable	Beta	p-value	Interpretation
Stress	Burnout	.286	.000	Predictor
Psychological Capital	Burnout	-.112	.002	Predictor

Legend : $R=0.334$, $R^2=0.112$, $F=46.487$ · $P=0.000$

Table 9 shows the significant predictor of burnout. A multiple regression analysis was conducted with nurses' psychological capital and work-related stress as independent variables, and nurse burnout as the dependent variable. The results presented in Table 9 indicated that the regression equation for nurse burnout was statistically significant. The regression analysis provides valuable insights into the relationships between psychological capital, work-related stress, and occupational burnout. In this analysis, the regression coefficient for psychological capital was -0.112, while the coefficient for work-related stress was 0.286, with an R-squared value of 0.112.

The study demonstrated that psychological capital played a positive role in the work environment. The regression coefficient of -0.112 indicated a negative correlation between higher levels of psychological capital and lower levels of occupational burnout. This suggested that employees with higher levels of psychological capital were more likely to maintain a positive attitude, sustained engagement, and mitigated the degree of occupational burnout in their work. Psychological capital encompasses elements such as hope, optimism, self-efficacy, and resilience. These factors aid employees in facing challenges and maintaining an optimistic outlook, ultimately enhancing motivation and well-being at work. Prospective research also indicates a positive correlation between psychological capital and employee performance and satisfaction (Hu, 2019).

Work-related stress plays a crucial role in occupational burnout. The regression coefficient of 0.286 indicated a positive correlation between an increase in work-related stress and a higher level of occupational burnout. This finding aligns with previous research, where high levels of work-related stress often lead to the emergence of occupational burnout (Shao, 2023). Work-related stress may stem from increased workload, time pressure, urgent tasks, among other factors. When employees experience excessive pressure, they may feel fatigued, lose motivation, and may even experience emotional and health issues (Ji, 2020). The model's R-squared value of 0.112 suggests that psychological capital and work-related stress account for 11.2% of the variance in occupational burnout. While this explanatory power may not be high, in social science research, particularly in matters concerning human behavior and psychology, models with R-squared values between 10% and 30% are common. The regression analysis results of this study indicate that both psychological capital and work-related stress play significant roles in the formation of occupational burnout. Enhancing psychological capital can assist employees in better coping with challenges and maintaining a positive attitude, thereby alleviating the extent of occupational burnout. However, high levels of work-related stress may have a negative impact on occupational burnout. Therefore, organizations and managers should take measures to alleviate employees' work-related stress and maintain a healthy and stable work environment.

Proposed a mental health education program

The researcher were able to proposed a mental health education program as an intervention aimed at promoting the psychological capital level of clinical nurses, reducing work stress, and alleviating burnout. These interventions primarily focus on enhancing participants' mental health through the implementation of intervention plans. The reduction of nurses' work stress is not only crucial for individual psychological well-being and job satisfaction but also directly impacts the quality of patient care and overall healthcare services. By implementing nurse intervention plans to enhance psychological capital, it is possible to effectively alleviate work stress, promote a healthy work environment, and provide nurses with better development opportunities and work experiences. Such intervention plans benefit not only the individual growth of nurses but also have profound implications for the overall quality and sustainable development of healthcare services.

In terms of psychological capital, intervention plans play a crucial role at multiple levels and hold profound significance. Their effective implementation helps improve nurses' mental health, strengthen their ability to face professional challenges, and contribute to the formation of a healthier and more resilient medical team. Through psychological education and training, the plan provides clinical nurses with knowledge and skills related to stress management, emotional regulation, and self-care. This enhances nurses' awareness of their psychological well-being, enabling them to better understand and effectively cope with work-related stress. This positively impacts nurses' psychological burden, reduces stress during patient care, and improves the quality of healthcare services. Establishing a psychological support system and groups aids in building a collaborative and supportive work environment where nurses can share difficulties and experiences, fostering closer teamwork. This not only alleviates individual psychological burdens but also promotes knowledge and experience sharing, enhancing the overall efficiency of the medical team. A team with robust psychological capital is more likely to cope resiliently with stress and challenges, elevating the overall quality of healthcare services.

The intervention plan includes personalized career development plans to inspire nurses' professional

motivation and sense of purpose. This individualized care and support help nurses find their direction in their careers, offering effective guidance for achieving professional goals. This positively impacts nurses' job satisfaction, promotes their career development, and reduces employee turnover. Successful implementation is reflected in various outcome indicators, including increased levels of psychological capital, enhanced teamwork and support, and improved job satisfaction. These positive effects not only benefit the individual psychological health of nurses but also create a virtuous cycle within the entire medical team, enhancing the overall quality of healthcare services.

The strategies employed to achieve these goals involve consultation, lectures, and seminars. Consultation addresses specific issues faced by participants with special conditions, either through one-on-one or group sessions. Lectures and seminars serve as strategies to help participants gather essential information and enhance psychological capital. Participants include nurses from various clinical departments, psychologists/mental health professionals, and speakers with extensive backgrounds and experience in interpersonal communication. Success indicators include the execution of personalized career development plans, positive feedback from nurses regarding psychological support measures, enhanced teamwork and support, and improvements in job satisfaction and turnover rates.

Another focus of the intervention is to reduce nurses' work stress. Given the inevitable stress faced by nurses during their work, it is essential to provide regular psychological counseling for less experienced nurses, helping them learn self-regulation in daily work. Positive measures such as travel and exercise can assist nurses in resisting and regulating stress. Management personnel should actively show concern for nurses, understand their psychological feelings during work, actively guide negative emotions, and help them release stress.

Clinical nursing involves high job risks and requires extensive training for nurses to master nursing knowledge and skills. The intervention plan suggests using one-on-one mentoring and scenario-based teaching to organize learning sessions for less experienced nurses on specialized theoretical knowledge and operational skills. Regular training sessions on new knowledge, thoughts, and skills should be provided to enhance their nursing skills, emergency event handling capabilities, work confidence, and pride, thereby reducing psychological pressure. Additionally, establishing social support systems is crucial. Studies indicate that healthcare workers' mental health directly affects the quality of healthcare services, and the level of social support directly influences their mental health. Interventions in this area protect individuals under pressure, maintain good emotions, and help individuals find effective social support to alleviate work stress.

Interpersonal relationships, a unique human need, are complex for clinical nurses and involve relationships between nurses, nurses and doctors, and nurses and patients. Managing these relationships not only aids in the smooth completion of daily work but also reduces work-related stress and negative emotions. Building relationships between nurses is crucial, promoting mutual understanding and cooperation, increasing camaraderie, and improving work efficiency, ultimately reducing conflicts and stress (Bautista, 2020). Encouraging experienced nurses to guide and help less experienced ones effectively reduces stress and burnout, easing the overall pressure. Additionally, improving the critical care unit's practice environment and optimizing office equipment can reduce stress, increase nurses' work engagement, and enhance the overall quality of healthcare services (Li, 2019).

Lastly, in addressing burnout, the goal is to help clinical nurses establish the right career perspective, adjust their work status, cultivate a positive sense of responsibility, enhance ownership consciousness, achieve objective self-assessment, improve adaptability, strengthen psychological construction, and establish effective mechanisms for expression and communication. Nurses should strengthen their awareness of career planning from the beginning of their tenure, initiate career behaviors, improve professional literacy, and continuously refine long-term career plans. According to their professional skills, interests, knowledge, and personal experience, nurses should determine their career goals, strive for them, realize their life values, and increase job satisfaction (Ashley, 2018). Additionally, nurses need to learn self-regulation and develop effective work

methods, set clear work goals, implement feasible plans, arrange reasonable rest times, and alleviate burnout through reading, exercise, or counseling.

Firmly establishing the correct medical concept, adjusting psychological expectations, and improving work mentality are crucial. In the face of difficulties and repetitive work, nurses must actively cultivate selfless love and dedication to medical careers. Concurrently, ongoing learning of professional knowledge is essential to enhance healthcare quality and service levels. Regularly recognizing signs of burnout, learning emotional regulation and psychological adjustment, and eliminating professional burnout problems are vital (Costin, 2023). Furthermore, fostering a sense of ownership and learning from role models helps establish a sense of belonging, reinforcing recognition of the hospital, and promoting professional development.

Self-cognition involves an objective analysis of clinical nurses' professional abilities, psychological qualities, professional concepts, and career development prospects. Nurses should possess self-reflection awareness, use professional evaluation scales and methods to objectively assess their professional levels, coordinate the relationship between career development and self-pursuit, and control the possibility of professional burnout. Efforts should be made to improve professional quality and technical level, enhance work capacity and emergency event coping abilities, and boost work confidence by cultivating innovation consciousness, spirit, and ability. Strengthening hands-on practice ability, fostering good communication skills, and adapting to competition within the medical market can help nurses cope with various challenges in their careers. Hospitals should provide clinical nurses with timely channels to vent negative emotions, offer sincere understanding and care, establish trust relationships, conduct regular investigations into nurses' professional burnout, understand their psychological environment, and guide them to express emotions in a normal way to alleviate anxiety and depression. Promoting institutional reform, building a psychological intervention system, improving organizational structure, and promoting professional development for clinical nurses are essential. Conducting professional psychological interventions, such as setting up counseling rooms and online counseling for nurses, promptly answering nurses' psychological "difficulties," and helping nurses relieve psychological counseling stress, eliminate psychological barriers, and control the occurrence of professional burnout (Lee, 2023).

5. Conclusions and recommendations

The majority of nurses participating in the study were female, with 87% being under the age of 40. Most of them were married and held primarily junior and intermediate professional titles which suggested a potential generational shift in the nursing profession where younger nurses could bring different perspectives, values, and priorities to the workforce compared to older generations. Most nurses possessed a moderate level of psychological capital, experienced high levels of work-related stress, and exhibited a moderate level of burnout which means that Nurses in this study walk a tightrope. For they manage moderate levels of burnout despite high work-related stress. Differences in nurses' psychological capital were observed in variables such as age, marital status, length of service, professional title, and department. Work-related stress only exhibited differences in the department variable, while burnout showed differences in age, length of service, professional title, and department variables. There was a negative correlation between nurses' psychological capital and their work-related stress, as well as a negative correlation between nurses' psychological capital and their burnout. On the other hand, there is a positive correlation between nurses' work-related stress and their burnout. Nurses' psychological capital and work-related stress accounted for the variance in burnout, playing crucial roles in the formation of nurse burnout. Enhancing nurses' psychological capital and reducing work-related stress can effectively reduce the occurrence of nurse burnout. A proposed comprehensive mental health education program, was developed in improving psychological capital, alleviating work stress and burnout of the clinical nurses.

Clinical nurses may cultivate a positive mindset and adaptability through self-awareness, participate in mental health training, enhance their psychological capital, and better face work stress. Family support is crucial, and it is recommended that nurses may maintain communication with their families, jointly develop family plans that are conducive to rest and relaxation, create a warm family atmosphere, and help alleviate work stress.

Human Resource manager of the hospital may organize activities that would further develop nurses advocacy for teamwork, mutual support, sharing work experience together, establishing positive colleague relationships through encouragement and recognition, and reducing the psychological burden brought by work. Hospital managers may pay attention to the mental health of nurses, provide mental health resources and training, develop flexible work arrangements, and establish effective communication mechanisms to improve job satisfaction and reduce fatigue. Society may strengthen respect and recognition for nurses, promote the importance of nursing profession through promotional activities, create a supportive social environment, and reduce external pressure faced by nurses. Future researchers may conduct in-depth research on the factors influencing the mental health of nurses, develop more innovative mental health intervention plans, promote research on mental health management in the nursing field, and provide more effective support strategies for the future. The proposed mental health education program may be checked, thoroughly reviewed, and validated by experts like psychologists and mental health professionals before its implementation.

6. References

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