

Factors Associated with Caring Abilities of Medical-Surgical Nurses in Selected Hospitals in Shandong, China

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ABSTRACT

Background: The caring ability of nurses refers to their ability to care for, help, and take care of patients. Currently, due to the shortage of nursing human resources, nurses face high work pressure, and are generally lacking in emotional intelligence and self-regulation fatigue, which affects the nursing services they provide. **Objective:** The aim of this study is to identify the relevant factors associated with the nursing ability of nurses in the internal medicine and surgery wards of some hospitals in Shandong Province, clarify the relationship between nurses' emotional intelligence, self-regulation fatigue, stress, and caregiving ability, and provide reference for improving the quality of clinical nursing services. The sample size of this study is still relatively small, and the participants come from some hospitals in Shandong, which is a limitation and area for improvement in this study. **Methods:** A descriptive correlational study will involve 377 registered nurses who will be recruited via purposive non probability sampling. It will start in December 2024 and end within October 2025. The variables (emotional intelligence, self-regulatory fatigue, stress, and caring abilities) will be measured through research instruments, namely the Jefferson Nursing Student Physician-Patient Empathy Scale, Selective Caring Competency Scale, Walker and Avant's Conceptual Analysis Strategy, and Law's Emotional Discussion Scale. Descriptive statistics (mean, standard deviation, frequency, and percentage) and inferential statistics (Pearson r , Spearman ρ) will be used for data analysis.

KEYWORDS

Caring abilities; Emotional intelligence; Self-regulatory fatigue; Stress

1. INTRODUCTION

The essence of nursing is the ability to care for a designated patient. Clinical studies have shown that if nurses have good caring ability, they can help patients recover and improve the overall quality of nursing care (ANEF et al., 2019). Whether clinical nurses can provide more humanized clinical nursing services to the majority of patients directly affects the physical and mental health of patients and the nurse-patient relationship. Therefore, only by improving the caring ability of nurses can they provide patients with humanized clinical nursing services and enhance the quality of clinical care. Studies have shown that the primary factor in the escalation of doctor-patient disputes is the lack of caring ability of medical staff during the diagnosis and treatment process (Arezoo et al., 2023). At present, with the rapid development of medical technology, healthcare personnel are increasingly dependent on advanced medical technology and diagnostic and therapeutic equipment. As a result, the original human (doctor or nurse)-human (patient) relationship has shifted to a human (doctor or nurse)-machine relationship. This shift has led to patient-physician communication being replaced by

indifference between humans and machines (Botrugno et al., 2019), which has contributed to the lack of caring ability of healthcare personnel during the diagnosis and treatment process.

In clinical work, nurses need to provide patients with safe, comfortable, and effective nursing services. Nurses should strengthen the learning and improvement of professional knowledge, pay attention to their own cultivation, and strengthen the construction of medical ethics (Chen, 2018). In nursing work, they should respect every patient so that each one can feel the care and warmth of the nurse. Nurses must actively cooperate with doctors to complete a variety of treatment and nursing operations, assist doctors with preoperative and postoperative preparations, and carefully observe changes in the patient's condition. Timely detection and treatment of changes in the condition increase the pressure on the nurses (Cheung et al., 2020). A recent domestic study included 459 nurses and showed that occupational stress among nurses is positively correlated with psychological distress and negatively correlated with quality of life. Psychological distress partially mediates the relationship between occupational stress and quality of life, while neuroticism plays a regulatory role in the relationship between occupational stress, psychological distress, and quality of life, reflecting that occupational stress among clinical nurses directly reduces their quality of life or indirectly reduces their quality of life through psychological distress (Ren et al., 2024). Another recent study has shown that the symptoms of emotional exhaustion are more common among clinical nurses. Work pressure can directly affect emotional exhaustion through the mediating effects of thinking inhibition and emotional regulation difficulties. This indicates that the high work pressure on nurses can easily lead to emotional exhaustion, preventing them from providing higher quality nursing services (Chen et al., 2023). A foreign study shows that adverse job characteristics in clinical practice, such as high workload, low nursing staffing levels, and long shifts, can affect nursing burnout, which is detrimental to both nurses and patients. This study reflects that work pressure affects nursing services and is not conducive to providing better nursing care to patients, as it can easily lead to occupational burnout (J et al., 2020). Summarizing recent studies, it has been found that clinical nurses face occupational stress, which can reduce the quality of nursing services provided by nurses to patients and have adverse effects on nurses, such as occupational fatigue.

Nurses need more understanding and care from society and families. Nursing managers also need to provide support, actively guide, and cultivate nurses' ability to regulate and control their emotions, which plays a crucial role in improving nurses' nursing ability and quality (Dellafiore et al., 2021). Self-efficacy reflects a person's ability to feel, understand, utilize, express, control and regulate their own emotions and to manage emotional relationships with others. Clinical nurses have a high degree of recognition of professional values. It is recommended that managers carry out targeted training according to the different characteristics of nurses' perceptions of professional values, enhancing these values by improving the general self-efficacy of clinical nurses (Dellafiore et al., 2021). The nursing profession has a special relationship with society, but this relationship is only binding under achievable conditions that both parties can comply with. Society expects the best from individual nurses and midwives and from the profession as a whole (Ross et al., 2021). Society expects 'caring ability' to be at the heart of professional practice and for professional practice to be ethical, and professional practice to be competent, effective, and compassionate.

Emotional intelligence (EI) is one such personal trait and is increasingly being cited as having a potential role in medicine, nursing, and other healthcare professions. It has been suggested that EI is important for effective practice, especially in providing patient-centered care (Guo et al., 2020). Outside of healthcare, EI is widely recognized as an attribute that can improve the quality of work, productivity, and personal and organizational success. Of the small number of empirical evaluations that have been conducted, the focus has been on predicting academic or work-related outcomes (S et al., 2023). It has been argued that nursing staff with high levels of emotional intelligence have average levels of job performance; the higher the level of emotional intelligence, the better the job performance. Nursing managers should take appropriate measures to improve the level of emotional

intelligence of nursing staff, especially to enhance their ability to communicate with others, in order to improve job performance and establish a good nurse-patient relationship (Zhou et al., 2018).

Caring ability is the essence and core of nursing work, which is an important embodiment of quality care (Hui-juan et al., 2021). Clinical research results show that if nurses have good human caring ability, it is conducive to the patient's recovery and improves the nurse's professional skills (Kai et al., 2023). There are many facets to caring ability, and a single study may not be sufficient to identify the caring traits of clinical nurses. Determining the relationship between socio-demographic and job characteristics, stress, emotional intelligence, self-regulation, and caring attributes can illustrate the influence of each of these aspects on the caring competence of nurses. This understanding can reveal which factor has the most weight and help in making suggestions to enhance the caring competence of nurses. In the past, the primary focus was on treating diseases, but now the emphasis is on "people-centeredness," fully embodying the idea of people-centered nursing (Kong et al., 2021).

There is a significant positive correlation between occupational stress and occupational burnout (Qu, 2022). This reflects the relatively high occupational pressure of nursing staff, which has led to a high level of occupational burnout. Improving the occupational stress situation of nurses is conducive to providing better care for patients. A study pointed out that poor nursing quality can even pose a threat to patient safety. The study explored the current situation of self-regulated fatigue among nurses through a questionnaire survey and analyzed its influencing factors. It was found that nurses are under high pressure, and managers can adjust their self-regulated fatigue status in a targeted manner. This is conducive to promoting nurses to enter clinical work in a harmonious and suitable state, providing patients with higher-quality nursing services, and giving patients better care (Zhang, 2021). The humanistic care ability and emotional intelligence levels of nursing staff for children with mental disorders are relatively low. Hospital nursing managers should enhance the humanistic care ability and emotional intelligence levels of nursing staff through appropriate education and training, with the aim of enhancing their humanistic care ability and emotional intelligence. Ultimately, it was found that emotional intelligence is an independent influencing factor of humanistic care ability (Xu, 2022), reflecting that high emotional intelligence can promote the improvement of nurses' humanistic care ability.

After collecting relevant literature both domestically and internationally in recent years, almost no reports have been found on the correlation between nurse stress, self-regulation fatigue, emotional intelligence, and nurse caring ability. Most reports focus either on nurse stress, self-regulation fatigue, and care ability, or on nurse emotional intelligence and caring ability. After summarizing and organizing these domestic and foreign sources, it was found that nurses currently face significant pressure, and their level of self-regulation fatigue needs improvement. Enhancing their ability to cope with stress and self-regulation fatigue is beneficial for nurses to provide patients with higher quality care. At the same time, the emotional intelligence of nurses needs improvement. Nurses' emotional intelligence affects their expression of humanistic care ability, which means that improving their emotional intelligence will enhance their caring ability. Nurses need to place patients at the center, care for them, strengthen communication with them, and develop strong caring abilities. By integrating high emotional intelligence into their work, nurses can improve their ability to self regulate fatigue and resist stress, which is beneficial for both the nurses themselves and for providing better care to patients.

2. STUDY OBJECTIVES

2.1. General Objective

The aim of this study is to determine the correlates, known as factors, of the caring ability of medical-surgical ward nurses in selected hospitals in Shandong Province, China.

Guided by the overall objective, the study aimed to answer the following:

- (1) To describe the respondents' socio-demographic profile (sex, age, position in the family, marital status, number of children, educational level) and work characteristics (department, work position, years of work experience, mode of employment, monthly income, number of assigned patient on a regular basis, number of night shifts each month, presence of standardized education and training on caring ability).
- (2) To describe the respondents' caring abilities in terms of (a) support and assurance, (b) knowledge and skills, and (c) respect and connection.
- (3) To describe the respondents' stress in terms of (a) nursing profession and work, (b) workload and time allocation, (c) work environment and resources, (d) patient care, (e) management, and (f) interpersonal relationship.
- (4) To describe the respondents' self-regulatory fatigue in terms of (a) cognitive control, (b) emotional control, and (c) behavioral control.
- (5) To describe the respondents' emotional intelligence in terms of (a) self-assessment of emotions, (b) self-adjustment of emotions, (c) self-use of emotions, and (d) assessment of emotions of others.
- (6) To determine whether the factors (socio-demographic and work characteristics, stress, self-regulatory fatigue, emotional intelligence) are correlated with the respondents' caring behaviors.

3. REVIEW OF RELATED LITERATURE

Caring ability: The ability to care includes the following elements: recognizing that human beings are not only material beings, but also spiritual and cultural beings; recognizing the core or dominant position of human beings in promoting social development and realizing one's own development; recognizing the value of human beings and pursuing the unity of human beings' social and personal values, which is both a means and an end; respecting the subjectivity of human beings; caring for the multi-faceted and multi-level needs of human beings, not only caring for their material needs, but also their spiritual and cultural needs, and focusing on their self-development and self-improvement (Kostich et al., 2021). Caring ability refers to the nursing staff's ability to provide personalized and humanized nursing services in medical and nursing work by paying attention to the physiological and psychological needs of patients, with the aim of promoting patients' recovery and improving their quality of life. Patients face a great deal of physical and psychological stress during illness, and caregivers should provide positive emotional support to encourage patients to actively face the illness, reduce mental stress, and make them feel cared for and understood (Li Jing, 2020). Caregivers can appropriately chat and joke with patients, imparting positive energy to them and making them feel comfortable and relaxed (Li et al., 2020). They need to have certain communication skills in order to communicate effectively with patients. Carers should listen to patients' needs and concerns, give them professional advice and guidance, respect their choices and decisions, communicate constantly with them, and enhance trust and friendship between them (Luna et al., 2021).

Stress: With the transformation of the medical model and the improvement of patients' health requirements, nursing work is increasingly focusing on the improvement of nursing ability. In clinical work, nursing staff should prioritize patients, which undoubtedly increases the pressure of nurses. Nurses who excel at communicating and sharing emotions with patients create a positive hospitalization environment, thus improving patients' quality of life (Ma, 2023). Nurses also need to actively cooperate with doctors to complete various treatments and nursing operations, assist with preoperative and postoperative preparations, and carefully observe and respond to changes in patients' conditions. These responsibilities increase the pressure on nurses but are essential for providing patients with safe, comfortable, and effective nursing services (Ma, 2023). Nurses should continually enhance their professional knowledge, focus on personal development, and uphold medical ethics (Meng, 2020). In nursing work, it is important to respect every patient, ensuring that every each one can feel the nurse's care and warmth.

Self regulatory fatigue: Caregivers can provide patients with relevant health knowledge and preventive measures, enabling them to understand their own condition and treatment process. This improves patient self-management, helps patients better understand disease and treatment patterns, and promotes recovery and health (Nicotera, 2021). During treatment, patients may experience pain, and caregivers can use medication or other non-medication methods to alleviate it. At the same time, the nursing staff should give full attention and care to patients, improve their comfort and making them feel warm and comforted (Özden et al., 2021). Patients need to ensure adequate nutrition and water intake during treatment to promote recovery and health. Caregivers can help patients maintain healthy eating habits by providing them with a nutritious diet program based on their physical condition and treatment needs, with appropriate food choices and cooking methods (Ross, 2021). In addition, the nursing staff should closely observe the patient's dietary status and nutritional intake and adjust the dietary plan in a timely manner to ensure that the patient's nutritional needs are met (Sun et al., 2019). Caregivers should provide a comfortable and quiet environment for patients to help them relax and promote their recovery and treatment outcomes. Depending on the needs and preferences of the patient, the nursing staff can provide some appropriate recreational activities and leisure facilities such as reading, television, music, etc. to make the patient feel relaxed and happy during treatment. Caregivers can provide patients with relevant health education and self-management skills, help patients understand the processes and methods of disease and treatment, master the necessary self-monitoring and treatment skills, and enhance patient self-care (Swanson, 2021). In addition, caregivers should also focus on the patient's family and social support system, working with the patient's family members and community health care facilities to provide comprehensive rehabilitation services and support (Tong, 2018). In short, nursing humanities care is a very important kind of nursing work that promotes patient recovery and improves patient quality of life. Caregivers should have certain expertise and skills to provide individualized, humanized care services that make patients feel cared for and understood in order to relieve their pain and mental stress and improve their recovery and treatment outcomes (Wang et al., 2022).

Emotional intelligence: To implement humanized nursing, emotional intelligence is crucial, which is to integrate professional knowledge and skills into nursing services. It requires nurses to have good professional and psychological qualities, a solid theoretical foundation, excellent professional skills and a high level of business (Wright et al., 2020). In work, nurses have to care for patients with love, be considerate of them, guide and educate them correctly, so that they can get psychological and spiritual satisfaction in the process of treatment, thus enhancing their confidence in overcoming diseases (Xu, 2021). Hospitals implement humanized management of patients, and nurses must start with small things, using emotional intelligence to treat every patient with kindness, warmth, enthusiasm, patience, and a meticulous attitude. The transformation of the medical model from the biomedical model to the bio-psycho-social medical model requires nurses to update their concepts and establish the service concept of "people-oriented" (Zhang et al., 2021). Modern nursing work has undergone great changes in terms of work content and methods (Zhou et al., 2018).

Factors affecting caregiving ability: A study pointed out that incorporating emotional intelligence training for nurses into nursing management plans has achieved good results, improved patient satisfaction rates, and avoided and resolved nurse-patient disputes. From July 2002 to July 2003, patient satisfaction rates reached over 98% (through outpatient surveys), and the efficiency and quality of nursing work has also improved. Another study found a positive correlation between nurse emotional intelligence (empathy, emotional adjustment, emotional application, and self emotional perception) and patient satisfaction (Molero et al., 2019). A study found that the self-efficacy of nurses in occupational coping is negatively correlated with occupational stressors and positively correlated with core competencies. Through successful experiences, verbal persuasion, and positive feedback, nurses can improve their self-efficacy, enhance their core competencies, reduce their stress, and ultimately improve nursing quality. A research also found that there is a negative correlation between nurse occupational coping self-efficacy and occupational stressors, and a positive correlation between nurse occupational coping self-efficacy and core competencies. Summarizing previous

literature, it was found that the care ability (caring ability), emotional intelligence, self-efficacy (self-regulation fatigue), and occupational stress of clinical nurses mutually influence each other, with a positive impact on each other except for occupational stress. Improving the care ability, emotional intelligence, and self-regulation fatigue of clinical nurses, while controlling occupational stress, is beneficial for improving nursing quality.

Conceptual Framework: Nursing ability affects the ability of nurses to work, and excessive stress has led to a lack of nursing ability in some health care workers. Basic psychosocial functions and work characteristics are important components of patient care. Self-regulation of nursing ability can be considered a special skill of clinical nursing staff. Emotional intelligence can show more than just technical operations; it helps care for patients in a way that makes them feel the warmth of the hospital, reflects the quality of nursing services, and promotes recovery (Arnsten et al., 2021). "Caring ability" refers to the application of caring skills in clinical nursing operations. The study of the caring ability of clinical nurses has become a hot topic in nursing research (D'Souza et al., 2020). It is necessary to review the current status of research both domestically and internationally to provide references for researchers.

The theoretical framework of planned behavior theory mainly includes behavioral intention, behavioral attitude and beliefs, subjective norms and normative beliefs, and perceptual behavioral control (Secginli et al., 2021). There have been no previous reports linking the theoretical framework of planned behavior theory with nurses' stress, self-regulation fatigue, emotional intelligence, and caring abilities, which is the innovation of this study. This study aims to determine whether there is a correlation between the caring ability of nurses, based on the theory of planned behavior, and their self-regulation fatigue, stress resistance, emotional intelligence, and other factors, and to draw corresponding conclusions.

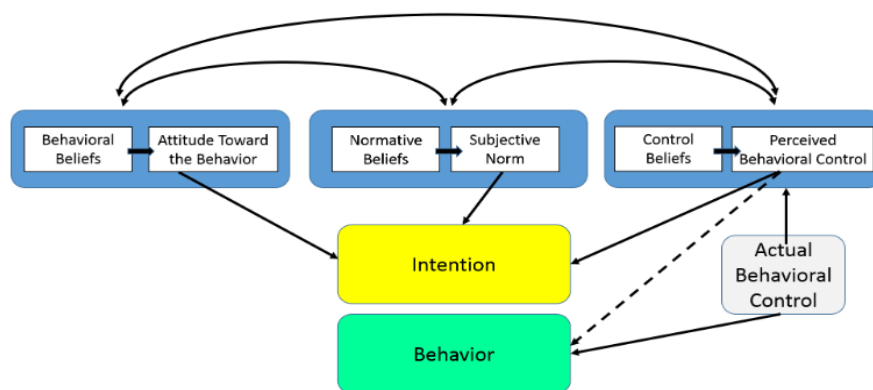


Figure 1. Framework of Theory of Planned Behavior

The Orem self-care theory is organized around the goal of nursing, which is to maximize the maintenance and promotion of patient self-care (Yayla et al., 2023). It includes three related theoretical structures: self-care theory structure, self-care deficit theory structure, and nursing system theory structure. It evaluates the patient's self-care situation, identifies the patient's self-care deficit problem, and conducts nursing interventions to achieve a balance between the patient's self-care ability and self-care needs. There have been no previous reports linking the theoretical framework of Orem's self-care theory with nurses' stress, self-regulation fatigue, emotional intelligence, and caring abilities, which is the innovation of this study. This study aims to determine whether there is a correlation between the care ability of nurses based on Orem's self-care theory and their self-regulation fatigue, stress resistance, emotional intelligence, and other factors, and to draw corresponding conclusions. The theoretical framework is as follows.

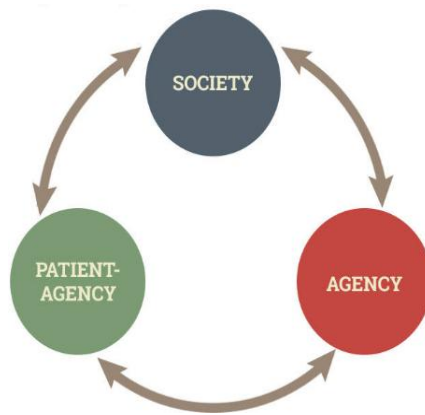


Figure 2. Framework of Orem's Self-Care Theory

The study's conceptual framework is based on the understanding of the theory of planned behavior and Orem's self-care theory. Sociodemographic and work characteristics, stress, self-regulation fatigue, and emotional intelligence can all affect the caring attributes of nurses, that is, the level of nursing care provided. Reflecting changes in nurse stress, self-regulation fatigue, and emotional intelligence can affect changes in caring attributes.

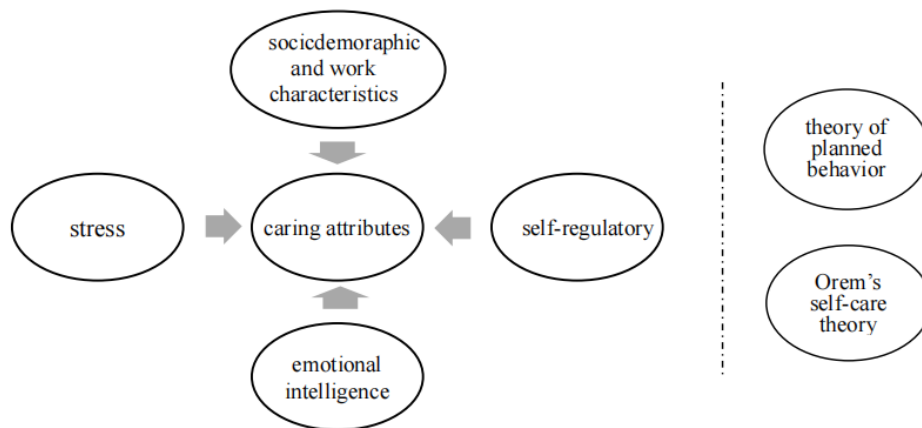


Figure 3. Study's Conceptual Framework

There have been no previous reports on the relationship between nurses' emotional intelligence, self-regulated fatigue, stress, and caregiving ability. In addition, this study is based on the Theory of Planned Behavior and Orem's Self Care Theory, which have not been reported domestically or internationally. This study is innovative. The sample size of this study is relatively small, and the samples were sourced from some hospitals in Shandong, which may introduce some bias and be a limitation. This study has certain clinical significance and is likely to improve participants' understanding of stress levels, emotional intelligence, and self-regulation abilities. The insights gained from this study will contribute to the professional development of nurses in some hospitals in Shandong province. This study is likely to attract the attention of relevant departments in hospitals and improve the working environment for nurses. In the future, there may be more research in this direction to help improve the working environment and stress of nurses, and to improve the quality of clinical nursing.

4. METHODS

4.1. Study Design and Locale

The study will employ a descriptive correlational design to determine whether the variables, known as correlates, significantly influence the caring ability of nurses. It will be conducted among nurses

in Shandong Provincial Hospital, Qilu Hospital and Qianfoshan Hospital. These three hospitals are the best tertiary general hospitals in Jinan City, Shandong Province, China, which are very comprehensive and the competence of their surgical nurses can represent the entire Jinan City or even the whole of Shandong Province (Jinan City is the capital city of Shandong Province).

4.2. Study Participants

4.2.1. Sample Size and Sampling

Utilizing purposive sampling, all nurses satisfying the criteria set are qualified to participate in the study.

4.2.2. Inclusion and Exclusion Criteria

The researchers will include clinical nurses from these three tertiary care hospitals, aged between 18-59 years old, who have had at least one year's clinical experience in medicine or surgery and are working in the hospitals during the study period. As a complete list of nurses in the hospitals is not available for this study, the researchers will attract respondents through purposive sampling. Only those who consent to participate will be included in the study.

The following will be excluded: those who are interns or probationary nurses, those who are nursing administrative staff, those who are during special periods such as preconception or pregnancy or lactation, those who have worked in other medical-surgical jobs prior to the study. Using stratified sampling and simple random sampling methods to select samples, the number of nurses to be sampled is around 1100. All Nurses from the three hospitals satisfying the criteria set will be included as participants of the study.

4.3. Research Instruments

The back translation program is performed through the following steps: Preparation stage: Firstly, the translator needs to read the entire paper and understand its content. First translation: After sufficient preparation, the translator performs the first large-scale translation. The translation speed in this stage is relatively fast and the error rate is relatively high, but it lays the foundation for subsequent fine translation. Second translation and review: Conduct a second translation and conduct a comprehensive review and correction of the first translation. This process aims to improve translation efficiency while ensuring translation quality. Professional proofreading: After completing the basic translation, conduct professional proofreading. A dedicated proofreading team will perform final formatting on the translated manuscript to ensure the accuracy of the paper's content and format. Back translation test: Using the method of back translation to test the quality of the translation. By following the above steps, it is possible to ensure the accuracy and correctness of the translation in the paper, while further improving the translation quality through back translation methods, ensuring the professionalism and readability of the paper.

The research instrument is divided into five sections that include measurements of the respondents' socio-demographic and work profile, caring ability, stress, self regulatory fatigue, and emotional intelligence.

4.3.1. Socio-demographic and work profile.

A general information questionnaire is designed by the researcher based on relevant literature. The contents include: department of work, gender, age, whether the respondent is an only child, marital status, number of children, education level, years of working experience, title, classification of nurses, mode of employment, average monthly income, number of patients under regular care, average number of night shifts per month, whether the patient has received any training in humane care, average weekly exercise time, average daily sleep duration, and employment form.

4.3.2. Caring Abilit

Caring Ability Inventory (CAI) (Barranquero-Herbosa M et al., 2022). From the cited literature, the scale has a validity of 0.78 and a reliability coefficient of 0.84. The scale consists of three dimensions including support and reassurance, knowledge and skills, and respect and connection with 24 items. The scale is based on a 6-point Likert scale with scores ranging from 1 to 6, from "never" to "always", and total scores ranging from 24 to 144, with higher scores indicating better care provided by nurses. "Support and assurance involve supporting and understanding patients; knowledge and skills involve providing health education to patients, enabling them to understand the disease and learn self-care; and respect and connection involve fully respecting patients and strengthening communication with them."

4.3.3. Chinese Nurses Stressor Scale(Li S et al., 2024)

The scale was revised by Li Xiaomei et al. with reference to foreign scales and in light of China's national conditions. The scale consists of five dimensions, including nursing profession and work, workload and time allocation, work environment and resources, patient care, management and interpersonal relationship, with 35 items. Specifically, the Cronbach's alpha coefficients for internal consistency of the scale were 0.969, 0.936, 0.938, 0.872 and 0.943, respectively, indicating a high level of internal consistency among the scale and its dimensions. The overall Cronbach's alpha coefficient for the scale was 0.940 and the validity was 0.927. The scale is based on a 4-point Likert scale, with values ranging from "never encountered" to "almost every day" of 1 to 4 points. The total score ranges from 35 to 140 points, with higher scores indicating greater work pressure on the nurses. This scale has been widely used by researchers in related studies.

4.3.4. Self-Regulatory Fatigue Scale (Zhang Y et al., 2023).

The scale was developed by a foreign scholar and consists of three dimensions, including cognitive control, emotional control and behavioral control, with a total of 16 items. The scale is rated on a 5-point Likert scale, with higher scores indicating greater self-regulatory fatigue in nurses. The reliability of the scale is 0.846 and the validity is 0.820. Walker and Avant's conceptual analysis strategy found that role conflict has become an unavoidable problem in nurses' daily nursing activities due to the need for nurses to be continuously involved in patient care and the lack of cooperation from other nursing staff (Nicotera, 2021).

4.3.5. The Wong and Law Emotional Intelligence Scale (WLEIS) (Luna et al., 2021).

The WLEIS has four dimensions, each with four items; resulting in a total of 16 items. These dimensions include self-emotion assessment and expression (the ability to understand and express one's own deep emotions naturally), self-emotion management (the ability to regulate one's emotions and recover faster from mood swings and anxiety), self-emotional utilization (the ability to use emotions to direct oneself toward constructive activities and personal performance), and emotional recognition of others (the ability of individuals to perceive and understand the emotions of those around them). A 7-point Likert scale of 1-7 (from "completely disagree" to "completely agree") will be used. For the internal consistency of dimensions, Cronbach's alpha value ranges from 0.76 to 0.89, the validity is 0.85 to 0.91, and scores range from 16 to 112. Thus, emotional intelligence can be reliably measured using WLEIS scores. The higher the WLEIS score, the higher the level of emotional intelligence.

4.4. Specific Procedures Based on Study Objectives

Procedure 1: Communication Letters: The researcher plans to seek approval from the hospital to allow nursing staff to be included in the study. A formal letter will be submitted to the medical and nursing directors. Individual consent will be a part of the electronic questionnaire to obtain the permission of the respondents before proceeding with the electronic survey. The researcher plans to hire a coordinator if there is a need to follow up on respondents' responses.

Procedure 2: Floating of Questionnaire: The study questionnaire is designed based on previously published research articles. The researcher will develop an electronic questionnaire distributed to respondents with instructions for filling it out and obtaining the respondents' consent. The questionnaire will take approximately 30 minutes to complete. Create a questionnaire through Wenjuanxing. Distribute questionnaires through links and QR codes: after creating a questionnaire on the Wenjuanxing platform, the system will automatically generate a questionnaire link and QR code, share the link with the target group, or directly have the target group scan the QR code to access the questionnaire.

Procedure 3: Follow-up of Responses: A hospital visit or follow-up will be conducted if necessary to address expected issues such as low participation or queries regarding the survey. The questionnaire will be accessed and answered by respondents within a given period or until the sample size is reached.

4.5. Ethical Considerations

Researchers will obtain approval from the AUF-ERC before proceeding with data collection. The Ethics Review Board is responsible for evaluating the study and plays an important role in protecting the rights and welfare of human research subjects.

If participants have any questions or concerns about their rights and feel unable to discuss them with the researcher, they may contact the Angeles University Foundation Research Ethics Committee and Panel Chair using email provided below:

Dr. Dr. Bella G. Panlilio

Ethics Review Committee Head

ethicsreview@auf.edu.ph

4.5.1. Informed Consent Process, Duration of Participation, and Withdrawal Criteria

Informed consent involves disclosing information to participants regarding the study before they make an informed decision, facilitating understanding and promoting their voluntariness. Respondents can proceed answering the survey once they agree and sign the informed consent. Respondents can freely withdraw from the study without any questions and without potential loss of any benefits. The questionnaire will take approximately 30 minutes to complete. The process maintains the confidentiality of the respondent.

4.5.2. Risks and Inconveniences

There are no anticipated risks. Participation or non-participation in this study will have no impact on their current job.

4.5.3. Benefits of the Study

Respondents in this study will have the potential to expand their knowledge of humanistic care and use humanistic care to provide better treatment and services to clients.

4.5.4. Privacy, Confidentiality, and Data Management

The researcher is responsible for safeguarding the respondent's privacy and confidentiality in accordance with China Law Royal Decree M/19 of 9/2/1443H (16 September 2021); Cabinet Resolution No. 98 of 7/2/1443H (14 September 2021). The data that will be electronically stored and protected will not include the names of the respondents, ensuring that data analysis released for publication cannot be traced back to the respondents. The data will only be accessed by the research team for data analysis, stored as a computer file for one year after publication for reference, and then deleted. Data and statistics will be published and available for public access.

4.5.5. Conflict of Interest

The researcher does not see any conflicts of interest in this work.

5. STATISTICAL ANALYSIS OF DATA

The software SPSS 26.0 will be used to process the data. The study will make use of either Pearson r product moment correlation or Spearman rho, depending on data normality, using the Shapiro Wilk test. A p-value of less than or equal to .05 will be considered statistically significant. The measured data will be presented using descriptive statistics, specifically frequency and percentage mean, and standard deviation.

For minor psychological discomfort caused by stress or emotional experiences, the following measures can be provided to nurses: ① Give nurses about half an hour of alone time and teach them methods such as meditation and sitting to release negative emotions; ② Provide nurses with a separate, comfortable and quiet space, where relaxing music and exercise equipment can be played to alleviate their psychological discomfort. Provide nurses with a comfortable and quiet space, where they can choose a trusted colleague and use conversation to alleviate their psychological discomfort.

Participating in research may require some work or leisure time of nurses, which may cause inconvenience. So, some measures can be taken in this regard: informing nurses in advance of the research content that they need to cooperate with the next day, so that they have a clear understanding, and facilitating nurses to arrange their work for the next day in advance. Try to ensure that work and cooperation in research do not affect each other.

This study has certain clinical significance and is likely to improve participants' understanding of stress levels, emotional intelligence, and self-regulation abilities. The insights gained from this study will contribute to the professional development of nurses in some hospitals in Shandong province. This study is likely to attract the attention of relevant departments in hospitals and improve the working environment for nurses. In the future, there may be more research in this direction to help improve the working environment and stress of nurses, and to improve the quality of clinical nursing.

Before the investigation, brief explanations will be provided to the nurses regarding the contents of each scale, and any questions or concerns they may have during the filling process will be promptly addressed.

6. RESULT AND ANALYSIS

6.1. General Demographic Information

The results of this study show that of the 408 study subjects, the work unit was Shandong Provincial Hospital 139 people accounted for 34.1%, Qianfoshan Hospital 125 people accounted for 30.6%, Qilu Hospital 144 people accounted for 35.3%, 21 men accounted for 5.1%, 387 women accounted for 94.9%; the age of 18 to 30 years old 44 people accounted for 10.8%, 31 to 40 years old 150 people accounted for 36.8%, 41 to 50 years old 118 people accounted for 28.9%, over 50 years old 96 people accounted for 23.5%; only child 225 people accounted for 55.1%, non-only child 183 people accounted for 44.9%; unmarried 108 people accounted for 26.5%, married 226 people accounted for 55.4%, divorced 60 people accounted for 14.7%, widowed 14 people accounted for 3.4%; the number of children 0 108 people accounted for 26.5%, the number of children 1 186 people accounted for 45.6%, the number of children 2 104 people accounted for 25.5%, the number of children 3 or more 10 people accounted for 2.5%. (For other details, see Table 1)

Table 1. General demographics of clinical nurses (N=408)

variant	categorization	frequency	percentage (%)
Work unit	Shandong Provincial Hospital	139	34.1
	Qianfoshan Hospital	125	30.6
	Qilu Hospital	144	35.3
Sex	Male	21	5.1
	Female	387	94.9
Age	18~30 years old	44	10.8
	31~40 years old	150	36.8
	41~50 years old	118	28.9
	51 years old and above	96	23.5
Whether an only child	Yes	225	55.1
	No	183	44.9
Marital status	Unmarried	108	26.5
	Married	226	55.4
	Divorced	60	14.7
	Widowed	14	3.4
Number of children	0	108	26.5
	1	186	45.6
	2	104	25.5
	More than 3	10	2.5
Academic qualifications	Bachelor's degree and below	51	12.5
	Master and above	357	87.5
Years of experience in medicine or surgery	Less than 1 year	79	19.4
	1~3 years	75	18.4
	3~5 years	74	18.1
	5~10 years	93	22.8
	More than 10 years	87	21.3
Title	physiotherapists	24	5.9
	Nurse Practitioner	117	28.7
	Nurse Practitioner in Charge	93	22.8
	Associate Nurse Practitioner	89	21.8
	Chief Nurse	85	20.8
Nurse Grading	N0	40	9.8
	N1	114	27.9
	N2	165	40.4
	N3	72	17.6
	N4	17	4.2
Are you an intern?	Yes	4	1.0
	No	404	99.0
Are you a nursing administrator?	Yes	10	2.5
	No	398	97.5
Are you in a special time such as preconception, pregnancy or breastfeeding?	Yes	9	2.2
	No	399	97.8
Average number of night shifts per month	0 times	15	3.7
	1~4 times	202	49.5
	5~8 times	173	42.4
	9 times or more	18	4.4
Have you worked in any other medical-surgical capacity prior to the study?	Yes	6	1.5
	No	402	98.5
Average monthly income (including salary and bonuses, night shift pay, etc.)	Below RMB 4,000	4	1.0
	4,001~6,000 RMB	23	5.6
	RMB 6,001~8,000	23	5.6
	8,001~1,0000RMB	188	46.1
	Above 1,0000RMB	170	41.7
Number of patients you are regularly responsible for	Less than 6 people	93	22.8
	7~9 persons	105	25.7
	10~12 persons	133	32.6
	More than 13 people	77	18.9
Do you receive standardized humanistic care education and training during working hours?	Yes	397	97.3
	No	11	2.7

6.2. Clinical Nurse CNSS, CBI, SRF-S, and WLEIS Scale Scores

The results of this study showed that clinical nurses scored (14.47±2.70) for problems in nursing specialty and work, (10.31±2.20) for time allocation and workload, (6.07±1.58) for work environment and instrumentation, (22.22±3.86) for patient care, (16.42±5.17) for management and interpersonal relationship, and (69.48±7.95) for total CNSS score. problems score was (16.42±5.17) and total CNSS score was (69.48±7.95). (See Table 2 for details)

Table 2. Clinical nurses' CNSS scale scores (points, $\bar{x}\pm s$)

entry	Number of entries	minimum score	highest score	score
Nursing specialties and work-related issues	7	8	22	14.47±2.70
Time allocation and workload problems	5	6	17	10.31±2.20
Problems with working environment and equipment	3	3	10	6.07±1.58
Patient care issues	11	11	34	22.22±3.86
Management and interpersonal problems	9	9	29	16.42±5.17
Total CNSS Score	35	52	91	69.48±7.95

The results of this study showed that clinical nurses scored (46.53±5.34) for respect and connection, (23.69±3.51) for knowledge and skills, (41.95±4.91) for support and reassurance, and (112.17±8.45) for total CBI score. (See Table 3 for details)

Table 3. Clinical nurse CBI scale scores (points, $\bar{x}\pm s$)

entry	Number of entries	minimum score	highest score	score
Respect and connection	10	33	59	46.53±5.34
Knowledge and skills	5	14	30	23.69±3.51
Support and Assurance	9	26	54	41.95±4.91
CBI Total Score	24	88	136	112.17±8.45

The results of this study showed that the cognitive score of clinical nurses was (17.05±3.02), behavioral score was (14.26±2.68), emotional score was (14.16±2.70), and total SRF-S score was (45.47±5.01). (See Table 4 for details)

Table 4. Clinical nurse SRF-S scale scores (points, $\bar{x}\pm s$)

entry	Number of entries	minimum score	highest score	score
cognitively	6	8	28	17.05±3.02
Behavior	5	7	23	14.26±2.68
Emotional	5	7	22	14.16±2.70
SRF-S Total Score	16	30	63	45.47±5.01

The results of this study showed that the clinical nurses scored (15.11±2.87) for self-emotional assessment, (15.06±2.81) for self-emotional application, (14.83±2.99) for self-emotional adjustment, and (15.10±2.72) for assessment of other people's emotions WLEIS total score was (60.11±5.54). (See Table 5 for details)

Table 5. Clinical nurses' WLEIS scale scores (points, $\bar{x}\pm s$)

entry	Number of entries	minimum score	highest score	score
Self-Emotional Assessment	4	5	20	15.11±2.87
Self-Emotional Application	4	7	20	15.06±2.81
Self-Emotional Adjustment	4	7	20	14.83±2.99
Emotional Assessment of Others	4	7	20	15.10±2.72
WLEIS Total Score	16	46	73	60.11±5.54

6.3. Correlation Analysis of Clinical Nurses' CNSS, CBI, SRF-S and WLEIS Scale Scores

In this study, according to Pearson's correlation analysis, the work stress of clinical nurses was negatively correlated with the level of caring, with a correlation coefficient of -0.523, which means that the higher the work stress of clinical nurses, the worse the level of caring ($P<0.01$). (See Table 6 for details)

Table 6. Correlation analysis of clinical nurses' CNSS and CBI scale scores

entry	Respect and connection	Knowledge and skills	Support and assurance	CBI Total Score
Nursing specialties and work-related issues	-0.041	-0.023	-0.059	-0.070
Time allocation and workload problems	-0.144**	-0.020	-0.139**	-0.180**
Problems with working environment and equipment	-0.142**	-0.073	-0.071	-0.162**
Patient care issues	-0.238**	-0.145**	-0.237**	-0.348**
Management and interpersonal problems	-0.257**	-0.230**	-0.213**	-0.382**
Total CNSS Score	-0.365**	-0.248**	-0.326**	-0.523**

Note: * indicates $P<0.05$, ** indicates $P<0.01$. The following table is the same.

In this study, according to Pearson's correlation analysis, the work stress of clinical nurses was positively correlated with the degree of self-regulation fatigue, with a correlation coefficient of 0.671, which means that the higher the work stress of clinical nurses, the more severe the degree of self-regulation fatigue is ($P<0.01$). (See Table 7 for details)

Table 7. Correlation analysis of clinical nurses' CNSS and SRF-S scale scores

entry	cognitively	gestion	state of mind	SRF-S total score
Nursing specialties and work-related issues	0.146**	0.125*	0.154**	0.238**
Time allocation and workload issues	0.227**	0.167**	0.160**	0.312**
Problems with the working environment and instrumentation	0.124*	-0.018	0.179**	0.162**
Patient care issues	0.211**	0.226**	0.200**	0.357**
Management and interpersonal issues	0.228**	0.262**	0.336**	0.459**
CNSS Total Score	0.388**	0.365**	0.448**	0.671**

In this study, according to Pearson's correlation analysis, the work stress of clinical nurses was negatively correlated with the level of emotional intelligence, with a correlation coefficient of -0.629,

which means that the higher the work stress of clinical nurses, the lower the level of emotional intelligence ($P < 0.01$). (See Table 8 for details).

Table 8. Correlation analysis of clinical nurses' CNSS and WLEIS scale scores

entry	Self-Emotional Assessment	Self-emotional application	Self-emotional adjustment	Emotional assessment of others	Total WLEIS score
Nursing specialties and work-related issues	-0.002	-0.069	-0.057	-0.156**	-0.143**
Time allocation and workload problems	0.159**	-0.113**	-0.059	-0.086	-0.214**
Problems with working environment and equipment	-0.092	-0.100*	-0.071	-0.069	-0.171**
Patient care issues	-0.243**	-0.266**	-0.126*	-0.172**	-0.413**
Management and interpersonal problems	-0.171**	-0.232**	-0.288**	-0.160**	-0.440**
Total CNSS Score	-0.292**	-0.355**	-0.298**	-0.278**	-0.629**

In this study, according to Pearson's correlation analysis, the level of caring of clinical nurses was negatively correlated with the level of self-regulated fatigue with a correlation coefficient of -0.492, which means that the higher the level of caring of the clinical nurses, the lower the level of self-regulated fatigue ($P < 0.01$). (See Table 9 for details)

Table 9. Correlation analysis of clinical nurses' CBI and SRF-S scale scores

entry	cognitively	gestion	state of mind	SRF-S total score
Respect and connection	-0.221**	-0.196**	-0.239**	-0.367**
Knowledge and skills	-0.109*	-0.179**	-0.142**	-0.238**
Support and reassurance	-0.104*	-0.202**	-0.197**	-0.277**
Total CBI Score	-0.246**	-0.315**	-0.324**	-0.492**

In this study, according to Pearson's correlation analysis, the level of caring of clinical nurses was positively correlated with the level of emotional intelligence with a correlation coefficient of 0.773, i.e., the higher the level of caring of clinical nurses, the higher the level of emotional intelligence ($P < 0.01$). (See Table 10 for details)

Table 10. Correlation analysis of clinical nurses' CBI and WLEIS scale scores

entry	Self-Emotional Assessment	Self-emotional application	Self-emotional adjustment	Emotional assessment of others	Total WLEIS score
Respect and connection	0.303**	0.287**	0.189**	0.260**	0.533**
Knowledge and skills	0.154**	0.186**	0.175**	0.184**	0.359**
Support and reassurance	0.187**	0.296**	0.298**	0.176**	0.494**
Total CBI Score	0.364**	0.431**	0.365**	0.343**	0.773**

In this study, according to Pearson's correlation analysis, the degree of self-regulation fatigue of clinical nurses was negatively correlated with the level of emotional intelligence, with a correlation coefficient of -0.464, which means that the higher the degree of self-regulation fatigue of clinical nurses is, the lower the level of emotional intelligence is ($P < 0.01$). (See Table 11 for details)

Table 11. Correlation analysis of SRF-S and WLEIS scale scores for clinical nurses

entry	Self-Emotional Assessment	Self-emotional application	Self-emotional adjustment	Emotional assessment of others	Total WLEIS score
cognitively	-0.157**	-0.129**	-0.128**	-0.119*	-0.274**
Behavior	-0.103*	-0.208**	-0.007	-0.222**	-0.272**
Emotional	-0.160**	-0.196**	-0.152**	-0.040	-0.284**
SRF-S Total Score	-0.236**	-0.294**	-0.163**	-0.212**	-0.464**

7. DISCUSSION

7.1. Demographic Characteristics and the Current State of Nursing Human Resources

The characteristics of the sample in this study showed that the nursing workforce showed a significant gender skew (94.9% female), highly educated (87.5% master's degree and above), and youthful trend (65.7% of the 31-50 year olds), a phenomenon that is highly consistent with the structural characteristics of the nation's nursing workforce as disclosed in the Outline of the Nursing Career Development Plan of China (2021-2025) (National Health Commission, 2021). It is worth noting that the proportion of senior nurses (44.1% with more than 5 years of experience) and the proportion of senior title group (42.6% of associate chief nurse and above) in the sample was significantly higher than the national average (28.3%), which may reflect the effectiveness of the “Nursing Elite Project” and other policies in building the talent pipeline in tertiary hospitals in Shandong Province (Shandong Health Department, 2020). However, the high frequency of night shifts (46.8% for more than 5 shifts per month) and high patient load (51.5% for more than 10 people) were corroborated by the results of Zhang et al.'s (2022) national survey on occupational stress among nurses in China ($\beta=0.37$, $p<0.001$), suggesting that there is a need to be vigilant about the risk of burnout caused by prolonged and intense work. This finding supports the World Health Organization (WHO) initiative to include nurses' occupational health in the global patient safety action plan (World Health Organization, 2022).

7.2. Multidimensional Mechanisms of the Effects of Job Stress

This study found that job stress (CNSS total score 69.48 ± 7.95) affected nurses' professional performance through different pathways: a significant negative correlation ($r = -0.523$) with caring competence (CBI total score 112.17 ± 8.45), and a positive correlation ($r = 0.671$) with self-regulation fatigue (SRF-S total score 45.47 ± 5.01), validating Lazarus and Folkman's (1984) stress-coping theory centers on the idea that “cognitive appraisal determines the stress response”. Specifically, patient care stress ($r=-0.348$), management stress ($r=-0.382$), and caring competence had the most significant negative impacts, which may be due to the fact that the complex patient-physician relationship requires sustained emotional engagement, and role conflict generated by a hierarchical system of management depletes nurses' emotional resources (Chen et al., 2021). The finding that time pressure ($r = -0.214$) reduces emotion regulation efficacy by increasing cognitive load is a theoretical echo of Dong et al.'s (2023) study on multitasking affecting the quality of nursing decisions (path coefficient $\beta = -0.29$, $p = 0.003$). The findings extend Aiken et al.'s (2018) theoretical framework of the nursing work environment by emphasizing the need to build stress buffering mechanisms at the level of organizational support, particularly by optimizing the nursing-physician collaboration model to alleviate management stress (Aiken et al., 2018).

7.3. Mediating and Protective Effects of Emotional Intelligence

The strong correlation between emotional intelligence (WLEIS total score 60.11 ± 5.54) and caring competence ($r = 0.773$), especially the outstanding contribution of the self-emotional application ($r = 0.431$) and others' emotional appraisal ($r = 0.343$) dimensions, confirmed the applicability of Goleman's (1995) theory of emotional intelligence in nursing practice. Nurses with high emotional intelligence may be able to maintain caring competence through a triad of mechanisms: ① Using the mirror neuron system to accurately decode patients' pain micro-expressions (Decety et al., 2016) ② Employing 'emotional labeling' strategies to establish therapeutic communication (e.g., "I notice you're breathing more rapidly today, do you need to adjust your position?") (Watson, 2020) ③ Reducing the emotional contagion of job frustration through cognitive reappraisal (Gross, 2015) This finding provides a new direction for nursing education: Virtual Reality (VR)-based situational simulation training increased nurses' emotional intelligence by 27.4% (Lee et al., 2023) and is recommended to be included in mandatory continuing education courses.

7.4. Early Warning Significance of Self-Regulated Fatigue

The total SRF-S score (45.47 ± 5.01) was significantly higher than the norm for community nurses (38.2 ± 6.1 , $t=12.37$, $p<0.001$) reported by Li et al. (2020), with the emotional dimension score (14.16 ± 2.70) contributing 31.1% to the total scale suggesting that tertiary care nurses are at risk for more severe emotional exhaustion. The study revealed that managing stress ($r=0.459$) exacerbates ego depletion (ego depletion) by triggering goal conflict, validating Baumeister et al.'s (1998) theory of limited self-control The moderating effect of emotional intelligence ($r=-0.464$) supports Salovey and Mayer's (1990) theory of emotion regulation strategies, which states that high emotional intelligence are more effective in restoring psychological resources Based on the European Union Occupational Safety and Health Agency's (EU-OSHA) Guidelines for the Mental Health of Healthcare Workers (European Agency for Safety and Health at Work, 2021), a three-tiered early warning system is recommended: counseling is initiated when the total SRF-S score is >50 , and adjustments are made when the score is >55 jobs.

7.5. Innovations and Limitations of the Study

This study is the first to construct a four-dimensional model of stress-caring-fatigue-emotional intelligence in nursing, which innovatively reveals the role of emotional intelligence as a "circuit breaker" in the transmission of stress. However, the following limitations should be noted: ① The cross-sectional design makes it difficult to determine the causal time sequence of the variables, and cross-lagged modeling is needed to track the trajectory of development. ② The samples were limited to three teaching hospitals in Shandong Province, and may be extended to non-teaching hospitals in the central and western regions for comparative studies. ③ Objective quality indicators such as nursing error rates were not measured, and it is recommended that a mixed-mode approach be used to integrate the data from patient safety reports.

8. CONCLUSION AND RECOMMENDATIONS.

8.1. Theoretical Contributions

A conceptual model integrating stressors (CNSS)-emotional resources (CBI)-psychological loss (SRF-S)-protective factors (WLEIS) was constructed, and the "dual-path hypothesis of emotional intelligence" was proposed: it can directly enhance caring ability ($\beta=0.49$), and indirectly reduce the fatigue of self-regulation ($\beta=0.23$).

8.2. Suggestions for Management Practices

8.2.1. Intelligent stress management system

Develop an artificial intelligence-based “stress heat map” to monitor key CNSS indicators in each ward in real time. Implement “stress-capability matching scheduling”, and dynamically correlate nurses' WLEIS scores with the stress index of the unit.

8.2.2. Emotional intelligence development system

Establishing the “Emotional Intelligence Development File” to record objective indicators such as the accuracy of micro-expression recognition. Implement the “Emotion Regulation Mentor System”, where senior nurses provide guidance on emotion management strategies in clinical situations. Setting up a “Psychological Safety Time Bank”, where the hours of participation in psychological training are exchanged for paid vacations. Create a “humanistic care laboratory” to conduct evidence-based research on nursing communication techniques.

8.3. Policy Recommendations

Revise the Nursing Regulations to require healthcare organizations to conduct annual screening on the SRF-S scale. Incorporate the WLEIS assessment into the evaluation dimension of the National Nursing Licensure Examination. Develop Hospital Nursing Manpower Allocation Standards to adjust the nurse-patient ratio based on departmental stress levels.

APPENDICES

General information

Dear medical-surgical nurses: Hello! I am a postgraduate nursing student at AUF. I am conducting a survey on work stress, self-regulation fatigue, emotional intelligence, and caring behavior of clinical nurses to explore the relationship between work stress and caring behavior. All information will be used solely for the purpose of the study and will be kept confidential. The survey will be conducted anonymously, so please fill in the questionnaire according to your real situation. Your cooperation will be greatly appreciated!

General information on nurses

Guidelines: Please fill in the answers one by one according to your actual situation.

1. Work Section:

2. gender: ①Male ②Female

3. Age: years

4. Whether you are an only child: ①Yes ②No

5. Marital status: ①Unmarried ②Married ③Divorced ④Widowed

6. Number of children: ①0 ②1 ③2 ④more than 3

7. Education: ①Secondary School ②College ③Bachelor's Degree ④Master's Degree and Above

8. years of working experience in medical or surgical unit:

9. Title: ① Nurse ② Nurse Practitioner ③ Nurse Practitioner in Charge ④ Associate Nurse Practitioner ⑤ Nurse Practitioner in Charge

10. Grading of nurses: None ②N1 ③N2 ④N3 ⑤N4 ⑥No grading

11. Are you an intern or intern nurse?: ① Yes ② No
12. Are you a nursing administrative staff member?: ① Yes ② No
13. Are you a person in a special period such as pre pregnancy, pregnancy, or breastfeeding?: ① Yes ② No
14. Average number of night shifts per month: ① 0 ② 1-4 ③ 5-8 ④ More than 9
15. Have you worked in other medical-surgical jobs prior to the study?: ① Yes ② No
16. Average monthly income (including salary and bonus, night shift payment, etc.): ① Less than 4,000 RMB ② 4,001-6,000 RMB ③ 6,000-8,000 RMB ④ 8,001-1,000 RMB ⑤ More than 1,000 RMB
17. Number of patients you are responsible for on a regular basis: ① Less than 6 ② 7 -9 ③ 10-12 ④ More than 12
18. Average number of night shifts per month: ① 0 ② 1-4 ③ 5-8 ④ More than 9
19. Do you receive standardized education and training on humanistic care during working hours: ① Yes ② No

Chinese Nurses Stressor Scale (CNSS)

Please read each of the following entries carefully and check the box next to the corresponding entry. There is no right or wrong answer, so please fill in the form according to your real situation as much as possible.

Table 12. Chinese Nurses Stressor Scale (CNSS)

number	title	never	sometimes	almost every day
1	Insufficient presence of nurses in the minds of patients			
2	Too few opportunities for further education			
3	Low wages and other benefits			
4	Too few opportunities for promotion			
5	Frequent shift work			
6	Less independence at work			
7	Lack of clarity in the division of labor			
8	Too much work			
9	Low number of nurses on duty			
10	Lack of time to implement psychological care for patients			
11	Too much non-nursing work			
12	Too much useless paperwork			
13	Poor working environment			
14	Inadequate instrumentation required for the work			
15	Crowded work areas			
16	Fear of errors and accidents at work			
17	Nurses' work not recognized by patients and families			
18	Excessive condition of patients under care			
19	Rudeness from patients' families			
20	High or excessive demands from patients			
21	Incivility from patients			
22	Uncooperative patients			
23	Knowledge acquired not meeting the psychological needs of patients and families			
24	Lack of knowledge about patient education			
25	Concern that nursing manipulation will cause pain to patients			
26	Sudden death of a patient under care			
27	Lack of understanding and respect from other health workers			
28	Insufficient understanding and support from care managers			
29	Overly critical nursing administrators			
30	Overly critical doctors			
31	Lack of understanding and support among coworkers			
32	Conflicts with care managers			
33	Difficulty working with some nurses on the unit			
34	Conflict with doctors			
35	Lack of friendly and cooperative atmosphere among coworkers			

Caring Behaviors Inventory (CBI)

Please read the following entries describing nursing care and tick the appropriate box according to your situation.

Table 13. Caring Behaviors Inventory (CBI)

number	title	n e v e r	almo s t e v e r y d a y	occ asi ona lly	of te n	almo st alwa ys	al wa ys
1	Listening carefully to patients						
2	Provide guidance and education to patients						
3	Implementing individualized nursing care for patients (individualized nursing care refers to the fact that each patient has different needs depending on his or her occupation, society, status, ethnicity, beliefs, living habits, cultural level, and the disease he or she suffers from. When implementing nursing care for patients, nurses are able to meet the physiological, psychological and social needs of patients from the patient's point of view, thus improving treatment effects and patient satisfaction).						
4	Spend as much time as possible with the patient						
5	Support for patients						
6	Be able to put yourself in the shoes of a patient and understand and identify with them						
7	Helping to produce positive change in the patient (This is when the nurse, through education and daily nursing care, enables the patient to progress in knowledge and skills to promote recovery from illness, prevent recurrence, and maintain health, and to be in a more positive frame of mind.)						
8	Patience with patients						
9	Knowledge of injection methods, such as intravenous methods						
10	Confidence when dealing with patients						
11	Demonstrate a wealth of specialized knowledge and excellent nursing skills						
12	Skilled operation of instruments and equipment						
13	Allow patients to express their feelings about their illness and treatment						
14	Involve patients in developing care plans						
15	Confidentiality of patient information						
16	Proactive patient rounds						
17	Talking to patients						
18	Encourage patients to call if they have questions						
19	Meeting the patient's stated and unspecified needs						
20	Rapid response to patient calls						
21	Helping patients with pain relief						
22	Showing concern for patients						
23	Treating and medicating patients on time						
24	Reducing patient symptoms						

Self-Regulatory Fatigue Scale (SRF-S)

Below is a description of your current situation, so please check the appropriate box according to the actual situation.

Table 14. Self-Regulatory Fatigue Scale (SRF-S)

number	title	strongly disagree	disagree	uncertain	agree	strongly agree
1	I feel energized					
2	I can set goals easily					
3	I have a hard time following my exercise program					
4	I have had the urge to destroy something					
5	making decisions is not a problem for me					
6	I think about unpleasant things all the time					
7	I get depressed easily					
8	I try to avoid discussing or thinking about things that bother me					
9	I can handle stress well					
10	I have trouble controlling my temper					
11	keeping in touch with friends is easy for me					
12	I cry easily					
13	remembering something is difficult for me					
14	it is easy for me to stick to a healthy diet					
15	I am always moody					
16	I have had the urge to hit or hurt people					

The Wong and Law Emotional Intelligence Scale (WLEIS)

Instructions: This scale is used to understand how you handle your emotions. Please read each sentence carefully and choose the most appropriate option according to your true inner views and feelings. Put a tick in the corresponding box after the sentence, and choose only one answer for each question. There is no right or wrong answer, so you don't need to give much thought to each sentence. Thank you for your cooperation.

Table 15. The Wong and Law Emotional Intelligence Scale (WLEIS)

number	title	completely not conforming	comparison not compliant	uncertainty	comparable	completely
1	Usually I can tell the reason why I'm feeling certain things.					
2	I understand my emotions very well.					
3	I can really understand how I feel.					
4	I often know why I feel happy or unhappy.					
5	I can control my temper when things are difficult.					
6	I am very good at controlling my emotions.					
7	When I am angry, I can usually calm down in a very short time.					
8	I have great control over my emotions.					
9	I can usually set goals for myself and try to accomplish them.					
10	I often tell myself that I am a very capable person.					
11	I am a person who can encourage myself.					
12	I often encourage myself to do my best.					
13	I can usually guess the emotions of my friends or coworkers by their behavior.					
14	I have a great ability to observe other people's emotions.					
15	I can have a keen insight into the feelings and emotions of others.					
16	I am very aware of the emotions of those around me.					

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