FACTORS ASSOCIATED WITH PSYCHOLOGICAL STRESS AMONG NURSING STUDENT INTERN AT HAINAN VOCATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY IN YUNLONG CAMPUS

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摘要

题目：海南科技职业大学云龙校区实习护生心理压力的相关因素分析

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本项横断面研究旨在研究海南科技职业大学云龙校区实习护生的心理压力及探讨海南科技职业大学云龙校区实习护生心理压力与相关因素的关系。研究人群为海南科技职业大学云龙校区实习护生，包括护理专业大三和大四学生，共 1140 人。样本量采用 Yamane Taro’s formula 确定，通过分层抽样方法最终样本量为 327 人。研究工具包括个人信息表、实习护生压力源量表和知觉压力量表（PSS-14）。使用统计软件对收集到的数据进行分析，采用频数、百分比、均值、标准差和卡方检验等方法进行数据处理。

研究发现，结果显示，62.38%的实习护生处于高压力状态，仅 18.35%为低压力。护理工作的性质与内容、临床角色定位、就业考试压力、教学认可度等因素对实习护生的心理压力存在较为显著的影响（$p<0.05$）；性别、年龄等个人因素与实习护生的心理压力无显著关联（$p>0.05$）。实习护生普遍存在高心理压力，主要源于患者

评价、工作负荷和职业不确定性，需针对性优化临床教学支持、减轻非护理任务负担，并加强护患沟通培训。

结论方面，研究验证了研究假设：实习护生心理压力来源的8个因素如护理工作的性质和内容、自身知识与技能、临床环境与人际关系、心理落差、临床对实习护生的角色定位、临床考核与评价、就业与考试、带教与心理压力显著相关。

关键词：实习护生，心理压力，相关因素，海南科技职业大学

ABSTRACT

Title: Factors Associated with Psychological Stress among Nursing Student Intern at Hainan Vocational University of Science and Technology in Yunlong Campus

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This cross-sectional study aimed to study of psychological stress of nurse student interns at Hainan Vocational University of Science and Technology in Yunlong Campus and to find the relationship between the factors and psychological stress of nurse student interns at Hainan Vocational University of Science and Technology in Yunlong Campus. The study population consists of the research subjects are 1,140 nursing students of Hainan Vocational University of Science and Technology in Yunlong Campus, including year 3 college students and year 4 undergraduates of the nursing major. The sample size was determined using Yamane Taro's formula, yielding a final sample of 327 individuals, selected through a stratified sampling method. The research instruments included the individual information form, the Stress Source Scale

for Nursing Student Interns, and the Perceived Stress Scale (PSS-14). The collected data were analyzed using statistical software, and frequency, percentage, mean, standard deviation, and chi-square test methods were used for data processing.

The study found that the results showed that 62.4% of the nursing student interns were in a state of high stress, and only 18.3% were in a state of low stress. The nature and content of nursing work, clinical role orientation, employment examination pressure and teaching recognition had a significant impact on the psychological stress level of nursing student interns ($p < 0.05$); personal factors such as gender and age had no significant correlation with the psychological stress level of nursing student intern ($p > 0.05$). Nursing student interns generally had high psychological stress, which was mainly caused by patient comments, workload, and career uncertainty. It is necessary to optimize clinical teaching support, reduce the burden of non-nursing tasks, and strengthen nurse-patient communication training.

In conclusion, the study verified the research hypothesis: the eight factors that are the sources of psychological stress for nursing student interns, such as the nature and content of nursing work, personal knowledge and skills, clinical environment and interpersonal relationships, psychological gap, clinical role positioning of nursing student interns, clinical assessment and evaluation, employment and examinations, and teaching are significantly correlated with psychological stress.

Keywords: Nursing student interns, Psychological stress, Associated factors, Hainan Vocational University of Science and Technology

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Special thanks to the 327 nursing student interns who participated in the survey. Your sincere feedback laid the data foundation for this study and also gave me a deeper understanding of the professional challenges of nursing student interns.

I would like to thank my classmates and colleagues for their assistance in data analysis and literature review, and my family and friends for their emotional support and understanding during the writing of the paper.

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CHAPTER I

INTRODUCTION

Background and rationale

A survey by The Medical Community compared the working conditions of nurses in China and the UK. The data revealed that in China, approximately 90% of nurses work over 8 hours per day, with 9% exceeding 12 hours. Most Chinese nurses work night shifts 5–10 times per month. Their average monthly salary is 5,425 RMB (about 600 GBP), with only 13% receiving annual bonuses, and 60% reporting no performance-based bonuses at all.Under significant stress, 67% of nurses expressed intentions to change jobs, while 13% had already resigned. In contrast to their Chinese counterparts, nurses in the UK experience relatively less work pressure (Immigration Lawyer, 2020. A Comparison of Working Conditions for Nurses in China and the UK: Chinese Nurses Overworked with a Shortage of 3 Million, According to the China Health Statistics Yearbook (2021), in 2020, the number of graduates from regular higher education institutions in China reached 8.688 million, an increase of 463,000 (or 5.63%) compared to 2019. Among these, medical graduates totaled 878,000, reflecting a rise of 50,000 (or 6.04%) year-on-year (Zhang et al., 2023).In 2024, China's Ministry of Education announced that Nursing Science will be designated as a "state-controlled major". What does this term mean? An official from the Ministry's Department of Higher Education explained that, generally, two types of majors fall under this category:Those currently offered by too many universities, leading to market saturation in terms of demand; Those involving national security, public health, or other high-stakes sectors (Tang Wenjia et al., 2024-03-25).The inclusion of Nursing Science in

the nationally controlled majors signifies that the admission criteria for nursing programs will become more stringent. Prospective students can only enroll in nursing through the National College Entrance Examination (Gaokao) for undergraduate programs. Consequently, nursing students in China must continuously pursue higher academic qualifications to remain competitive in the job market. These trends indicate that both nursing student interns and licensed nurses face escalating stress year after year. Upon entering clinical practice, nursing student interns must cope not only with the stress induced by high- intensity workloads but also with pressures stemming from environmental adaptation, role transitions, and interpersonal challenges (Lin et al., 2021).

In recent years, Hainan Province has been progressively developing a Free Trade Port with Chinese characteristics, which has attracted a significant influx of talent to the region. However, the current job market in Hainan remains relatively narrow, with limited employment opportunities across various industries. This situation has led to employment challenges for many job seekers while also constraining career prospects for recent graduates. According to statistics released by the National Bureau of Statistics of China, Guangdong, Shandong, and Jiangsu provinces ranked as the top three regions in terms of employed population among China's 31 provincial-level regions by the end of 2020, while Hainan province ranked 28th. As China's largest special economic zone, Hainan has made remarkable progress in recent years in educational development, particularly in healthcare education. This has attracted a growing number of students to pursue nursing programs. However, compared to other disciplines, nursing education demands higher professional standards and involves greater practical stress. Nursing student interns, while deepening their professional knowledge and skills, face multiple stressors including clinical practicum requirements and employment pressures. Consequently, mental health issues among this

group have become an increasing focus of concern. Numerous news reports indicate that violent incidents against medical staff, commonly referred to as 'medical disputes', have occurred across most regions in China. In many cases, patients have attacked healthcare workers with knives, resulting in severe injuries, disabilities, or even fatalities. According to statistics from the legal service organization Yifahui , the frequency of such incidents varies by province. While Hainan Province reports fewer cases compared to other regions, the problem persists.On June 13, 2024, Hainan Medical University First Affiliated Hospital released an Incident Report Regarding the June 12 Attack on Medical Staff. The report confirmed media coverage of a nighttime knife attack on a nurse in Haikou, which left the victim with a severe injury to her left upper arm. These incidents highlight that healthcare workers not only endure job-related stress but also face significant psychological stress due to safety concerns. Nursing student interns, who similarly work across hospital wards, are equally vulnerable to such psychological stress.

According to the Undergraduate Teaching Quality Report published by Hainan Vocational University of Science and Technology, the employment rate for nursing undergraduates in 2023 was 95.59%, compared to 87% in 2022 and 96.02% in 2021. These statistics demonstrate that graduates from Hainan Vocational University of Science and Technology enjoy excellent employment prospects (Hainan Vocational University of Science and Technology, 2023; source: https://www.hvust.edu.cn/news/newsDetail/14410).According to university statistics, 74.76% of graduates choose to work in Hainan Province due to the ongoing development of the Hainan Free Trade Port, which demands a significant influx of talent. Compared to other provinces, Hainan offers relatively easier employment opportunities for graduates, thereby boosting the university’s overall employment rate.Additionally, Hainan Vocational University of Science and Technology

(HVUST) achieves notably high pass rates for the National Nursing licence Examination: 98.8% for undergraduate students and 73.6% for vocational college students (Hainan Vocational University of Science and Technology, 2023; source: https://www.hvust.edu.cn/news/newsDetail/14410).These data demonstrate that HVUST excels in both employment rates and licence exam performance. However, nursing student interns still face substantial psychological stress during clinical training.

Moderate stress can help nursing student interns achieve an optimal level of tension, which enhances their learning capacity. However, excessive stress disrupts physical and mental equilibrium, leading to health disorders, impaired daily functioning, and in severe cases, anxiety or depression (Zheng Yanxue, 2023). During clinical placements, nursing student interns face intense work-related stress, including prolonged working hours, high physical and mental demands, and frequent patient interactions. These factors make them particularly vulnerable to psychological stress. Additionally, nursing student interns are in a transitional phase between theoretical learning and clinical practice, where they must apply classroom knowledge to real-world clinical settings. The stress during this transition can be particularly pronounced, making research into their psychological stress crucial for identifying specific challenges in actual work environments. The primary sources of stress for nursing student interns can be categorized into nine areas: (1) the nature and content of nursing work, (2) personal knowledge and skills, (3) the clinical environment environment and interpersonal relationships, (4) psychological gap, (5) patient attitudes and comments, (6) clinical role positioning for nursing student interns, (7) clinical assessment and evaluation, (8) employment and examination, and (9) teaching. In recent years, societal awareness of mental health has grown significantly. As a profession that directly serves the public, the mental well-being

of nursing professionals is closely tied to the quality of healthcare services. Therefore, investigating the factors influencing psychological stress among nursing student interns can contribute to improving service standards across the medical industry. During their training, nursing student interns are required not only to master extensive theoretical knowledge but also to develop strong clinical competencies, which inevitably exacerbates their psychological stress. Moreover, due to the unique nature of nursing work, nursing student interns may encounter various unexpected situations during their clinical practice, all of which can significantly impact their psychological well-being. Therefore, understanding and analyzing the factors influencing psychological stress among nursing student interns at Hainan Vocational University of Science and Technology is of great importance. This research will help improve students' learning efficiency, safeguard their physical and mental health, and promote the healthy development of nursing education.In summary, due to the increasing number of nursing graduates and the increasingly competitive job market, nursing student interns are facing growing psychological stress. As nursing is a profession that directly serves the public, the psychological well-being of nursing student interns directly impacts the quality of healthcare services. Therefore, this study investigates the factors influencing psychological stress among nursing student interns, aiming to enhance the overall service level of the healthcare industry, improve students' learning efficiency, safeguard their physical and mental health, and promote the healthy development of nursing education. Additionally, the findings will provide data references for educational and clinical training institutions, enabling them to better manage the psychological stress of nursing student interns.

Objective

1. To study of psychological stress of nurse student intern at Hainan Vocational University of Science and Technology in Yunlong Campus.

2. To find the associate between the factors and psychological stress of nurse student intern at Hainan Vocational University of Science and Technology in Yunlong Campus.

Research question

1. What is psychological stress of nurse student intern at Hainan Vocational University of Science and Technology in Yunlong Campus?

2. What are the factors associated to the psychological stress of nurse student intern at Hainan Vocational University of Science and Technology in Yunlong Campus?

Hypothesis

The psychological stress associated with the factors of nurse student intern at Hainan Vocational University of Science and Technology in Yunlong Campus.

Operational definition

1. Psychological Stress: Psychological stress refers to an individual's psychological response when facing life pressures, work stress, or other forms of stress. This stress may

originate from various aspects such as personal life, work, studies, and interpersonal relationships. The Chinese version of the Perceived Stress Scale (PSS-14) was used to measure the psychological stress levels of nursing student interns at of Hainan Vocational University of Science and Technology in Yunlong Campus. The Perceived Stress Scale (PSS), developed by Sheldon Cohen et al. in 1983, is one of the most widely used international tools for assessing psychological stress. It has three versions: the 14-item (PSS-14), 10-item (PSS-10), and 4-item (PSS-4) formats.The Chinese version of the Perceived Stress Scale (PSS-14) was adapted by Professor Tingzhong Yang from the original English PSS to align with China's cultural context. After reviewing the overall structure and specific items, necessary modifications were made to finalize the scale. The PSS-14 consists of 14 items divided into 2 dimensions. Each item is scored on a 5-point Likert scale with the following options: Never (1 point), Almost never (2 points), Sometimes (3 points), Often (4 points), Always (5 points). Total scores range from 14 to 70, with higher scores indicating greater psychological stress. The interpretation of scores is as follows: 14–32.66: Low stress, 32.67–51.2: Moderate stress, 51.3–70: High stress In the preliminary study, the Chinese version of the PSS demonstrated a Cronbach's α coefficient of 0.78, indicating acceptable internal consistency.

2. Influencing factors: These refer to the internal and external elements that can influence the psychological stress of nursing students in year 3 and year 4. The primary influencing factors include: (1) the nature and content of nursing work, (2) personal knowledge and skills, (3) the clinical environment environment and interpersonal relationships, (4) psychological gap, (5) patient attitudes and comments, (6) clinical role positioning for nursing student interns, (7) clinical assessment and evaluation, (8) employment and examination, and (9) teaching.The nature of nursing work: the fundamental

characteristics of nursing work include service- oriented care, professionalism, comprehensiveness, preventive focus, and interdisciplinary collaboration. The primary responsibilities of nursing staff encompass: basic care (e.g., hygiene assistance, mobility support), clinical nursing (e.g., wound management, medication administration), patient condition monitoring, health education, psychological support, care coordination and communication, knowledge and skills required for nurses. Nursing professionals must master: personal knowledge: medical foundations (e.g., anatomy, physiology), Nursing theories, clinical expertise (e.g., disease pathophysiology), healthcare system operations, personal skills: medication delivery and injections, vital signs monitoring, CPR and first aid (e.g., hemostasis, trauma care), Challenges for nursing student interns (year 3–year 4), transitioning into clinical practice, nursing student interns face psychological stress due to: High workloads during rotations, role adaptation demands, accountability for patient safety. Psychological gap refers to the disparity in work content and nature between nursing student interns and clinical medicine interns, as well as the differing levels of recognition from patients and their families. This discrepancy often leads to psychological stress among nursing student interns. Patient attitudes and comments pertain to how patients and their families perceive and evaluate nursing student interns. Clinical role positioning for nursing student interns: Upon entering clinical practice, nursing student interns are primarily assigned to basic patient care tasks, effectively serving as unpaid labor within the department. This raises the question of whether they can transcend their learner identity and fully embrace the role of a professional nurse. Clinical assessment and evaluation mainly include feedback from head nurses and clinical instructors, as well as skill-based and theoretical examinations during the internship. Employment and Examinations refer to the pressures nursing student interns face while preparing for postgraduate entrance exams, nursing license exams, or

employment tests. Clinical Instruction encompasses the teaching methods of clinical instructors, their recognition of nursing student interns' contributions, and their overall attitude toward the interns.

3. Nursing student interns: Nursing student interns refer to students majoring in nursing at Hainan Vocational University of Science and Technology in Yunlong Campus. They are in Year 4 of the undergraduate program or Year 3 of the diploma (associate degree) program, typically aged between 20 and 25 years old.

Expected Benefits and applications

Expected benefits for students:

1. Improving Students' Mental Health: by conducting an in-depth analysis of the factors influencing psychological stress among nursing student interns, universities can develop targeted mental health interventions. These measures will effectively reduce students' stress levels and enhance their overall psychological well-being, particularly for those in Year 3 and Year 4 who face heightened clinical and academic demands.

2. Career Planning Guidance: universities can provide more targeted career planning guidance to help nursing student interns better prepare for future professional challenges. This is especially critical for students in Year 3 and Year 4, who often face heightened psychological stress due to clinical rotations, academic demands, and career uncertainty. Structured support can mitigate stress and enhance their transition into the workforce.

3. Enhancing Mental Health Awareness: understanding the factors influencing psychological stress can help nursing student interns gain clearer insight into their own stressors, thereby improving self-awareness and emphasizing the importance of mental health—especially during the demanding clinical transition periods in Year 3 and Year 4.

4. Optimizing Learning and Living Environments: by analyzing stressors, schools can implement targeted measures to enhance academic and living conditions—such as improving teaching quality, adjusting course workloads, and upgrading campus facilities—thereby reducing stress among students

5. Improving Support Systems: After identifying key psychological stress factors, universities can take targeted measures such as strengthening counseling services, establishing peer support groups, and offering mental health courses to help students effectively cope with and manage stress.

Expected benefits for schools:

1. Strengthening Family-School Communication: the research may highlight the impact of family factors on students' psychological stress, thereby encouraging more effective communication mechanisms between families and schools to jointly support students' mental health development.

2. Enhancing School Service Quality: by analyzing stressors, schools can implement targeted improvements in services and resource allocation—such as refining psychological counseling services, optimizing curriculum design, and adjusting teaching methodologies—to better meet students' needs.

3. Improving Campus Environment: identifying stressors can assist schools in enhancing campus facilities and surroundings—such as providing more comfortable study spaces, upgrading recreational amenities, and expanding mental health

resources— to foster a more supportive environment for students' physical and psychological well-being.

4. Enhancing Institutional Reputation: a school's attention to and proactive measures addressing students' mental health issues can elevate its reputation and appeal. By demonstrating a commitment to holistic student development, the institution becomes more attractive to high-caliber applicants.

5. Enhancing Academic Success: by reducing students' psychological stress, schools can improve academic performance and graduation rates, which positively impacts the institution's overall educational quality and rankings.

Applications :

1. Developing Mental Health Intervention Strategies: higher education institutions can utilize research findings to implement targeted mental health education programs and interventions, such as regular mental health workshops and individualized counseling services.

2. Family Support Program: establish a family support initiative, utilizing mechanisms such as parent-teacher meetings, to help parents understand the sources of students' stress and provide corresponding support.

3. Career Development Services: universities can help alleviate students' concerns about future employment by organizing job fairs and offering career counseling.

CHAPTER II

LITERATURE REVIEW

This chapter outlines several concepts, criteria for mental health, analysis of factors affecting psychological stress, methods to reduce stress, related research, and explains the overall conceptual framework of the research. The following are specific studies reviewed to support this study:

1. Stress
    1.1 Stress
    1.2 Psychological stress
    1.3 Influencing factors
    1.4 Nursing student intern
    1.5 Mental Health
2. Mental Health
    2.1 WHO mental health standards
    2.2 International Conference on Mental Health Standards for Mental Health
    2.3 Maslow's criteria for mental health
3. Factors affecting psychological stress
    3.1 The nature and content of nursing work
    3.2 Personal knowledge and skills
    3.3 Social stress
    3.4 Psychological gap
    3.5 Patients' attitudes and comments
    3.6 Role Positioning

Stress

Stress

According to Lazarus and Folkman, stress is a nuanced relationship between an individual and their environment, while anxiety is an ambiguous and unpleasant feeling triggered by prolonged stress and multiple stressors (Sanad, H. M, 2019). Stress refers to the body's nonspecific response to stimuli in the environment. Stressors encompass all internal and external environmental stimuli that act upon the body and provoke such reactions (Zheng Yanxue, 2023).

Psychological stress

Psychological stress refers to an individual's psychological response when facing life pressures, work demands, or other forms of stress. This stress may arise from various aspects of life, including personal circumstances, work, studies, and interpersonal relationships. In the article by Ferreira, L. C., it is noted that mental

stress and psychological stress are major environmental risk factors for psychiatric disorders. Prolonged exposure to stress increases the risk of developing depression and other mental health conditions (Ferreira, L. C. et al., 2021). The study's findings reveal alarming rates of mental health issues among medical students: 38.5% were diagnosed with psychiatric disorders, 81.4% exhibited symptoms of anxiety, and 36.4% suffered from major depressive disorder (Ferreira, L. C. et al., 2021).

In the 2020 Survey Report on the Mental Health Status of Medical Workers, a total of 2,466 healthcare professionals were investigated. Based on their occupational roles, participants were categorized into four groups: physicians, nurses (including nursing student interns), medical technicians, and administrative staff. The results indicated that physicians scored the highest in depressive symptoms, followed closely by nurses. Detailed data are presented in Figure 1.

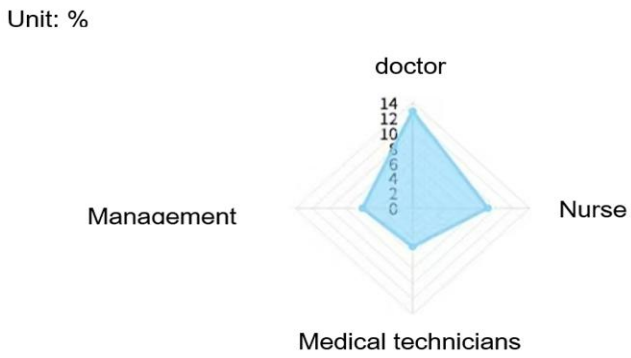


Figure 1 The proportion of medical workers at high risk of depression across different occupational roles(2020 Survey Report on the Mental Health Status of Healthcare Workers)

Influencing factors

It refers to those internal and external factors that can affect the psychological stress of year 3 and year 4 nursing student interns.

Nursing student intern

Nursing student interns refer to students majoring in nursing at Hainan Vocational University of Science and Technology in Yunlong Campus. They are in Year 4 of the undergraduate program or Year 3 of the diploma (associate degree) program, typically aged between 20 and 25 years old.

Mental Health

An individual maintains normal or optimal functioning in cognition, emotion, volition, and behavior, demonstrating the capacity to actively cope with life's stresses and challenges while achieving both self-actualization and social value.

Mental Health

WHO mental health standards

In its 1948 founding Constitution, the World Health Organization stated: "Health encompasses four dimensions: physical health, mental health, social adaptation, and moral health. Physical health comprises two aspects: first, the absence of disease in bodily organs; second, the possession of capabilities to maintain health. Social adaptation refers to psychological adaptability - specifically, the capacity to withstand varying environmental conditions (such as extreme heat or cold) and resist diseases. Moral health primarily involves the ability to exercise self-restraint, regulate one's behavior, and contribute to others' well-being. The standards for mental health are characterized by three key indicators: Possession

of a complete personality: including positive self-perception, emotional stability, adequate self-control, and psychological balance; with self-respect, self-care, and self-confidence. Having sufficient security and maintaining normal interpersonal relationships. Establishing clear life goals with aspirations toward ideals and career pursuits.

Source: Spontaneous Healing" by Andrew Weil

International Conference on Mental Health Standards for Mental Health

In 1964, the Third International Mental Health Congress established the following four criteria for mental health: harmony in body, intellect, and emotions; adaptability to environment and mutual accommodation in interpersonal relationships; sense of happiness and well-being; effectiveness in work and profession, with the ability to realize one's potential and lead a productive life." International Conference on Mental Health Standards for Mental Health **(**"Higher Education Psychology by Yao Benxian")

Maslow's criteria for mental health

There are numerous established criteria for mental health, yet none have gained universal recognition. Among these, the most classic standards were proposed by American psychologists Abraham Maslow and Bela Mittelmann, consisting of ten key principles: (1) Adequate sense of security; (2) Thorough self-understanding with realistic self-assessment; (3) Practical life goals; (4) Maintaining contact with reality; (5) Preservation of personality integrity and harmony; (6) Capacity for experiential learning; (7) Ability to maintain healthy interpersonal relationships; (8) Appropriate emotional expression and regulation; (9) Individual growth within group constraints; (10) Fulfillment of basic needs without violating social norms. Maslow's criteria for mental health**(**"Higher Education Psychology by Yao Benxian")

Lin Chongde, a renowned Chinese psychologist, posits that the core of mental health lies in an individual's ability to respond positively to all events or activities beneficial to psychological well-being. Such individuals can be considered mentally healthy. In summary, mental health encompasses sound personality, normal intelligence, accurate cognition, appropriate emotions, positive attitudes, and good adaptability.

Factors affecting psychological stress

The nature and content of nursing work

The nature of nursing work is primarily characterized by its service-oriented, professional, comprehensive, preventive, and collaborative aspects. The responsibilities of nursing staff mainly include basic care, clinical nursing, patient condition monitoring, health education, psychological support, and coordination/communication. The complexity and workload of nursing tasks, coupled with the profession's career prospects, occupational stress and risks, shift work schedules (including night shifts), and societal perceptions, can collectively exacerbate psychological stress among nursing student interns.

The tediousness and workload of nursing work

A study published in the Chinese Journal of Hospital Administration revealed that over 60% of healthcare professionals work four or more night shifts per month, with nurses accounting for 33.74%—significantly higher than physicians (10.37%). For detailed data, refer to Figure 2 (Wu Yinuo, 2020).

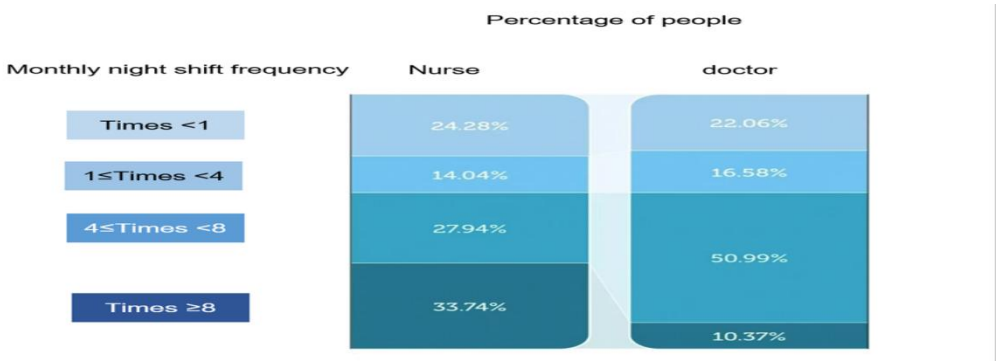


Figure 2 Over 30% of nurses work more than eight night shifts per month(Wu Yinuo, 2020)

According to a survey on turnover intention among healthcare workers in tertiary public hospitals, nearly one-quarter of nurses frequently consider changing jobs, while over three-quarters express a desire to leave medical institutions. Additionally, 70.8% of nurses stated they would likely resign within the next year due to dissatisfaction with their current work (Wu Yinuo et al., 2022). For detailed data, refer to Figure 3.

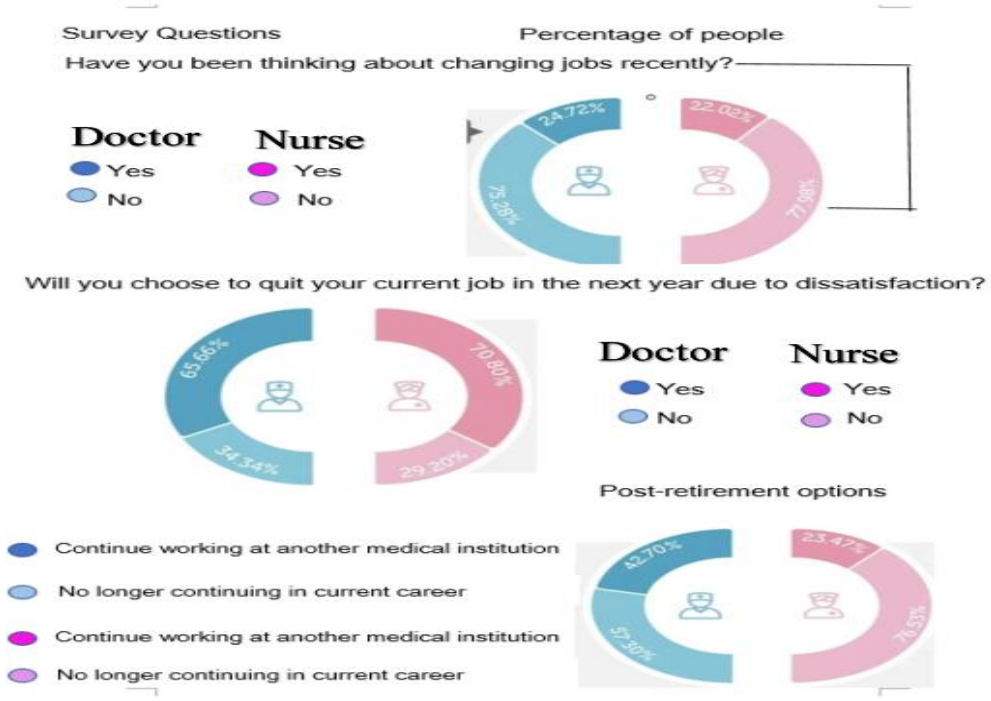


Figure 3 Nearly one-quarter of nurses frequently consider resigning from their positions (Wu Yinuo et al, 2022)

A comparative study of outpatient volumes, bed capacities, and staffing levels between Chinese and American hospitals revealed significantly higher workload intensity among Chinese medical staff compared to their American counterparts. As detailed in Table 1, Chinese healthcare providers face substantially greater labor demands than those in the U.S. healthcare system."

Table 1 Comparison of Outpatient Volume, Bed Capacity, and Staffing Between Large Hospitals in China and the United States(Data synthesized from hospital official websites, U.S. News & World Report rankings, and verified news sources)

	Hospital Name	Annual outpatient and emergency visits (10,000)	Number of beds	Staff
Chinese Hospital	The First Affiliated Hospital of Zhengzhou University	476	7000	8162
	Peking Union Medical College Hospital	510	2000	4000
	West China Hospital, Sichuan University	506	4100	10000
	Huashan Hospital Affiliated to Fudan University	384	1216	2600
	Zhongshan Hospital Affiliated to Fudan University	329	1700	3510
	The First Affiliated Hospital of Sun Yat-sen University	490	2850	5869
	Peking University First Hospital	270	1600	3200

Table 1 (Continued)

	Hospital Name	Annual outpatient and emergency visits (10,000)	Number of beds	Staff
American Hospital	Ruijin Hospital Affiliated to Shanghai Jiao Tong University School of Medicine	360	1800	3766
	Massachusetts General Hospital	150	999	23000
	Mayo Clinic	131.8	1243	64000
	Johns Hopkins Hospital	**—**	**998**	**41000**

Career prospects

With the accelerating global aging population, the demand for healthcare services continues to rise. Older adults typically require more medical and nursing support, driving the need for nursing professionals. However, due to the demanding nature of the job and low monthly salaries, many perceive nursing as a career with limited prospects. Data shows that over the past two decades, the growth of nurses has been slow. Between 2003 and 2022, the number of nurses per 1,000 people increased from 1 to only 3.71—barely reaching the 2018 global average of 3.69. For details, see Figure 4. Surveys indicate that salary and benefits are the top priority for new graduates seeking employment. Yet, a 2017 nationwide study of over 11,000 nurses revealed that even in top-tier hospitals, nearly 20% earned less than 4,000 RMB monthly. More than half had salaries below 6,000 RMB, while 29.16% earned 6,001–8,000 RMB, 14.37%

earned 8,001–10,000 RMB, and only 3.68% earned ≥10,000 RMB (Shi Yanping et al., 2021).

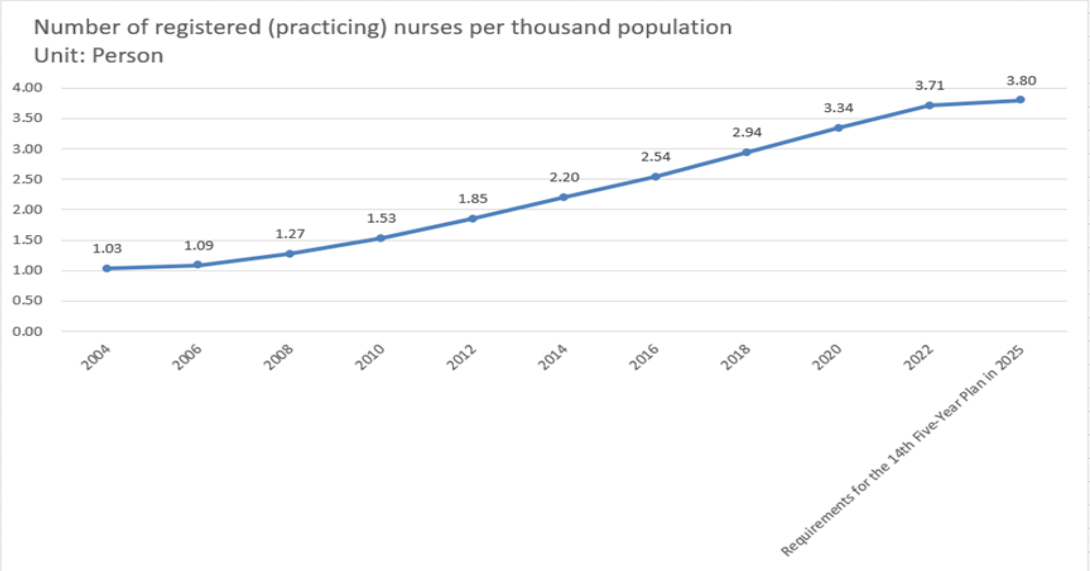


Figure 4 The nursing workforce has experienced sluggish growth during the last 20 years("China Health Statistical Yearbook 2022, Statistical Bulletin on China's Health Development 2022, The 14th Five-Year Plan for National Economic and Social Development of the People's Republic of China and Long-Range Objectives Through the Year 2035")

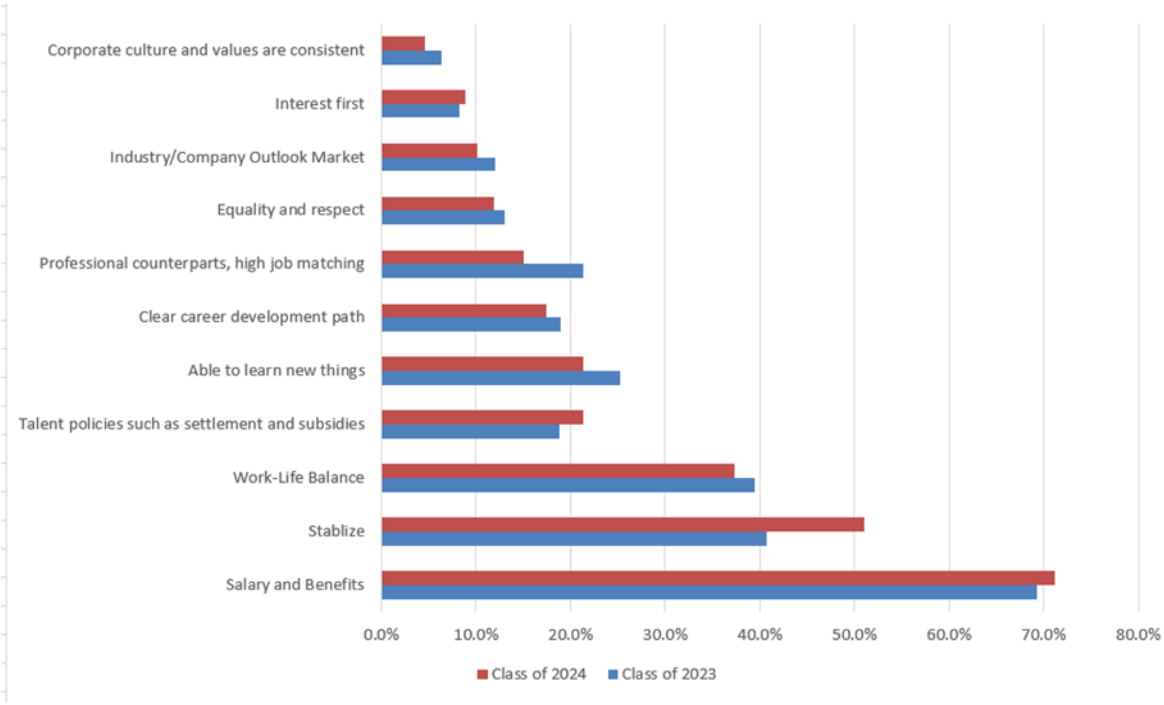


Figure 5 Factors that new graduates prioritize when seeking employment (Zhaopin.com)

Stress and risks in nursing work

For university students who are not yet financially independent, their primary monthly income source is typically the allowance provided by their parents, which also forms the basis of their spending budget. However, as they first step into campus life, their consumption needs often expand—whether to maintain social connections, experience trendy activities, or explore new interests. They exhibit the highest enthusiasm and willingness to spend, along with greater expectations for consumption. Survey data reveals that 37.79% of university students receive a monthly allowance ranging from 1,000 to 1,500 RMB, while 24.69% receive between 800 and 1,000 RMB. For detailed figures, refer to Figure 6.

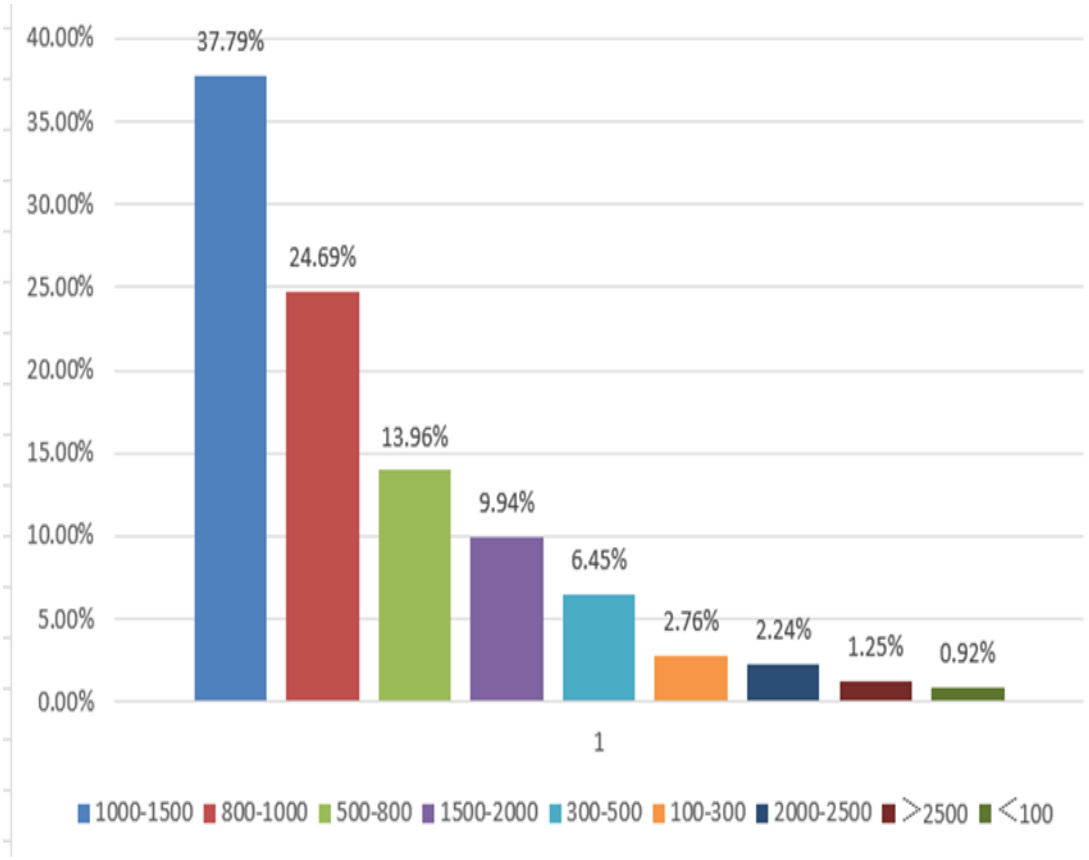


Figure 6 Monthly living expenditure breakdown of university students (China Youth Network)

China Youth Network conducted a questionnaire survey of over 1,000 college students nationwide, finding that most students engage in advance consumption. The survey revealed that 35.08% of college students believe advance consumption can alleviate financial pressure to some extent, but it also brings negative consequences, such as fostering unhealthy spending habits and increasing financial burdens on individuals and families. Figure 7 shows the proportion of college students' advance consumption within one month.

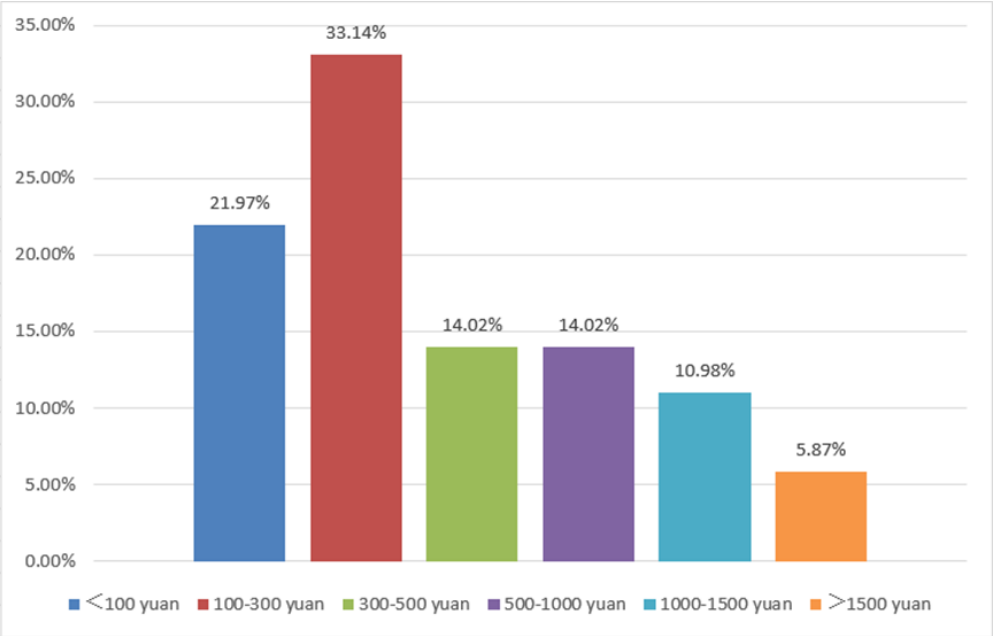


Figure 7 Monthly overspending ratio among college students **(**average**)(**China Youth Network)

Before obtaining their nursing qualification, nursing student interns must complete at least eight months of clinical training. During this period, most hospitals do not provide any salary or financial compensation. In some cases, interns are even required to pay fees for their training. Additionally, nursing student interns must cover their own living expenses, including food, accommodation, and transportation. The financial support from their parents is often insufficient for daily needs, leading many to rely on excessive spending or debt. If this financial stress is not alleviated in time, it may negatively impact their mental health in the following ways:

Anxiety and Depression: Financial instability or economic stress can lead to feelings of anxiety and depression. Concerns about paying bills, repaying loans, covering living expenses, and future financial security may generate persistent psychological stress.

Self-esteem issues: Financial hardship can negatively impact an individual's self-esteem. Unemployment, insufficient income, or economic difficulties may lead to feelings of inferiority and diminished self-worth.

Interpersonal Stress: Financial pressure may negatively impact interpersonal relationships. For example, economic difficulties can lead to conflicts and discord within families, or affect interactions with friends and colleagues.

Physical Health Issues: Financial stress can also negatively impact physical health. Prolonged periods of tension may lead to sleep deprivation, poor dietary habits, and a weakened immune system, thereby increasing the risk of illness.

Psychological Adaptation Difficulties: Financial stress may hinder individuals' ability to adapt to daily life changes and challenges. This can lead to negative thought patterns and emotional distress, ultimately impairing problem-solving capacity.

Unhealthy Coping Mechanisms: Some individuals may resort to unhealthy coping strategies to deal with financial stress, such as excessive spending, gambling addiction, or alcohol abuse, which may further exacerbate both financial and psychological issues.

Therefore, when facing financial stress, it is crucial to adopt proactive coping strategies, such as creating a financial plan, seeking support and building a social support network, and consulting mental health professionals when necessary. At the same time, cultivating a positive mindset—maintaining hope and optimism—can help individuals navigate challenges and improve their mental well-being.

Clinical internship is an essential phase for every medical student, serving as a critical transition from nursing student to practicing nurse. However, it is also a period filled with challenges and stress, which may exert multifaceted impacts on mental health.

Nursing is recognized as one of the high-risk professions for depression. Due to the shortage of nursing resources in China, nurses in China typically face heavier workloads compared to those in many other countries. Studies indicate that the primary stressors for nurses include financial pressures, physical health challenges, and communication difficulties with colleagues and patients. As the future backbone of the nursing workforce, nursing student interns also encounter these same issues. The varying degrees of depression among Chinese nurses are illustrated in Figure 8.

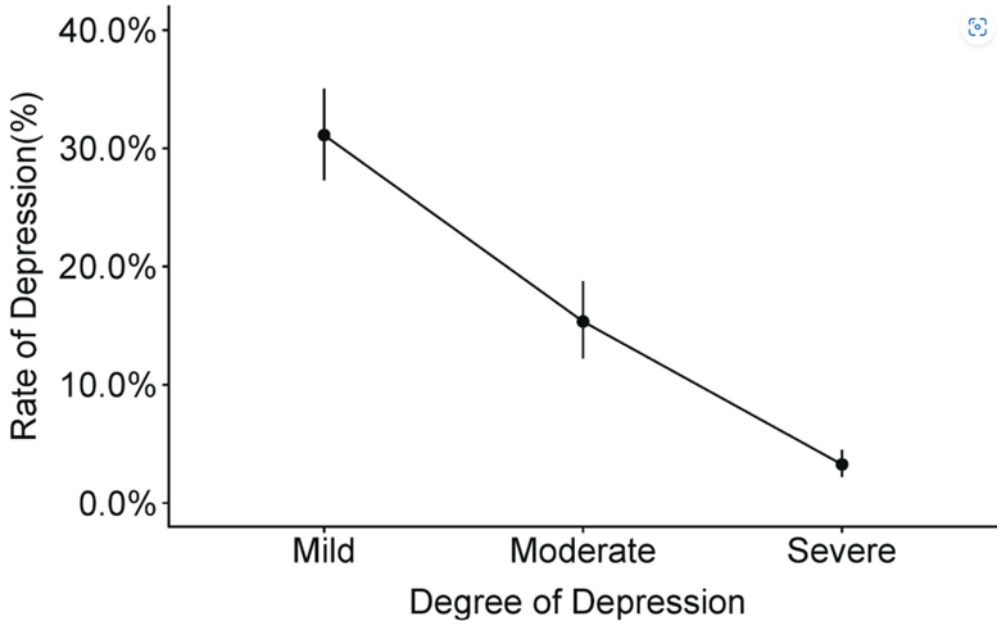


Figure 8 Prevalence of depressive symptoms among nurses in China at varying severity level

The China Nurses' Development Status Survey Report reveals alarming data: over 50% of nurses experience psychological trauma, while more than 99% suffer sharps injuries at work. Additionally, over 86% require psychological support, and 40%

report anxiety—with severe anxiety affecting 6%. These findings highlight the concerning mental health status among nurses in China. For detailed data, see Figure 9.

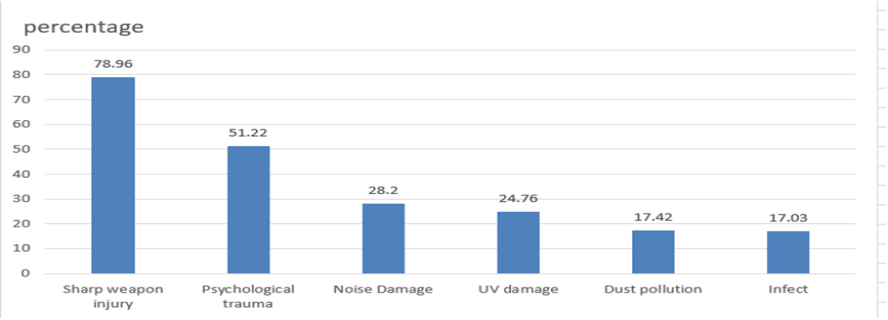


Figure 9 Statistics on Occupational Injuries Sustained During Work (Survey Report on the Development Status of Nurses in China)

Nursing student interns frequently experience occupational exposure during clinical training, with needle stick injuries (NSIs) being the most common type. In China, the incidence of sharps injuries among nursing student interns over the past decade was 68%, significantly higher than the global NSI rate of 36.4% (Wang et al., 2022). A study investigating 71 nursing student interns who experienced NSIs revealed the following injury circumstances and corresponding rates: medication withdrawal and preparation (47.12%), needle removal (19.23%), handling medical waste (15.38%), injection/blood collection (7.69%), needle disassembly (6.73%), and recapping needles (3.85%) (Peng et al., 2022).

According to numerous news reports, incidents of violence against medical staff ('yinao') have occurred across most regions in China. In many cases, patients attacked healthcare workers with knives, resulting in severe injuries, disabilities, or even fatalities. Consequently, nursing student interns not only face risks like needle stick injuries during their training but also endure significant psychological stress. The legal service organization

Medical-Legal Link has compiled statistics on the number of such incidents by province (see Figure 10).

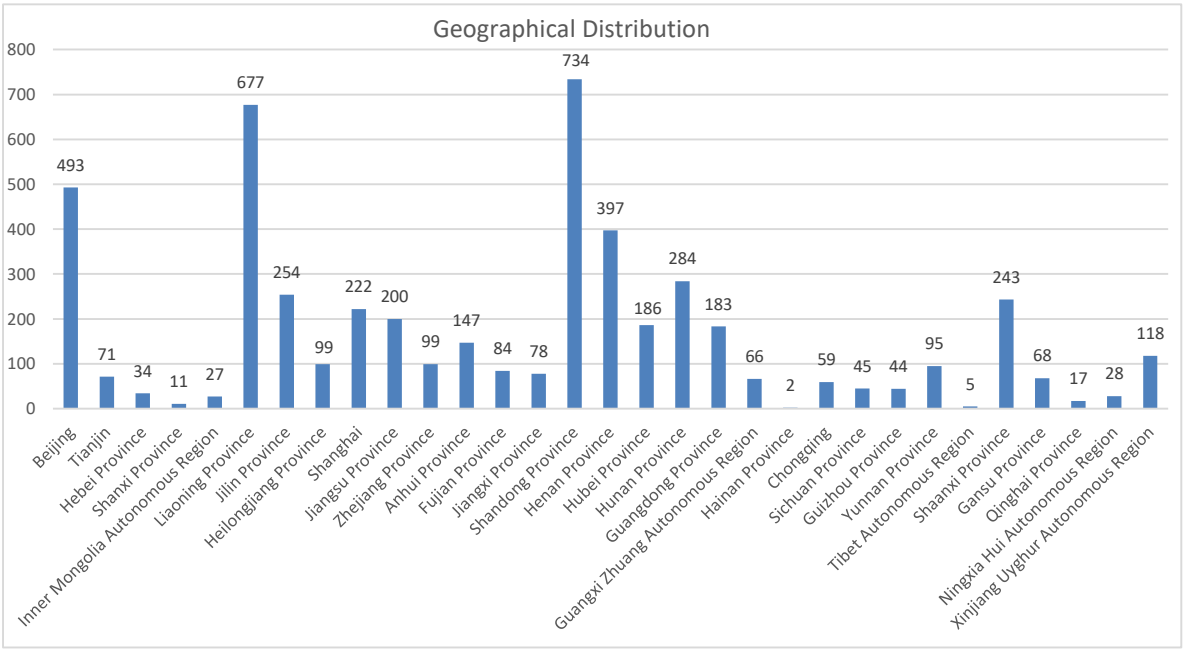


Figure 10 The number of medical disturbance incidents (yinao) across all provinces in China (Legal service organization Yifahui)

Firstly, clinical practice may increase learning and work stress for nursing student interns. During internships, they are required to apply theoretical knowledge from the classroom to real-world practice while adapting to the work environment and workflows of hospitals or medical institutions. This dual pressure of learning and work can lead to feelings of inadequacy, anxiety, and tension, particularly when confronting the realities of patient care.

Secondly, the sense of responsibility and stress associated with clinical internships can impact mental health. Nursing student interns bear significant responsibility for patients' lives and well-being during their training, which may lead to

considerable stress. This stress can manifest as anxiety, fear, or tension, particularly when handling emergencies or witnessing patient deterioration. Additionally, nursing student interns often face pressure related to communication and collaboration with patients, families, and other healthcare professionals. They must interact effectively with diverse groups—building rapport with patients, explaining treatment plans to families, and coordinating care with colleagues. Such demands may heighten feelings of unease or nervousness, especially during critical incidents or conflicts with patients' families.

In addition, nursing student interns face occupational exposure risks during clinical procedures, contact with infectious patients, or medical waste handling. While performing patient care, they must remain highly vigilant to prevent needlestick injuries, all while enduring intense stress. Prolonged exposure to these conditions may adversely affect their mental health.

The social status of nursing work

In the public eye, nurses are primarily seen as responsible for administering injections and distributing medication, while their roles in nursing diagnosis, care planning, and implementation of nursing interventions remain poorly understood. To elevate the social status of nurses, the first step is to address the public’s narrow perception of their responsibilities. Figure 11 illustrates the public’s view of nurses’ core duties.

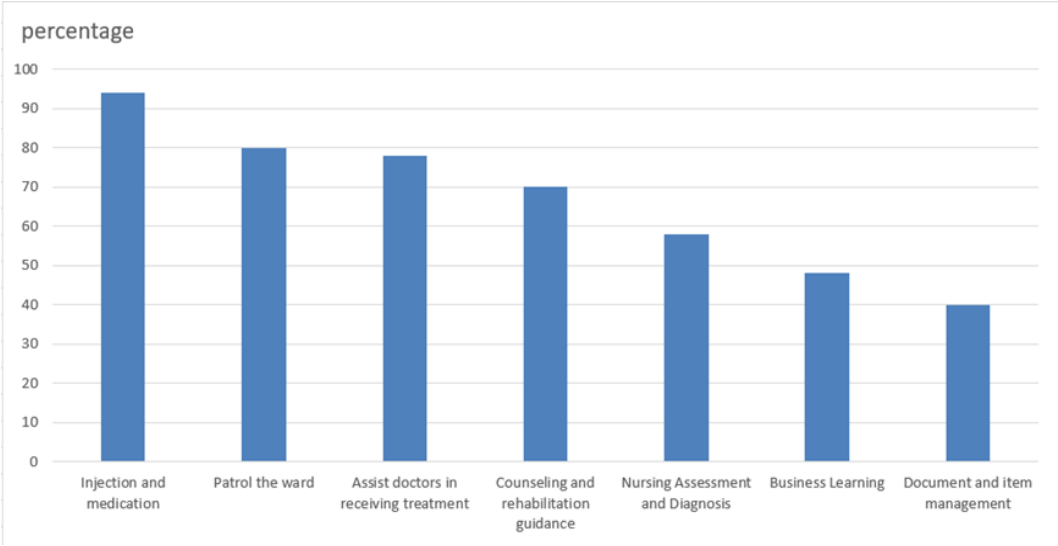


Figure 11 Public perception of nurses' primary job responsibilities **(**Survey Report on the Current Development Status of Nurses in China**)**

Personal knowledge and skills

The student population is facing increasing pressures related to academics, employment, and other challenges, leading to a growing prominence of mental health issues, with a noticeable trend toward younger age groups: 40% of adolescents report feelings of loneliness, the depression detection rate is 40% among high school students, 50% among middle school students, and 38% of college students are at risk of mild anxiety. According to the 2022 National Depression Blue Book, individuals under 18 years old account for 30.28% of all depression cases in China. Among those diagnosed with depression, 50% are students, and 41% have taken leaves of absence due to depression. Academic pressure has become a crushing burden for young people struggling with depression. The depression detection rates across different age groups are illustrated in Figure 12.

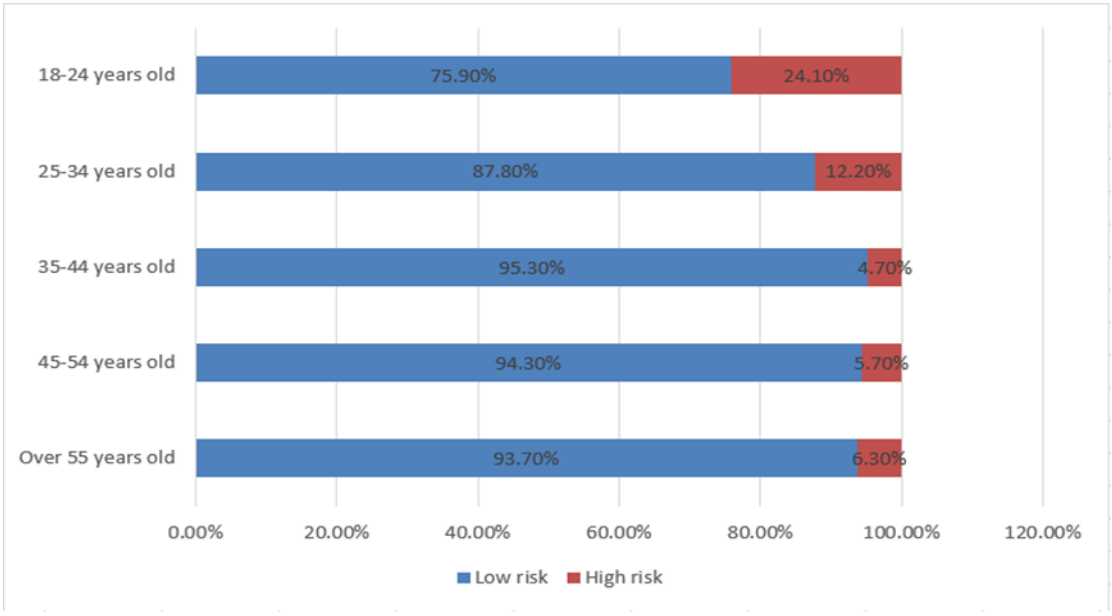


Figure 12 Detection rates of depression risk across different age groups (China Mental Health Blue Book, 2023)

During internships, nursing student interns must acquire extensive medical knowledge, nursing theory, and clinical skills. With the evolving patient-centered care approach, growing patient awareness of self-protection, and increasingly stringent nursing standards, nursing student interns often experience stress due to their limited knowledge and unrefined operational skills, fearing they may commit errors or accidents in their work.

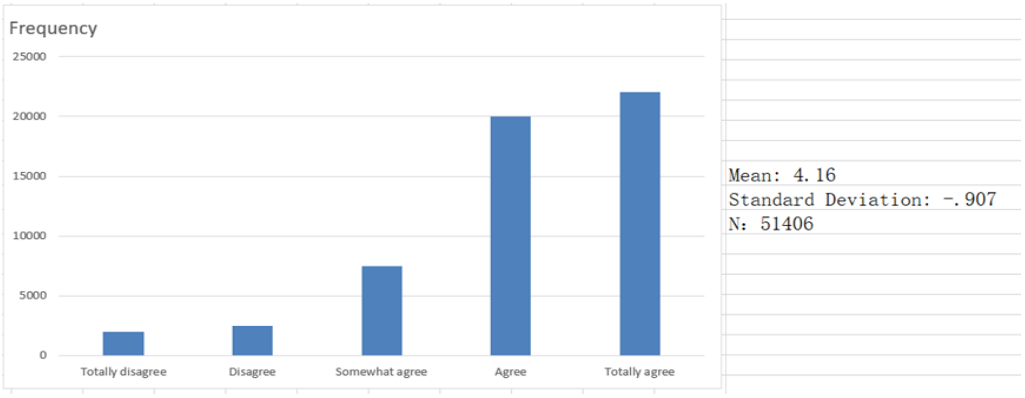


Figure 13 worry about making errors or accidents in their work **(**Survey Report on the Current Development Status of Nurses in China)

Academic stress has a significant impact on mental health. High levels of academic stress can lead to the following issues among nursing student interns:

Anxiety and depression: Prolonged exposure to high-pressure academic environments can lead to anxiety and depression among nursing student interns. The persistent stress from exams, assignments, and coursework may leave them feeling overwhelmed and trigger negative emotional responses.

Physical Health Issues: Academic stress can also negatively impact physical health. Prolonged studying and chronic anxiety may lead to sleep deprivation, irregular eating habits, and even weakened immune function, increasing the risk of illness.

Social Withdrawal: Academic stress can reduce students' time spent interacting with friends and family. This social distancing may further exacerbate feelings of anxiety and depression.

Self-worth issues: Excessive academic stress can undermine students' sense of self-worth. Failure to meet academic expectations—whether their own or others'—may lead to self-doubt and feelings of inferiority.

Unhealthy coping mechanisms: When exposed to prolonged high-stress environments, some students may resort to unhealthy coping strategies, such as substance overuse or alcohol abuse, to manage their emotional distress.

Social stress

The 2023 Report on Young People's Social Attitudes reveals that young adults have an average of 2.5 close friends. Among them, nearly 60% report having fewer than 2 confidants, while 42.47% have more than 3 close friends. Additionally, 12.04% currently lack a confidant. Beyond this, 51.26% of young people find it challenging to make new friends. This sentiment is more pronounced among those living in third- and fourth-tier cities compared to culturally vibrant first-tier cities. Specifically: first-tier cities: 46.67% report difficulty making friends. Third- and fourth-tier cities: 56.64% report the same challenge. For detailed data, see Figures 14 and 15.

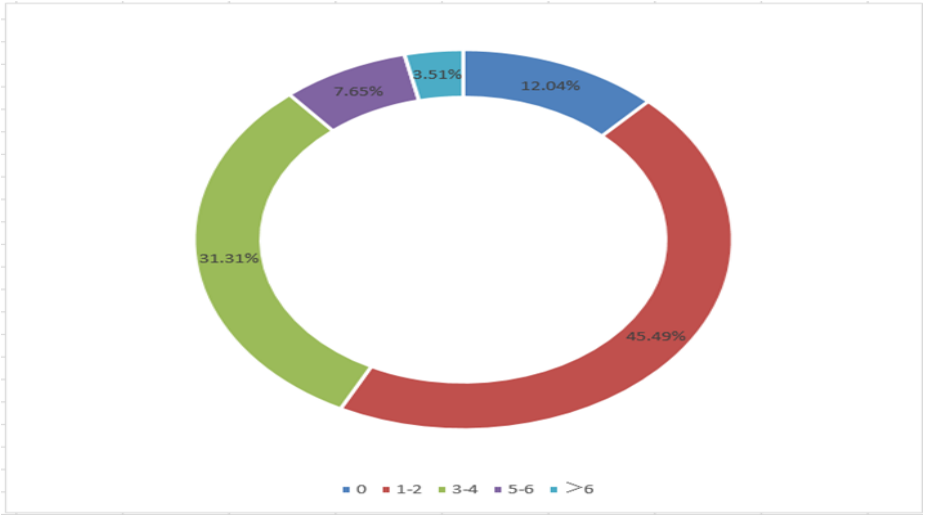


Figure 14 The number of close friends young people have in their lives **(**2023 Report on Young People**'**s Social Attitudes**)**

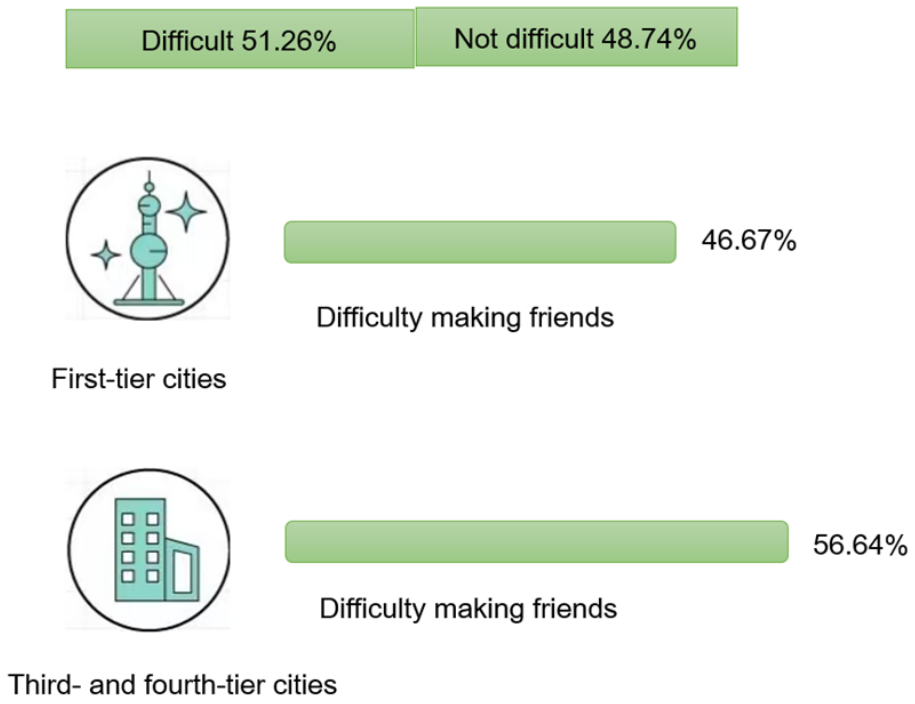


Figure 15 Comparison of the Difficulty in Making Friends Between First**-** Tier and Third/Fourth**-**Tier Cities **(**2023 Report on Young People's Social Attitudes)

Social stress may adversely affect the mental health of nursing student interns, as they are required to interact with diverse individuals in both clinical and academic environments. This stress can stem from multiple sources:

Anxiety and Stress: Social pressure can lead to feelings of anxiety and stress among nursing students. They may worry about how others perceive and evaluate them in social situations, as well as their interactions with colleagues or patients, which further increases their psychological burden.

Self-awareness and Self-esteem: Social stress can negatively impact nursing students' self-awareness and self-esteem. Student nurses may become overly self-conscious about their words and actions, constantly fearing mistakes or criticism from others. This heightened anxiety can erode their confidence and self-worth, potentially leading to self-doubt and feelings of inadequacy.

Interpersonal Challenges: Social stress can hinder nursing student interns' ability to establish and maintain relationships with colleagues, patients, and families. They may face interactions with individuals from diverse backgrounds and personalities, navigating complex and often confusing interpersonal issues—such as team collaboration, patient communication, and family engagement.

Loneliness and Social Avoidance: Social stress can lead nursing students to feel isolated and misunderstood. They may withdraw from social interactions, attempt to solve problems alone, or avoid engaging with others—behaviors that ultimately intensify their sense of loneliness and social withdrawal.

Mental Health Concerns: Prolonged social stress can negatively impact the psychological well-being of nursing student interns. If they fail to manage this stress

effectively, they may develop mental health issues such as anxiety, depression, and excessive stress, which can severely compromise their quality of life and work performance.

Psychological gap

Nursing student interns often experience a psychological gap during their clinical practicum, primarily manifested as the disparity between their expectations and the actual realities of the experience, which can contribute to increased stress.

Many nursing student interns enter their clinical training with idealized expectations, hoping to quickly master skills and gain recognition. However, the reality often involves confronting heavy workloads, complex procedures, and high levels of stress. When faced with hands-on tasks and direct patient care, these interns may begin to doubt their abilities, worrying they are not yet competent enough to fulfill their responsibilities.

In clinical settings, nursing student interns must manage complex medical conditions and emergencies, which often extend beyond textbook knowledge. Additionally, they need to interact with healthcare professionals and patients from diverse backgrounds and personalities, potentially leading to communication challenges and interpersonal stress.

During internships, nursing student interns may face long working hours and high-intensity workloads, making it difficult to balance personal life and rest time, which can lead to significant stress.

patients' attitudes and comments

When nursing student interns begin their clinical training, they inevitably interact with patients and patients' families. Some patients hold a positive attitude toward them, appreciating their enthusiasm, patience, and willingness to spend time explaining procedures and offering support. However, others may doubt the interns' competence or even verbally abuse them, especially when they are performing complex

nursing tasks or handling critical conditions. Such reactions can significantly increase the stress experienced by nursing student interns during their clinical practice.

Relevant data indicates that 41.2% of nurses experienced aggressive behavior from patients or their family members within the past year. Specific data are shown in Figure 16.

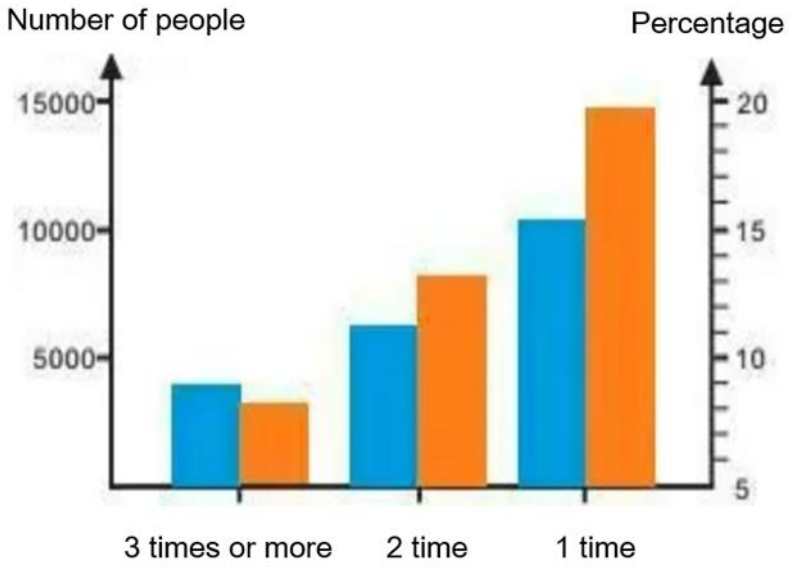


Figure 16 Experienced aggressive behavior from patients or their families within the past year **(**Survey Report on the Development Status of Nurses in China)

Many patients and their families believe the following factors significantly impact nurse-patient relationships: lack of mutual understanding, professional burnout, inadequate professionalism, insufficient nurse-to-patient ratios, lack of compassion, and deficiencies in clinical competencies. Detailed statistical data is presented in Figure 17.

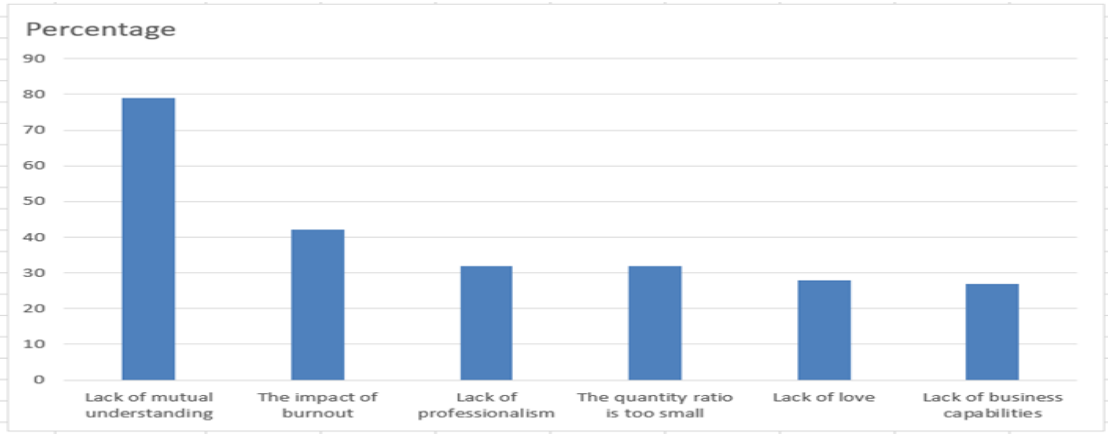


Figure 17 Patients and Families Perspectives on Factors Affecting Nurse-Patient Relationships (Survey Report on the Development Status of Nurses in China)

Role Positioning

Many nursing student interns struggle to define their role clearly when entering clinical practice. Role clarity for nursing student interns encompasses multiple dimensions, including responsibilities, objectives, and self-identity. During internships, student interns are often primarily assigned basic patient care tasks and non-nursing duties such as errands, effectively serving as supplemental labor for the entire department. This ambiguity in role definition, coupled with high workloads, contributes significantly to their stress.

If nursing student interns fail to clarify their role identity, they may face a series of challenges and risks. These issues can not only hinder their learning outcomes but also negatively impact patient care quality and team collaboration, while potentially increasing their stress levels.

The role of nursing student interns extends beyond merely performing tasks and acquiring skills. It also involves actively integrating into the team, communicating effectively, engaging in self-reflection, and focusing on professional development. Clarifying these role expectations helps nursing student interns learn and grow more effectively during their clinical placements, while also laying a solid foundation for their future careers. Additionally, recognizing and managing stress is crucial to ensuring their well-being and success in these demanding environments.

Employment and certification

Employment stress

With the increasing number of graduates, the job market has become more competitive, leaving many graduates facing difficulties in finding employment or securing jobs related to their fields of study. This situation has forced some graduates to prolong their job search or accept low-paying positions unrelated to their majors. According to statistics from China's Ministry of Education, the number of college graduates in 2023 is projected to reach 11.58 million, hitting a record high. For specific graduate data, please refer to Figure 18. Additionally, the National Bureau of Statistics compiled a ranking of employed persons across China's 31 provinces by the end of 2020. The top three provinces were Guangdong, Shandong, and Jiangsu, while Hainan ranked 28th, indicating its employment rate lags significantly behind other provinces. For detailed employment figures by province, see Table 2.

Table 2 Ranking of the Number of Employed Persons in All 31 Chinese Provinces (Autonomous Regions and Municipalities) at the End of 2020(National Bureau of Statistics)

Ranking	Area	Total number of employed persons (10,000 people)	Urban employment (10,000 people)	Rural employment (10,000 people)	Primary industry (10,000 people)	Secondary industry (10,000 people)	Tertiary industry (10,000 people)
Total	Nationwide	75064	46271	28793	17715	21543	35806
1	Guangdong	7039	5418	1621	767	2526	3746
2	Shandong	5510	3346	2164	1373	1838	2299
3	Jiangsu	4893	3481	1412	675	1944	2274
4	Henan	4884	2591	2293	1223	1443	2218
5	Sichuan	4745	2489	2256	1542	1098	2105
6	Zhejiang	3857	2755	1102	208	1692	1957
7	Hebei	3671	2099	1572	815	1171	1685
8	Hunan	3280	1871	1409	836	884	1560
9	Hubei	3261	1872	1389	897	857	1507
10	Anhui	3243	1791	1452	815	1020	1408
11	Yunnan	2806	1292	1514	1226	497	1083
12	Guangxi	2558	1339	1219	866	655	1037
13	Jiangxi	2264	1296	968	455	767	1042
14	Liaoning	2231	1481	750	631	496	1104
15	Fujian	2206	1479	727	323	719	1164

Table 2 (Continued)

Ranking	Area	Total number of employed persons (10,000 people)	Urban employment (10,000 people)	Rural employment (10,000 people)	Primary industry (10,000 people)	Secondary industry (10,000 people)	Tertiary industry (10,000 people)
16	Shaanxi	2105	1235	870	632	443	1030
17	Guizhou	1892	977	915	634	472	786
18	Shanxi	1738	1002	736	424	438	876
19	Chongqing	1676	1100	576	378	421	877
20	Heilongjiang	1473	923	550	538	240	695
21	Shanghai	1347	1202	172	27	448	899
22	Xinjiang	1356	765	591	460	191	705
23	Gansu	1331	618	713	597	237	497
24	Jilin	1261	728	533	472	184	605
25	Inner Mongolia	1242	784	458	443	211	588
26	Beijing	1164	1018	146	28	194	942
27	Tianjin	647	538	109	36	221	390
28	Hainan	541	318	223	171	62	308
29	Ningxia	344	220	124	83	82	179
30	Qinghai	279	170	109	71	62	146
31	Tibet	193	73	120	69	30	94

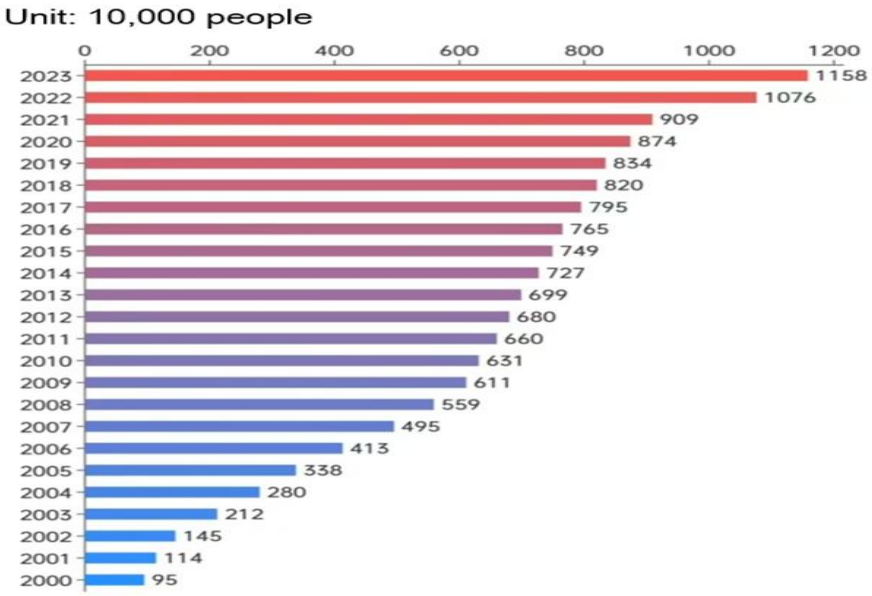


Figure 18 Annual number of college/university graduates **(**Ministry of Education of China)

Compared to most other disciplines, nursing has traditionally enjoyed superior employment prospects. However, due to increasing graduate numbers, mismatches between education and market demands, escalating degree requirements, hospital cost-control measures, and disproportionate work intensity-to-compensation ratios, employment rates for nursing graduates have declined significantly - though they remain above the national average. Employment rates for undergraduate nursing graduates from the 2017 to 2022 cohorts are shown in Figure 19.

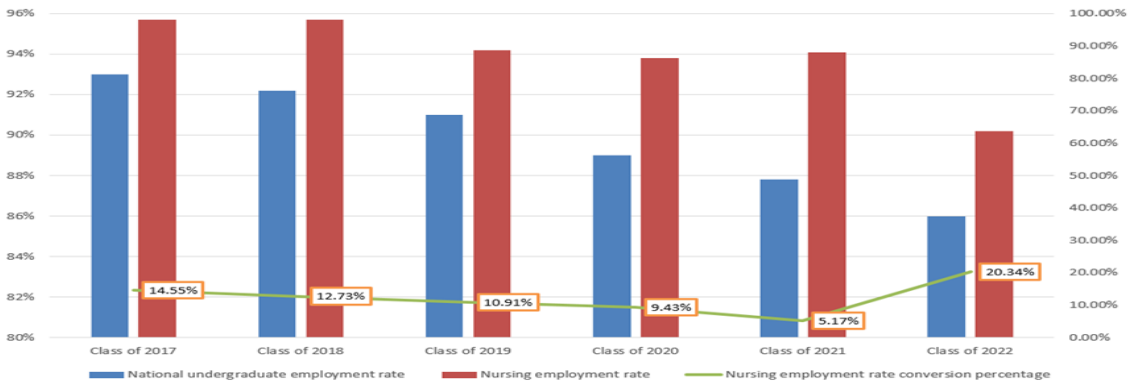


Figure 19 Six-month post-graduation employment rate and ranking percentile of nursing undergraduates **(**2017-2022 cohorts**) (**MyCOS Chinese Undergraduate Employment Report)

According to research by scholars such as Zhang Qian et al., the employment situation for medical graduates has become increasingly challenging. In 2020, the number of medical graduates from Chinese regular higher education institutions reached 878,000, representing an increase of 50,000 (or 6.04%) compared to 2019 (Zhang Qian et al., 2023). This competitive job market may exert multifaceted impacts on graduates' mental health."

Firstly, the stress of job hunting can lead to anxiety and tension. Nursing student interns may worry about whether they can secure suitable employment and whether they will be competent in their roles. This anxiety may manifest as sleep disturbances, loss of appetite, mood swings, and other symptoms, ultimately affecting their overall mental health.

Secondly, career-related stress may trigger issues of self-doubt and diminished self-worth among nursing student interns. When they fail to secure desired positions or face repeated rejections, they may begin questioning their competence and value. Such self-doubt

can lead to decreased self-esteem, emotional distress, and even a sense of hopelessness about the future.

Career selection stress may also intensify social comparison and competition. Nursing student interns might compare themselves with peers, measuring who has achieved greater career success or secured better employment opportunities. Such social comparisons could lead to feelings of inferiority and envy, ultimately compromising mental health.

Pressure to verify

Since 2012, the overall pass rate for the Nurse License Examination among graduating nursing student interns has remained stable at 70%–74%. Repeat examinees (non-graduates) account for approximately 37% of total candidates annually, with a significantly lower pass rate of 27%–37% compared to new graduates (You Liming et al., 2022). Detailed data are presented in Figures 20 and 21.

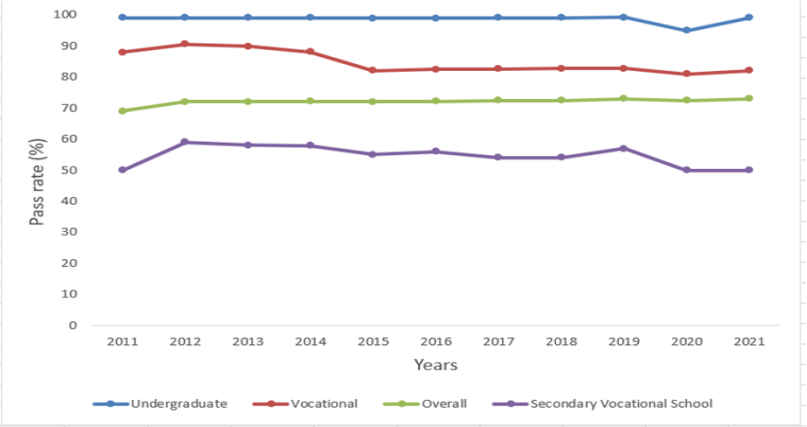


Figure 20 Trends in the pass rates of the Nurse License Examination among graduating candidates by education level **(**2011–2021**) (**Chinese Nursing Management Journal**)**

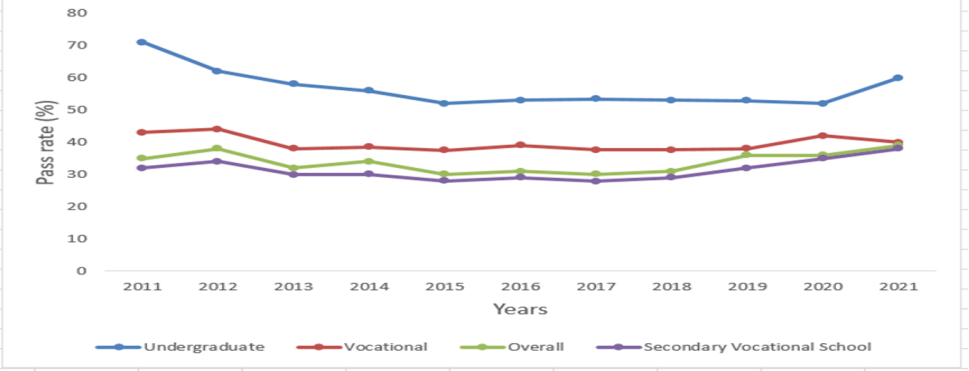


Figure 21 Trends in the Pass Rate of Repeat Exams by Educational Level in the Nurse License Examination **(**2011–2021**) (**Chinese Nursing Management Journal**)**

China's Nurse License Examination has witnessed a gradual decline in pass rates, primarily attributable to: growing candidate numbers, increased examination difficulty, diverse educational backgrounds among applicants, significant absenteeism rates, and evolving examination patterns.

Firstly, as the Nurse License Examination grows increasingly challenging, it demands extensive study and preparation time. The exam covers a wide range of content, requiring candidates to master a broad spectrum of professional knowledge and skills. Consequently, examines often experience overwhelming stress, compounded by anxiety about whether they will pass. This heightened pressure may negatively impact their sleep quality, appetite, and emotional well-being.

Secondly, the process of preparing for the Nurse Licensure Examination may significantly impact individuals' self-worth and self-esteem. When candidates encounter difficulties or setbacks during their preparation, they may develop self-doubt and feelings of

inferiority, perceiving themselves as inadequate or unworthy of professional recognition. Such negative self-perceptions can adversely affect both their confidence and emotional stability.

Moreover, the process of obtaining nurse licensure may also impact individuals' social lives. To prepare for the exam, candidates often need to sacrifice social engagements, reducing interactions and activities with friends and family. This may lead to feelings of isolation and lack of support.

Clinical assessment and evaluation

Clinical assessment and evaluation represent another significant source of stress for nursing student interns. Many worry about their performance in final theoretical exams, practical skill assessments, and unfavorable evaluations from head nurses or clinical instructors upon completing each rotation. The School of Medicine conducted a questionnaire survey among the Class of 2024 nursing interns to investigate their academic, personal, and professional experiences during clinical training. Results indicated that less than 2% of interns performed poorly in their final theoretical and practical assessments, while 98.43% achieved satisfactory or higher grades. For detailed data, refer to Figure 22.

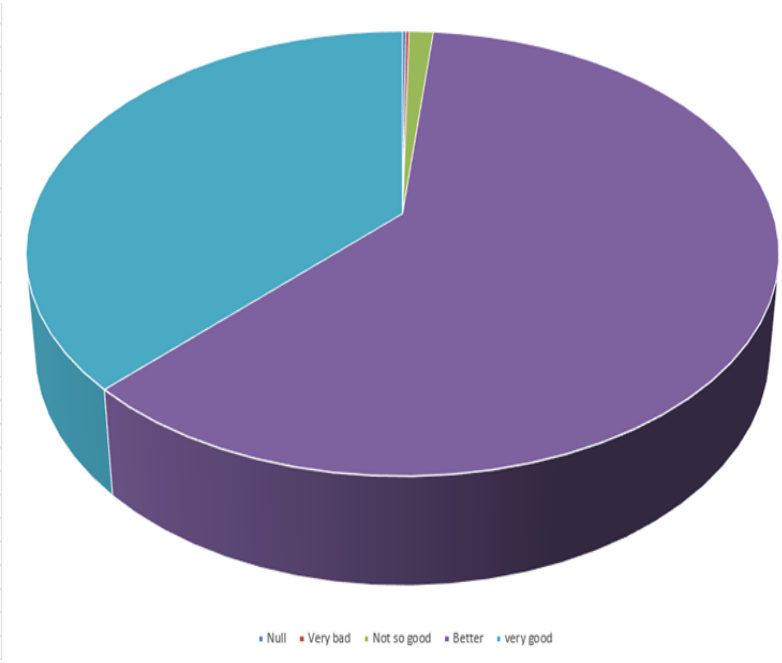


Figure 22 ass rates of final theory/practical exams **(**per rotation**) (**Department of Medicine**)**

Excessive stress among nursing student interns regarding clinical assessments and evaluations can lead to a range of negative consequences. This not only may impair their performance and learning outcomes but also potentially harm their mental well-being and professional development. Below are some specific risks and their possible effects:

Increased Psychological Stress: Excessive worry about assessments and evaluations may lead to significant psychological stress and anxiety in nursing student interns, negatively impacting their emotional well-being. Prolonged stress and anxiety can result in low mood, insomnia, difficulty concentrating, and even adverse effects on physical health.

Impact on learning outcomes: Concerns about assessment results may cause excessive stress in nursing student interns, thereby affecting their learning efficiency and clinical performance. High stress levels can lead to cognitive rigidity and unsteady practical skills, hindering the mastery and application of competencies, which may ultimately reduce assessment performance.

Reduced self-confidence: Excessive stress over evaluation outcomes may lead nursing student interns to doubt their abilities, lowering their self-confidence. A lack of confidence can negatively impact their enthusiasm and initiative in clinical practice, ultimately affecting their overall performance and professional development.

Impact on Interpersonal Relationships: Anxiety and stress may cause nursing student interns to exhibit negative or tense behaviors during interactions with supervisors, colleagues, or patients. This could lead to barriers in teamwork and difficulties in patient communication, ultimately affecting interpersonal relationships and team dynamics.

Excessive competition or stress: An overemphasis on evaluation outcomes may cause nursing student interns to develop unnecessary competitive tendencies or heightened stress. Excessive competition can undermine teamwork, while chronic stress may impair cognitive function and judgment, ultimately affecting work performance

Teaching

The teaching methods of clinical instructors, their level of recognition for nursing student interns' work contributions, and their overall attitude all significantly impact the stress levels of nursing student interns. A survey conducted by the Medical Department revealed that nearly 95% of departments adopt a one-on-one mentoring model, while fewer than 5% utilize a group mentoring approach.

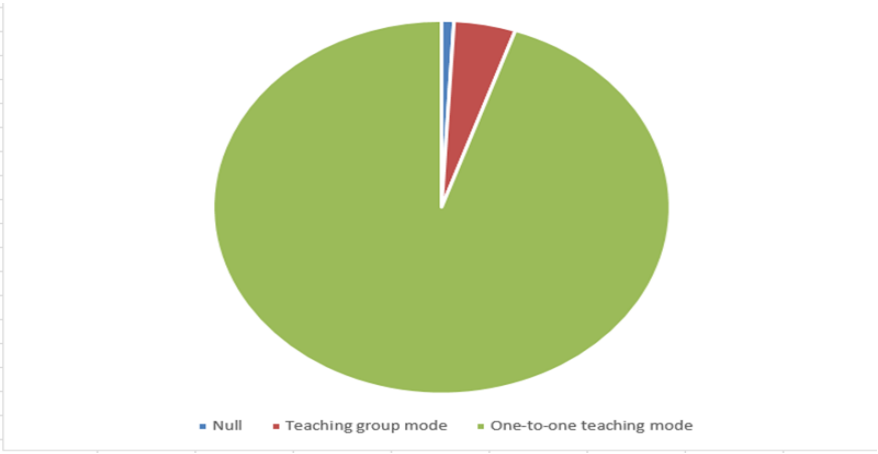


Figure 23 Teaching model adopted by the department **(**Department of Medicine**)**

The relationship with clinical instructors is also crucial for the mental health of nursing student interns. According to a survey conducted by the Medical Department, the vast majority of instructors provide timely communication and care to students, which helps alleviate their stress

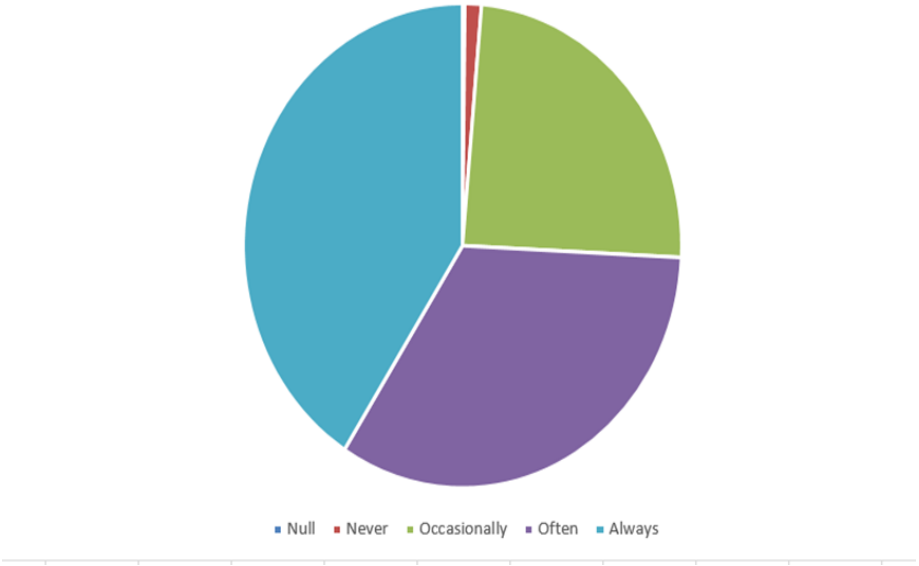


Figure 24 Clinical instructors**'** frequency of showing concern for nursing student interns**'** daily lives, emotional well-being, and effective communication **(**Department of Medicine**)**

Strategies to relieve psychological stress

Academic scholar Bai Nan (2021) suggests that mitigating stress requires efforts from three key aspects: family, educational institutions, and students themselves. Parents should cultivate a supportive home environment, monitor their children's psychological changes, and communicate openly to alleviate stress. Schools should organize regular mental health workshops to equip nursing student interns with relevant knowledge for self- adjustment. Additionally, schools ought to maintain consistent communication with parents to keep them informed about their children's well-being.Nursing student interns must proactively address challenges encountered in academic and clinical settings, avoiding passivity or anxiety. They should adopt stress-management techniques to regulate their mindset and prevent unnecessary psychological strain.In my view, stress can be alleviated through four methods: accurate understanding of stress (recognizing its sources and effects). attention diversion (e.g., hobbies, social activities). Physical exercise (to release tension and boost endorphins). Psychological counseling (seeking professional support when needed).

Correctly understand psychological stress

Emotional stress is a natural part of the human experience. Everyone encounters both positive and negative emotions. When psychological stress leads to negative emotions, our first step should be acknowledging these feelings before proceeding to properly manage the emotional stress.

Recognizing the significance of properly comprehending stress manifests in various dimensions:

Reducing Anxiety and Fear: When we correctly understand and recognize that psychological stress is a universal experience—not a sign of abnormality or personal failure—it helps diminish excessive anxiety and fear associated with stress. This awareness enables us to confront challenges with greater calmness and rationality.

Enhanced Coping Ability: A correct understanding of psychological stress helps nursing student interns improve their psychological resilience and coping skills. By identifying different sources of stress and their potential effects, they can learn to manage stress more effectively and develop personalized strategies to address it.

Improving Mental Health: Misunderstanding or mishandling psychological stress can worsen mental health issues, such as anxiety disorders and depression. For nursing student interns, correctly recognizing psychological stress helps prevent the onset or escalation of these problems, thereby protecting and enhancing overall mental well-being.

Promoting a Positive Life Attitude: When nursing student interns correctly understand psychological stress, they are more likely to maintain a positive life attitude and emotional state. This enhances their self-control abilities and enables them to better adapt to and cope with various challenges in life.

Enhanced Social Support and Communication: Recognizing psychological stress correctly can help nursing student interns improve communication and seek support from others. By understanding that stress is a common experience, they may feel more comfortable reaching out for and accepting support and empathy from peers, mentors, or colleagues.

Divert attention

There are various methods to divert attention and alleviate psychological stress, including exercise, music therapy, meditation, confiding in friends, and changing environments. Scholar (Wang Long , 2024) suggests that music therapy can effectively

reduce psychological stress, but the selection of therapeutic music should align with individual needs and goals, as different pieces yield distinct effects. For university students, soothing music has proven particularly effective in mitigating stress. Research indicates that the peer education model is highly effective in reducing psychological stress among nursing student interns, enhancing their coping strategies. Peer education refers to the process where individuals of the same gender, similar age, shared background, or common experiences exchange information, behaviors, and ideas to achieve educational objectives (Yang Xiaojuan et al., 2018). Additionally, Wang Yao's (Wang Yao's, 2023) findings reveal that 91.6% of students reported the meditation component of their coursework as beneficial for personal growth. Specifically, meditation led to the following improvements: increased emotional stability (88.7%), a calmer mindset (85.9%), greater self-care practices (70.4%), and better interpersonal relationships (64.7%).

Sport

Physical activity is a healthy lifestyle that enhances physical fitness, improves mental well-being, and boosts happiness—even contributing to success. Cultivating nursing student interns' interest in sports and fostering a positive athletic environment is crucial, as exercise not only builds mental resilience but also alleviates psychological stress (Liu. M et al., 2024). Mindfulness training may benefit non-precision aspects of athletic performance. Integrating mindfulness into sports training programs could improve student-athletes' quality of life and performance (Jones et al., 2020). Emotions, because emotions are the most intuitive manifestations of physical exercise. Research by scholar Zhou Ying shows that long-term physical activity can make people have good emotions. The effect of physical activity on improving the ability to withstand psychological

stress is mainly reflected in improving negative emotions and improving social adaptability (Zhou Ying, 2020).

Psychological Counseling

Psychological counseling is a professional service that can effectively help individuals reduce psychological stress through collaboration with trained mental health professionals. The following are some methods and approaches through which nursing student interns can alleviate psychological stress with counseling:

Emotional Expression and Confiding: In psychological counseling, nursing student interns can safely express and share their emotions, stress, and uncertainties. Mental health professionals actively listen and validate their feelings. This process of expression and confiding itself helps release emotions and alleviate psychological stress.

Learning Coping Strategies and Skills: In psychological counseling, nursing student interns can acquire effective strategies and skills to manage stress, such as deep breathing, relaxation training, and cognitive-behavioral techniques. These skills help them better regulate emotions and address specific situations involving psychological stress.

Exploring Inner Needs and Values: Sometimes, the source of psychological stress may stem from a misalignment between an individual's inner needs, core values, or life goals. Counseling can help nursing student interns explore and understand these intrinsic motivations, enabling them to clarify their priorities and life direction, thereby reducing feelings of stress.

Building a Positive Support Network: During psychological counseling, nursing student interns can receive professional support and guidance. They can also explore ways to establish a positive support network in their daily lives. A strong social support system provides additional help when facing stress, especially psychological stress

Long-Term Treatment and Personal Growth: For persistent or complex psychological stress, counseling can provide nursing student interns with ongoing support and treatment. Through regular therapy sessions, interns can gradually explore and address deeper psychological stress-related issues, achieving lasting personal growth and mental well-being.

Chinese version of the stress perception scale PSS-14

The Chinese version of the Perceived Stress Scale (PSS-14) was used to measure the psychological stress levels of nursing student interns at of Hainan Vocational University of Science and Technology in Yunlong Campus. The Perceived Stress Scale (PSS), developed by Sheldon Cohen et al. in 1983, is one of the most widely used international tools for assessing psychological stress. It has three versions: the 14-item (PSS-14), 10-item (PSS-10), and 4-item (PSS-4) formats.The Chinese version of the Perceived Stress Scale (PSS-14) was adapted by Professor Tingzhong Yang from the original English PSS to align with China's cultural context. After reviewing the overall structure and specific items, necessary modifications were made to finalize the scale. The PSS-14 consists of 14 items divided into 2 dimensions. Each item is scored on a 5-point Likert scale with the following options: Never (1 point), Almost never (2 points), Sometimes (3 points), Often (4 points), Always (5 points). Total scores range from 14 to 70, with higher scores indicating greater psychological stress. The interpretation of scores is as follows: 14–32.66: Low stress, 32.67–51.2: Moderate stress, 51.3–70: High stress In the preliminary study, the Chinese version of the PSS demonstrated a Cronbach’s α coefficient of 0.78, indicating acceptable internal consistency.

Topic of related research

Sun Hui et al., 2019. Analysis and reflection on the current situation of registered nurse resource allocation in my country. Objective: To analyze the changes in registered nurses in China from 2013 to 2017, and to conduct an in-depth discussion on their current situation, in order to provide a scientific basis for the rational allocation of nursing human resources and continuously meet the development needs of the nursing industry. Results: As of December 31, 2017, the total number of registered nurses in China was 3,804,021, including 3,720,333 female nurses and 83,688 male nurses, with a male-to-female nurse ratio of 1:44.5. The national registered nurse ratio was 2.7 per 1,000 people; the national ratio of practicing physicians to practicing registered nurses was about 1:1.12. Statistics on the educational background composition of registered nurses nationwide show that the ranking of nurses' educational background is as follows: year 3 college (48.5%) > technical secondary school (32.1%) > undergraduate (18.4%) > high school or below (0.8%) > master's degree and above (0.2%), among which year 3 college and technical secondary school graduates account for the majority, while the number of people with a master's degree or above accounts for the lowest proportion.

Lin Yin et al., 2021, Current situation of stress sources in clinical internship of nursing students and analysis of countermeasures. Objective: To understand the current situation of clinical internship stress of nursing interns (hereinafter referred to as "nursing student intern"), analyze the causes of stress, and explore countermeasures to reduce stress. Results: The average total stress score of nursing students was (59.41±12.00) points, and the average score of each item was (2.20±0.45). There was a statistically significant difference

in the total stress source scores of nursing students with different academic qualifications ($P<0.05$).

Lan Xianlan, 2021, Analysis of the causes of psychological stress of nursing students during internship and counseling paths. The article specifically analyzes the various pressures faced by nursing students during internship, and proposes counseling paths to relieve the psychological stress of nursing students: establishing smooth communication channels between teachers and students, strengthening role transition guidance, strengthening professional ideological education, etc., to guide students to make role transitions, improve students' interpersonal communication skills, provide assistance for nursing students' internships, and enable them to carry out clinical work more confidently.

Wang Qingping et al., 2020, Analysis of psychological status and counter measures of three-year higher vocational nursing students in the later stage of internship. Objective: To investigate and analyze the mental health status of three-year higher vocational nursing student intern in the later stage of internship and propose intervention measures. Results: The survey showed that 60.6% of the nursing students had anxiety and 55.7% had depression.

Rafati F et al., 2021, Development and psychometric testing of nursing students' perceptions of clinical stressors scale: an instrument design study. Objectives: In clinical environments, nursing students experience a range of stressors that can affect their health,learning, and quality of patient care. This study aimed to develop a Nursing Students' Perceptions of Clinical Stressors Scale (NSPCSS) and to evaluate its psychometric properties. Results: In this study, 6 factors were extracted from 30 itemes through exploratory factor analysis: (1) instructor's limited competence in clinical environments, (2) inappropriate clinical environment, (3) inadequate knowledge and skills, (4) inefficient education in clinical planning, (5) instructor's inappropriate conduct, and (6) concerns about the characteristics of

nursing career. These factors accounted for 58.8% of the total variance. The results of the confirmatory factor analysis suggested the goodness- of- fit indices was acceptable. Furthermore, the internal consistency and composite reliability indices of all factors were greater than 0.7.

Park C L et al., 2021, How does yoga reduce stress? A clinical trial testing psychological mechanisms. Objectives: Yoga interventions can reduce stress, but the mechanisms underlying that stress reduction remain largely unidentified. Understanding how yoga works is essential to optimizing interventions. The present study tested five potential psychosocial mechanisms (increased mindfulness, interoceptive awareness, spiritual well-being, self-compassion and self-control) that have been proposed to explain yoga's impact on stress. Results: Only stress reactivity decreased, on average, from T1 to T3. Except for self-compassion, all psychosocial mechanisms increased from T1 to T3, with minimal changes from T2 to T3. Except for self-control, increases in each mechanism were strongly associated with decreases in both measures of stress between T1 and T2 and decreases in perceived stress from T1 to T3 (all p's < 0.05).

Aljohani, W et al., 2021, Sources of Stress among Saudi Arabian Nursing Students:A Cross-Sectional Study. Objectives: This study examines sources of stress among nursing students at an academic institution in Jeddah, Saudi Arabia, using a descriptive quantitative cross-sectional research design.Results:Nursing student sources of stress fell into three categories: academic concerns, clinical practice,and social factors.

Sun Yumei et al., 2022, Study on the learning experience of undergraduate nursing students in a hybrid-flexible course model. Objective: To understand students' experience of online and offline hybrid learning in a hybrid-flexible course model, and provide a basis for formulating effective hybrid teaching design strategies. Results: Three themes were

summarized based on the interview data: experience of completing learning tasks (unit tests are effective; peer evaluation can broaden ideas; grades are an important driving force for learning; different platforms are prone to confusion), experience of participating in teaching activities (task-driven group learning can stimulate learning interest; different forms of teaching activities complement each other to improve learning effects; MOOC learning methods are more flexible; different students have different learning experiences), and the necessity of learning support (necessary reminders are needed; visual presentation of knowledge is very helpful; guidance on learning methods is expected).

Campbell, F et al., 2022, Factors that infuence mental health of university and college students in the UK: a systematic review. Objectives: To identify factors associated with mental health of students in higher education. Results: We included 31 studies, most of which were cross sectional in design. Those factors most strongly and consistently associated with increased risk of developing poor mental health included students with experiences of trauma in childhood, those that identify as LGBTQ and students with autism. Factors that promote wellbeing include developing strong and supportive social networks. Students who are prepared and able to adjust to the changes that moving into higher education presents also experience better mental health. Some behaviours that are associated with poor mental health include lack of engagement both with learning and leisure activities and poor mental health literacy. Improved knowledge of factors associated with poor mental health and also those that increase mental wellbeing can provide a foundation for designing strategies and specifc interventions that can prevent poor mental health and ensuring targeted support is available for students at increased risk.

Lavoie-Tremblay, MSc, 2022, Sources of Stress and Coping Strategies Among Undergraduate Nursing Students Across All Years. Objectives: The aim of this study is to

understand nursing students' sources of stress and coping strategies in each year of study. Results: The sources of stress differed according to year of study and related significantly to the specific novelty of that year. For first-year students, their stress was related to their academic courses. High clinical performance expectations and a lack of time for their personal lives was a main source of stress for second-year students. The prospect of graduating and transitioning into the work environment caused stress for students in their final year. Students across all years of study utilized similar coping strategies.

Zheng, Y. X et al., 2022, Stress levels of nursing students A systematic review and meta-analysis. Objectives: This study aimed to determine the prevalence of psychological stress among nursing students through meta-analysis. Results: Overall, the average score for stress among nursing students was 3.70 (95% confidence interval [CI]: [3.33, 4.06]) based on the analyzed 15 articles with a sample size of 9202.

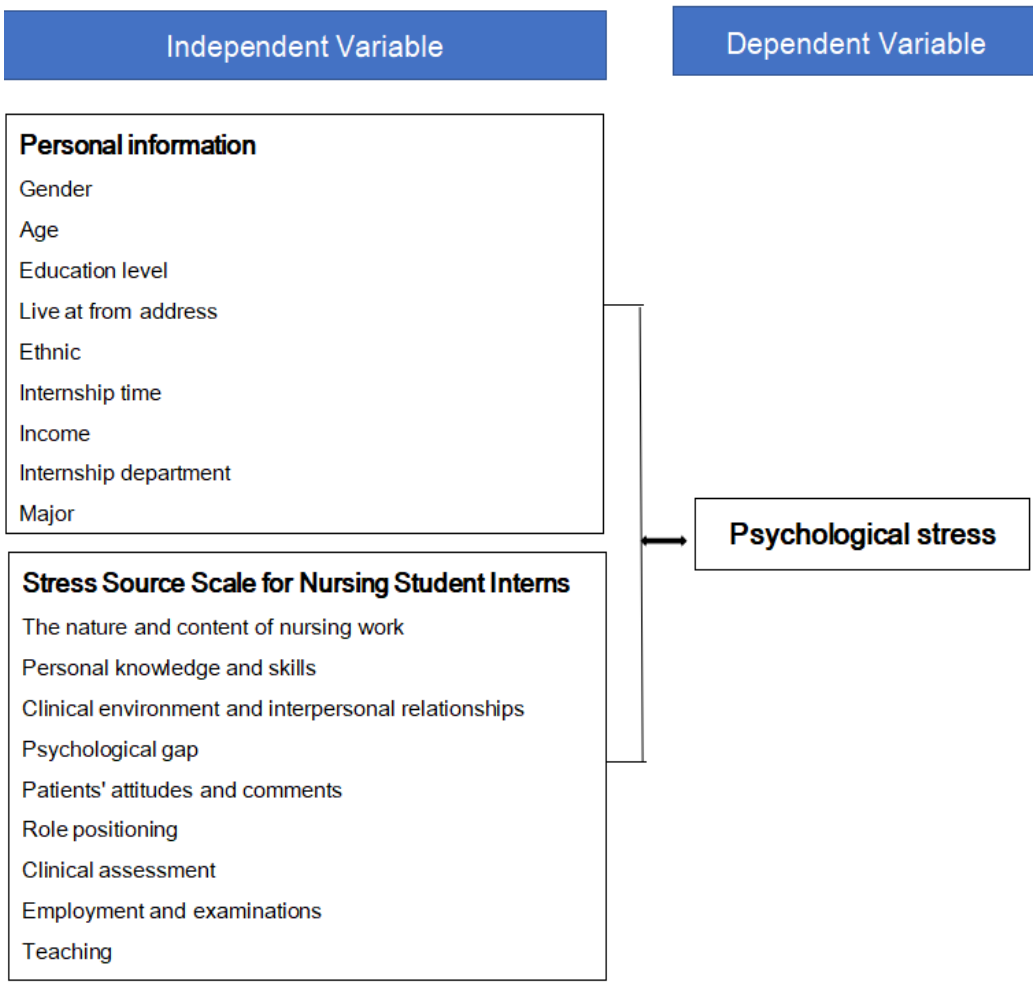
Conceptual Framework

Independent variable

Personal factors: Gender, Age, Education level, Live at from address, Ethnic, Internship Department, Income, Major, Internship time.

Stress Source Scale for Nursing Student Interns: The nature and content of nursing work, Personal knowledge and skills, Clinical environment and interpersonal relationships, Psychological gap, Patients' attitudes and comments, Role positioning, Clinical assessment, Employment and examinations and teaching.

Dependent variable: Psychological stress.


Independent Variable
Dependent Variable
Personal information
Gender
Age
Education level
Live at from address
Ethnic
Internship time
Income
Internship department
Major
Stress Source Scale for Nursing Student Interns
The nature and content of nursing work
Personal knowledge and skills
Clinical environment and interpersonal relationships
Psychological gap
Patients' attitudes and comments
Role positioning
Clinical assessment
Employment and examinations
Teaching
Psychological stress

CHAPTER III

RESEARCH METHODOLOGY

This chapter primarily examines the research methodology for investigating factors influencing psychological stress among nursing student interns at Hainan Vocational University of Science and Technology. The study is structured into the following eight sections.

1. Research design
2. Population and sample size
   - 2.1 Population
   - 2.2 Inclusion criteria
   - 2.3 Exclusion criteria
   - 2.4 Elimination criteria
   - 2.5 Sample Size
3. Study area
4. Study period
5. Research method
6. Measurement instruments
   - 6.1 Individual information form
   - 6.2 Stress Source Scale for Nursing Students
   - 6.3 Perceived Stress Scale，PSS-14
7. Data collection
8. Data analysis

Research design

This study employed a cross-sectional research design.

Population and sample size

Population

The study participants consisted of 1,140 nursing student interns from Hainan Vocational University of Science and Technology, including Year 3 (college diploma) and Year 4 (undergraduate) students from the International Nursing School. Refer to Table 3 for the detailed distribution of Year 3 and Year 4 students.

Table 3 The number of year 3 and year 4 nursing student interns at the International Nursing College of Hainan Vocational University of Science and Technology, and their levels of stress (Source: Teaching Secretary Office, International Nursing College, Hainan Vocational University of Science and Technology, 2024)

	Number of interns
Year 3	789
Year 4	351
Total	**1140**

Inclusion criteria

1. Full-time nursing year 3 and year 4

2. Those who have been practicing for more than 6 months and are willing to participate in this study

3. Nursing student interns without diagnosis from medical doctor any mental illness

Exclusion criteria

1. Nursing student interns who are unwilling to participate in this study

Elimination criteria

There were missing items in the questionnaire, and the questionnaire was filled in consistently.

Sample Size

This study enrolled 1,140 year 3 and year 4 nursing student interns from the Yunlong Campus of Hainan Vocational University of Science and Technology. Participants were selected based on predefined inclusion and exclusion criteria, with an estimated attrition rate of less than 10% due to illness or other reasons. The sample size was calculated using Yamane Taro's formula.

$$\mathbf{n} = \frac{N}{1+Ne^2}$$

$$= \frac{1140}{1+1140(0.05)^2}$$

$$\mathbf{n} \approx 297$$

n = sample size; N = population (1140 year 3 and year 4 nursing student interns from Hainan Vocational University of Science and Technology in Yunlong Campus); e = acceptable error level.

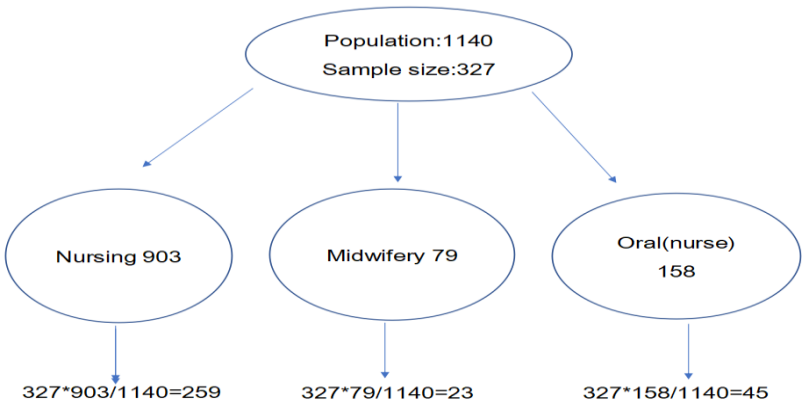
Considering 10% sample loss: 297+(297×10%)=327, the sample size required for this study is 327 individuals.

Sampling: Since the nursing student interns at Hainan Vocational University of Science and Technology are divided into three majors, a stratified sampling method was adopted to select a certain number of samples from each major. Table 4 shows the number of nursing student interns in each major and the corresponding sample size to be extracted.

Table 4 Number of nursing student interns by major and the required sample size (Teaching Secretary Office, International Nursing College, Hainan Vocational University of Science and Technology, 2024)

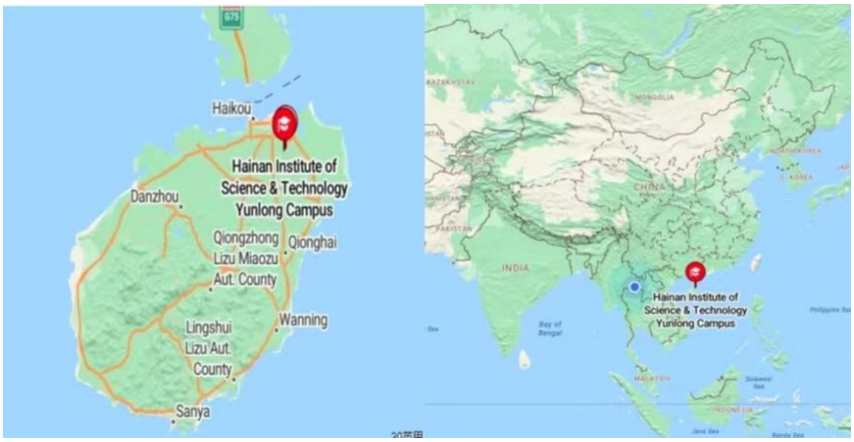
Major	**Population (N)**	**Sample size (n)**
nursing	903	259
Midwifery	79	23
Oral**(**nurse**)**	158	45
Total	**1140**	**327**

Stratified Sampling



Study area

The research area is located in Hainan Province, the southernmost province of China, specifically at the Yunlong Campus of Hainan Vocational University of Science and Technology in Haikou City. Haikou is divided into four districts: Meilan, Longhua, Xiuying, and Qiongshan. This study focuses on Qiongshan District's Yunlong Town, where the university is situated. Reasons for Selecting this area : Talent Demand in Hainan Free Trade Port: Hainan is currently developing a Free Trade Port, which requires a significant influx of talent. As the provincial capital and economic hub of Hainan, Haikou experiences rapid economic growth and urbanization, attracting professionals and increasing employment competition. Consequently, nursing student interns in Haikou face higher stress (particularly psychological stress) compared to those in other cities. Concentration of Research Subjects: The chosen area provides a highly concentrated population of year 3 and year 4 nursing student interns, facilitating efficient data collection. Research Feasibility: The proximity of the research team to the university ensures practical access to participants and logistical support.



Study period

Preparation Phase (4 months): This stage includes project initiation, defining research objectives and questions, developing the research plan, and conducting a literature review.

Design Phase (1 Month): This stage includes the design of research methods, questionnaire development, and sample selection to ensure the study is both scientifically rigorous and feasible.

Data Collection Phase (2 months): Conduct questionnaire surveys to collect psychological stress data from nursing student interns.

Data Analysis Phase (1 Month): This stage involves conducting statistical analysis, correlation analysis, and factor analysis on the collected data to identify the key influencing factors of psychological stress among nursing student interns.

Report and Thesis Writing Phase (1 Month): This stage involves drafting the research report or thesis, summarizing the research process, findings, and conclusions, as well as proposing recommendations and solutions.

Research method

1. Literature Review Methodology: After defining the research objectives, relevant literature on the influencing factors of psychological stress was collected from databases such as CNKI and Wanfang. Extensive reading and systematic categorization of the literature were conducted to stay abreast of the latest research developments in this field. A thorough analysis was then performed, centering on the research theme, to establish a solid theoretical foundation for this study.

2. Questionnaire Survey Method: Standardized questionnaires were distributed to nursing student interns to assess potential sources of psychological stress related to their academic studies, clinical practice, interpersonal relationships, and other aspects. The questionnaires included:Assessment of psychological stress levels (e.g., Likert-scale ratings), demographic information (e.g., age, gender, year 3/year 4), and identification of stress triggers (e.g., workload, exams, supervisor expectations).

3. Factor Analysis Method: This study analyzed various factors influencing psychological health, primarily including: the nature and content of nursing work, personal knowledge and skills, social pressure, psychological gap, patients' attitudes and comments, role positioning, employment and certification, clinical assessment and evaluation, and teaching.

Measurement instruments

Individual information form

Collecting basic information of nursing student interns, such as gender, age, education level, household registration, nationality, cumulative time of clinical internship, average monthly income of family, current internship department, etc., These data help analyze the influence of individual factors on psychological stress .

Stress Source Scale for Nursing Student Interns

The scale was developed by Zhang Guixia et al. in 2014. The questionnaire consists of 34 items across 9 items: the nature and content of nursing work, own knowledge and skills, clinical environment and interpersonal relationships, psychological differences, patients' attitudes and evaluations, clinical role positioning of nursing student interns, clinical evaluation, employment and examinations, a total of 34 items, using the Likert 5-point scoring method, corresponding to 1 to 5 points. The higher the score, the greater the pressure. For specific scoring methods, refer to Table 5. The questionnaire demonstrated good reliability and validity, with an overall Cronbach's alpha coefficient of 0.820 and content validity index of 0.961. Please refer to Table 6 for the detailed scoring criteria of the Stress Sources Scale for Nursing Student Interns.

Table 5 34-item rating system

Point	result
1	No pressure
2	Mild stress
3	Moderate stress
4	Moderate to severe stress
5	Severe stress

Table 6 Scoring Criteria for the Stress Sources Scale of Nursing Student Interns

	Item	Total Score	No pressure	Mild stress	Moderate stress	Moderate to severe stress	Severe stress
Score	Item1	5-25	5-9	10-13	14-17	18-21	22-25
	Item2	7-35	7-12.6	12.7-18.2	18.3-23.8	23.9-29.4	29.5-35
	Item3, Item6	4-20	4-7.2	7.3-10.4	10.5-13.6	13.7-16.8	16.9-20
	Item4-5, Item7-9	3-15	3-5.4	5.5-7.8	7.9-10.2	10.3-12.6	12.7-15

Perceived Stress Scale, PSS-14

The Perceived Stress Scale (PSS) is a widely used international tool for measuring psychological stress, originally developed by Sheldon Cohen et al. in 1983. It has three

versions: PSS-14 (14 items), PSS-10 (10 items), and PSS-4 (4 items), all of which have been validated and extensively applied in various countries. This study utilizes the Chinese version of the PSS-14 to assess the psychological stress levels of the participants. The Chinese version was adapted by Professor Tingzhong Yang to align with China's cultural context, involving a review of the original English PSS's overall structure and specific items, with necessary modifications. The final version consists of 14 items divided into two dimensions. Each item has five response options, scored from 1 to 5 (see Table 7 for specific scoring methods). Items 1, 2, 3, 8, 11, 12, and 14 are positively worded and belong to the "perceived tension" dimension, scored directly. Items 4, 5, 6, 7, 9, 10, and 13 are negatively worded and belong to the "perceived lack of control" dimension, scored in reverse. The total score ranges from 14 to 70, with higher scores indicating greater psychological stress (see Table 8 for detailed scoring criteria). In the preliminary test, the Chinese version of the PSS demonstrated a Cronbach's α coefficient of 0.78, indicating acceptable reliability.

Table 7 14-item rating system

Point	result
1	Never
2	Almost no
3	Sometime
4	Often
5	Always

Table 8 Perceived Stress Scale (PSS) Scoring Guidelines

Score	Psychological stress
14-32.66	Low stress
32.67-51.2	Middle stress
51.3-70	High stress

Data collection

1. Request a letter of certification from I-SEM, Chiang Rai Rajabhat University authorizing the data collection process.

2. Coordinate with the relevant areas to conduct data collection using questionnaires.

3. Coordinate with the department heads to arrange dates for data collection from the sample group of each college using questionnaires.

4. The questionnaire used for data collection has been validated by three experts with a validity score of more than 0.6 and its reliability was calculated based on a sample group similar to the target population of the study, which consisted of 30 people and a reliability score of 0.956.

5. The data were collected from the target sample group of the study by distributing questionnaires online, which consisted of 327 people.

6. Compile the data and conduct statistical analysis.

Data analysis

1. Descriptive statistical analysis

1. 1 Calculate the frequency and percentage of personal information to understand the basic situation of the nursing student interns.

1.2 Calculate the frequency, percentage, mean and standard deviation of the nursing student interns stress source scale to understand the main sources of stress for nursing student interns. The main sources of stress for nursing student interns were determined by comparing the means of various stress sources. The evaluation criteria were as follows: the mean score was 1-2.33 for low level, 2.34-3.66 for middle level, and 3.67-5.00 for high level.

1.3 Use psychological stress assessment tools (such as Perceived Stress Scale, PSS) to measure the psychological stress level of nursing student interns. Calculate statistics such as frequency and percentage to understand the overall level of psychological stress of nursing student interns and the distribution of each score range.

2. Chi-square test

2.1 The chi-square values and P values of gender, age, education level, live at from address, ethnic, internship time, average monthly family income, major and internship department were analyzed to understand the relationship between personal information and psychological stress level.

2.2 Since the nursing student interns stress source scale has 9 items, it is necessary to analyze the relationship between these 9 items and the psychological stress level.The 9 items are the nature and content of nursing work, personal knowledge and skills, clinical environment and interpersonal relationships, psychological gap, patients' attitudes

and comments, clinical role positioning for nursing student interns, clinical assessment and evaluation, employment and examination, and teaching.

3. Data analysis tools

Use statistical analysis software (such as SPSS, R or Python) for data processing and analysis to ensure the Scientific and accuracy of the analysis process.

CHAPTER IV

RESULTS

The findings collected in this chapter aim to demonstrate that nursing student interns generally experience a general increase in psychological stress during their internships, and that factors such as employment and internships also contribute to a sustained increase in psychological stress . The study was conducted among nursing student interns at Hainan Vocational University of Science and Technology in Yunlong Campus , Hainan Province.

The questionnaire test phase conducted in November 2024 with content validity more than 0.6 and the reliability 0.956, indicating that the reliability and validity of the questionnaire were good. Questionnaire collection will officially begin between December 2024 and January 2025. A total of 332 questionnaires were collected in this study, and 327 were effectively recovered, with an effective recovery rate of 98%.

The results consist of the following four components:

1. Individual information

2. Stress Source Scale for Nursing Student Interns

3. Perceived Stress Scale (PSS)

4. The associate between the factors and the psychological stress level of nursing student interns

Individual information

Individual information form

Table 9 Frequency and percentage of gender (n=327)

Gender	Frequency	Percentage (%)
male	58	17.73
female	269	82.26
Total	**327**	**100**

Table 9 shows the frequency and percentage distribution by gender, with more female nursing student interns than male. There were 269 female nursing student interns, accounting for 82.26% of the total, and 58 male nursing student interns, accounting for 17.73%.

Table 10 Frequency and percentage of age (n=327)

Age (year old)	Frequency	Percentage (%)
20-22	209	63.91
23-25	118	36.09
Min=20, Max=25, $\overline{X}$=1.36 (SD=0.48)		
Total	**327**	**100**

Table 10 presents the age distribution of 327 participants, with the following details: Aged 20–22: 209 individuals, accounting for 63.91% of the total. Aged 23–25: 118 individuals, making up 36.09% of the total. Minimum age: 20 years old. Maximum age: 25 years old. Mean (average): 1.36. Standard deviation (SD): 0.48.

Table 11 Frequency and percentage of education level (n=327)

Education level	Frequency	Percentage (%)
Year 3	82	25.08
Year 4	245	74.92
Total	**327**	**100**

Table 11 displays the frequency and percentage distribution of educational levels. The number of nursing student interns in year 4 is greater than that in year 3. Year 3 has a total of 82 students, accounting for 25.08% of the total, while year 4 has 245 students, making up 74.92% of the total.

Table 12 Frequency and percentage of live at from address (n=327)

Live at from address	Frequency	Percentage (%)
Urban	91	27.83
Rural	236	72.17
Total	**327**	**100**

Table 12 shows the frequency and percentage distribution of household registration. The number of nursing student interns with rural household registration is higher than that of urban household registration. There are 236 individuals with rural household registration, accounting for 72.17% of the total, while 91 individuals have urban household registration, making up 27.83% of the total.

Table 13 Frequency and percentage of ethnic (n=327)

Ethnic	**Frequency**	**Percentage (%)**
Han	272	83.18
Minority	55	16.82
Total	**327**	**100**

Table 13 displays the frequency and percentage distribution of ethnic groups. The number of Han Chinese individuals is higher than that of ethnic minorities. There are a total of 272 Han Chinese nursing student interns, accounting for 83.18% of the total population, while there are 55 ethnic minority nursing student interns, representing 16.82%.

Table 14 Frequency and percentage of internship times per month (n=327)

Times per month	Frequency	Percentage (%)
6-10	188	57.49
>10	139	42.51
Total	**327**	**100**

Table 14 displays the frequency and percentage of internship duration. The number of nursing student interns with an internship duration of 6-10 months is higher than those with more than 10 months. A total of 188 nursing student interns (57.49%) had an internship duration of 6-10 months, while 139 interns (42.51%) had an internship duration of more than 10 months.

Table 15 Frequency and percentage of income per month (n=327)

Income per month	Frequency	Percentage (%)
<1000 yuan	71	21.71
1000 yuan-2000 yuan	99	30.27
2001 yuan-3000 yuan	89	27.22
>3000 yuan	68	20.80
Total	**327**	**100**

Table 15 displays the frequency and percentage of the average monthly income per family member. The largest group falls within the 1000-2000 income range, comprising 99 individuals, which accounts for 30.27% of the total. The second largest group is the 2001-3000 income range, with 89 individuals representing 27.22% of the total. The smallest group is those with a monthly income exceeding 3000, totaling 68 individuals and making up 20.80% of the total.

Table 16 Frequency and percentage of major (n=327)

Major	**Frequency**	**Percentage (%)**
Nursing	259	79.20
Midwifery	23	7.04
Oral(nurse)	45	13.76
Total	**327**	**100**

Table 16 displays the frequency and percentage distribution across different majors. Nursing student interns accounted for the largest proportion, with a total of 259 individuals, representing 79.20% of the total sample. Oral(nurse) majors ranked second, totaling 45 individuals and constituting 13.76% of the participants. Midwifery majors had the smallest representation, with only 23 individuals, making up 7.04% of the total.

Table 17 Frequency and percentage of department (n=327)

Department	Number (n=327)	Percentage (%)
Cardiac Surgery	13	3.98
Cardiovascular Medicine	11	3.36
Department of Endocrinology	13	3.98
Department of Stomatology	15	4.59
Dermatology	15	4.59
Emergency Department	2	0.61
Gastroenterology	11	3.36
General Surgery	16	4.89
General Thoracic Surgery	20	6.12
Gynecologic	21	6.42
Hematology	21	6.42
Inpatient Unit	1	0.31
Internal Medicine	3	0.92
Nephrology	16	4.89
Neurology	15	4.59
Neurosurgery	14	4.28
Obstetric	1	0.31
Ophthalmology	23	7.03
Orthopaedics	17	5.20
Otolaryngology	18	5.50

Table 17 (Continued)

Department	Number (n=327)	Percentage (%)
Pediatric Medical and Surgical Surgery	22	6.73
Pediatrics	2	0.61
Respiratory Medicine	16	4.89
Surgery	3	0.92
Urology	18	5.50
Total	**327**	**100**

Table 17 shows the frequency and percentages for each section. Ophthalmology had the largest number of people, with a total of 23 people, accounting for 7.03% of the total population; the number of Pediatric Medical and Surgical Surgery was second only to Ophthalmology, with 22 people, accounting for 6.73% of the total number. The Inpatient unit and Obstetric had the lowest number of people, with 1 person, accounting for 0.31% of the total population.

Stress Source Scale for Nursing Student Interns

Stress Source Scale for Nursing Student Interns

Table 18 The frequency, percentage, mean, and standard deviation of sources of psychological stress for nursing student interns (n=327)

Reason		Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
The nature and content of nursing work	The tediousness and workload of nursing work	50(15.29%)	103(31.50%)	126(38.53%)	29(8.87%)	19(5.81%)	3.41	1.04	Middle
	Career Prospects	43(13.15%)	112(34.25%)	120(36.70%)	31(9.48%)	21(6.42%)	3.38	1.04	Middle
	Pressure and risks in nursing work	56(17.13%)	99(30.28%)	118(36.09%)	30(9.17%)	24(7.33%)	3.41	1.10	Middle
	Three-shift work system	29(8.87%)	110(33.64%)	134(40.98%)	26(7.95%）	28(8.56%)	3.27	1.02	Middle

Table 18 (Continued)

Reason		Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
	The social status of nursing work	53(16.21%)	105(32.11%)	115(35.17%)	29(8.87%)	25(7.64%)	3.40	1.10	Middle
	Patient health education	55(16.82%)	103(31.50%)	126(38.53%)	26(7.95%)	17(5.20%)	3.47	1.03	Middle
Personal knowledge and skills	Participate in patient rescue	40(12.23%)	100(30.58%)	147(44.95%)	17(5.20%)	23(7.04%)	3.36	1.00	Middle
	Communicate effectively with patients	38(11.62%)	101(30.89%)	131(40.06%)	31(9.48%)	26(7.95%)	3.29	1.05	Middle
	Basic nursing skills are not solid	30(9.17%)	115(35.17%)	139(42.51%)	18(5.50%)	25(7.65%)	3.33	0.99	Middle

Table 18 (Continued)

Reason	Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
Lack of professional knowledge and skills	35(10.70%)	120(36.70%)	128(39.14%)	27(8.26%)	17(5.20%)	3.39	0.97	Middle
Determine changes in patients' conditions and handle clinical emergencies	50(15.29%)	77(23.55%)	145(44.34%)	19(5.81%)	36(11.01%)	3.26	1.13	Middle
Unskilled use of equipment	49(14.98%)	121(37.00%)	101(30.89%)	37(11.31%)	19(5.82%)	3.44	1.06	Middle

Table 18 (Continued)

Reason		Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
Clinical environment and interpersonal relationships	Integrate into the working atmosphere of the department	33(10.09%)	119(36.39%)	124(37.92%)	24(7.34%)	27(8.26%)	3.33	1.03	Middle
	Familiar with the work flow of each department	30(9.17%)	97(29.66%)	154(47.09%)	28(8.56%)	18(5.52%)	3.28	0.94	Middle
	Familiar with the environment and equipment of clinical departments	19(5.81%)	95(29.05%)	149(45.57%)	45(13.76%)	19(5.81%)	3.15	0.93	Middle

Table 18 (Continued)

Reason		Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
	Dealing with various interpersonal relationships	30(9.17%)	122(37.31%)	137(41.90%)	18(5.50%)	20(6.12%)	3.38	0.95	Middle
Psychological gap	Compared with clinical medicine interns, the difference in work content and nature causes psychological gap	85(25.99%)	94(28.75%)	100(30.58%)	28(8.56%)	20(6.12%)	3.60	1.14	Middle

Table 18 (Continued)

	Reason	Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
	Compared with clinical medicine teachers, nursing teachers are weak	29(8.87%)	26(7.95%)	16(4.89%)	120(36.70%)	136(41.59%)	2.06	1.26	Low
	Patients and their families have different levels of recognition for clinical medicine interns and nursing student interns	45(13.76%)	143(43.73%)	97(29.66%)	16(4.89%)	26(7.95%)	3.51	1.05	Middle

Table 18 (Continued)

	Reason	Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
	Patients and their families have different levels of recognition for clinical medicine interns and nursing student interns	45(13.76%)	143(43.73%)	97(29.66%)	16(4.89%)	26(7.95%)	3.51	1.05	Middle
Patients' attitudes and comments	Evaluation of patients and their families on intern nursing student interns	111(33.94%)	127(38.84%)	86(26.30%)	2(0.61%)	1(0.31%)	4.06	0.81	High

Table 18 (Continued)

Reason	Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
Establish a good nurse-patient relationship	30(9.17%)	144(44.04%)	149(45.57%)	3(0.92%)	1(0.30%)	3.61	0.68	Middle
Attitudes of patients and their families towards nursing student interns	38(11.62%)	164(50.15%)	122(37.31%)	2(0.61%)	1(0.31%)	3.72	0.68	High
Daily care is mostly provided by nursing student interns	26(7.95%)	124(37.92%)	134(40.98%)	20(6.12%)	23(7.03%)	3.34	0.96	Middle
Consider nursing student interns as a supplementary workforce for the department	37(11.31%)	95(29.05%)	152(46.48%)	29(8.87%)	14(4.29%)	3.34	0.94	Middle

Table 18 (Continued)

	Reason	Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
Clinical role positioning for intern nursing students	Ignore their identity as learners	27(8.26%)	103(31.50%)	133(40.67%)	43(13.15%)	21(6.42%)	3.22	0.99	Middle
	Non-nursing work such as running errands is mostly done by nursing student interns	35(10.70%)	112(34.26%)	152(46.48%)	12(3.67%)	16(4.89%)	3.42	0.91	Middle
	The head nurse's evaluation of the nursing student interns	18(5.50%)	17(5.20%)	29(8.87%)	112(34.25%)	151(46.18%)	1.90	1.12	Low

Table 18 (Continued)

	Reason	Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
Clinical assessment and evaluation	Skills and theory assessment during internship	29(8.86%)	101(30.89%)	143(43.73%)	29(8.87%)	25(7.65%)	3.25	1.00	Middle
	Evaluation of teaching teachers on nursing student interns	38(11.62%)	122(37.31%)	119(36.39%)	25(7.65%)	23(7.03%)	3.39	1.02	Middle
	Prepare for postgraduate entrance examination or take nursing professional examination or graduation examination	79(24.17%)	102(31.19%)	95(29.05%)	28(8.56%)	23(7.03%)	3.57	1.15	Middle

Table 18 (Continued)

	Reason	Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
Employment and Examination	The contradiction between preparing for various exams and reducing study time	34(10.39%)	113(34.56%)	136(41.59%)	24(7.34%)	20(6.12%)	3.36	0.98	Middle
	Employment exams and interviews	36(11.01%)	121(37.00%)	127(38.84%)	17(5.20%)	26(7.95%)	3.38	1.02	Middle
	The teaching method of the instructor	20(6.12%)	19(5.81%)	21(6.42%)	108(33.03%)	159(48.62%)	1.88	1.15	Low

Table 18 (Continued)

	Reason	Severe stress (5 points)	Moderate to severe stress (4 points)	Moderate stress (3 points)	Mild stress (2 points)	No pressure (1 point)	$\overline{X}$	SD	Interpretation
Teaching	The degree of recognition of the teaching teachers for the work of the nursing student interns	33(10.08%)	103(31.50%)	149(45.57%)	27(8.26%)	15(4.59%)	3.34	0.93	Middle
	The attitude of teachers towards nursing student interns	37(11.32%)	120(36.70%)	121(37.00%)	26(7.95%)	23(7.03%)	3.37	1.02	Middle
Total				**$\overline{X}$=114.85 ±(SD)=20.12**					**Middle**

Table 18 presents the frequency, percentage, mean, and standard deviation of stress sources among nursing student interns. According to the table, the scores for stress sources are mostly at a moderate level.

High stress: Patients' and their families' evaluations and attitudes towards nursing student interns. Moderate stress: most sources of stress, especially the nature of nursing work, personal skills, clinical environment, psychological gap, clinical role positioning, assessment and evaluation, employment and examination, etc.

Low pressure: Nursing teachers are weaker compared to clinical medicine teachers; the teacher's teaching method; what the nurse manager says about the nursing student interns.The table reflects the multifaceted pressures faced by nursing student interns in clinical placements, especially those from patient evaluations, job descriptions, and career prospects.

The highest stress score was the patient's attitude and the evaluation of the nursing student interns by patients and their families, with a mean of 4.1 and a standard deviation of 0.8, indicating that the scores of most nursing student interns were close to 4.1, and the data distribution was more concentrated and the stress feelings were more consistent.The stress score of patients and their families' attitudes towards nursing student interns internship was second only to that of patients and family members, with a mean of 3.7 and a standard deviation of 0.7, indicating that most of the nursing student interns scores were close to 3.7, and the data distribution was more concentrated and the stress perception was more consistent.

The item with the lowest stress score was the teacher's teaching method, with a mean of 1.9 and a standard deviation of 1.2, indicating that nursing student interns were rated more differently, with some feeling less stressed about the teacher's teaching method and some feeling more stressed..

The total score of 34 stress sources: mean 114.85±20.12, indicating that the overall stress level of nursing student interns is at a moderate level.

Perceived Stress Scale (PSS)

Perceived Stress Scale (PSS)

Table 19 Frequency and percentage of Perceived Stress Scale (PSS)

entry	Score				
	Never (1 points)	**Almost no (2 points)**	**Sometimes (3 points)**	**Often (4 points)**	**Always (5 point)**
1.Feeling irritated when unexpected things happen	22(6.73%)	25(7.65%)	149(45.57%)	59(18.04%)	72(22.01%)
2. Feeling that you cannot control important things in life	23(7.03%)	25(7.65%)	139(42.51%)	64(19.57%)	76(23.24%)
3. Feeling nervous and stressed	17(5.20%)	34(10.40%)	135(41.28%)	74(22.63%)	67(20.49%)
4. Feeling that you can successfully handle annoying trivial matters in life (reverse question)	23(7.03%)	24(7.34%)	140(42.81%)	63(19.27%)	77(23.55%)
5. Feeling that you are effectively dealing with major changes in life (reverse question)	17(5.20%)	30(9.17%)	125(38.23%)	88(26.91%)	67(20.49%)
6. Feeling that you can confidently handle personal problems (reverse question)	27(8.26%)	18(5.50%)	130(39.76%)	60(18.35%)	92(28.13%)

Table 19 (Continued)

entry	Score				
	Never (1 points)	**Almost no (2 points)**	**Sometimes (3 points)**	**Often (4 points)**	**Always (5 point)**
7. Feeling that things are going well for you (reverse question)	24(7.34%)	20(6.12%)	141(43.12%)	66(20.18%)	76(23.24%)
8. Feeling unable to handle all the things you have to do	26(7.95%)	30(9.17%)	124(37.92%)	72(22.02%)	75(22.94%)
9. Feeling that you can control the annoying emotions in your life (reverse question)	27(8.26%)	22(6.73%)	132(40.37%)	79(24.16%)	67(20.48%)
10. Feeling that you can control everything (reverse question)	28(8.56%)	23(7.03%)	123(37.61%)	61(18.66%)	92(28.14%)
11. Feeling that you often get angry because you can't control what happens	18(5.50%)	24(7.34%)	138(42.20%)	75(22.94%)	72(22.02%)
12. Often think that there are things you have to do yourself	11(3.36%)	22(6.73%)	148(45.26%)	60(18.35%)	86(26.30%)
13. Feeling that you can control the way you arrange your time (reverse question)	24(7.34%)	21(6.42%)	132(40.37%)	74(22.63%)	76(23.24%)
14. You often feel that difficult things are piling up and you can't overcome them	25(7.65%)	30(9.17%)	106(32.42%)	85(25.99%)	81(24.77%)

Table 19 presents the frequency and percentage distribution of the 14 items in the Perceived Stress Scale (PSS). Each item corresponds to different perceived stress situations, with scores ranging from 1 ("Never") to 5 ("Always"), reflecting respondents' reactions to various stress scenarios. The Perceived Stress Scale (PSS) was developed by Sheldon Cohen et al. in 1983 and has been validated and widely used in other countries. This study employed the Chinese version of the Perceived Stress Scale (PSS-14) to investigate the psychological stress levels of the participants. The Chinese version of the scale was adapted by Professor Tingzhong Yang, who reviewed the overall structure and specific items of the original English PSS and made necessary modifications to align with China's cultural context.

Positive items:

For item 8, the "Never" option had the highest proportion, with 26 individuals, accounting for 8.0% of the total participants. For item 14, the "Never" option had the second-highest proportion, with 25 individuals, representing 7.6% of the total. In contrast, item 12 had the lowest proportion of the "Never" option, with only 11 individuals, or 3.4% of the total nursing student interns from year 3 and year 4 reporting stress-related responses under this category.

Option "Almost Never" for Item 3 had the highest proportion, with 34 nursing student interns (10.4% of the total). Items 14 and 8 had the second-highest proportion of "Almost Never" responses, with 30 nursing student interns each (9.2% of the total). Item 12 had the lowest proportion of "Almost Never" responses, with 22 nursing student interns (6.7% of the total).

For item 1, the "sometimes" option had the highest proportion, with 149 individuals, accounting for 45.6% of the total respondents. For item 12, the "sometimes" option had the second-highest proportion, with 148 individuals, accounting for 45.3% of the total. In

contrast, for item 14, the "sometimes" option had the lowest proportion, with 106 individuals, accounting for 32.4% of the total.

Item 14 had the highest proportion of respondents selecting "often," with 85 nursing student interns (26% of the total). Item 11 ranked second, with 75 respondents (22.9%) choosing "often." In contrast, Item 1 had the lowest "often" selection rate, with only 59 year 3 and year 4 nursing student interns (18%) reporting frequent stress-related experiences.

In item 12, the "always" option had the highest proportion, selected by 86 individuals, accounting for 26.3% of the total participants. In item 14, the "always" option had the second-highest proportion, chosen by 81 nursing student interns, representing 24.8% of the total. In contrast, item 3 had the lowest proportion of "always" responses, with only 67 year 3 and year 4 nursing student interns selecting it, making up 20.5% of the total.

Reverse items:

For item 10, the "Never" option had the highest proportion, with 28 individuals, accounting for 8.6% of the total participants. The "Never" options for items 6 and 9 followed closely behind item 10, with 27 individuals each, representing 8.3% of the total. In contrast, item 5 had the lowest proportion of "Never" responses, with only 17 individuals, or 5.2% of the total.

For item 5, the option "almost never" had the highest proportion, with 30 individuals, accounting for 9.2% of the total participants. For item 4, the option "almost never" had the second-highest proportion, with 24 individuals, accounting for 7.3% of the total participants. For item 6, the option "almost never" had the lowest proportion, with 18 individuals, accounting for 5.5% of the total participants.

The "sometimes" option for item 7 had the highest proportion, with 141 nursing student interns, accounting for 43.1% of the total. The "sometimes" option for item 4 ranked

second, with 140 nursing student interns, making up 42.8% of the total. In contrast, the "sometimes" option for item 10 had the lowest proportion, with 123 nursing student interns, representing 37.6% of the total. Item 5 had the highest proportion of respondents selecting "often," with 88 people, accounting for 26.9% of the total. Item 9 ranked second in terms of the "often" option, with 79 nursing student interns (24.2%). In contrast, Item 6 had the lowest proportion of "often" responses, with only 60 year 3 and year 4 students (18.3%) reporting frequent stress.

The "Always" option for items 6 and 10 had the highest proportion, selected by 92 nursing student interns, accounting for 28.1% of the total respondents. The "Always" option for item 4 ranked second only to items 6 and 10, chosen by 77 nursing student interns, representing 23.5% of the total. The "Always" option for items 5 and 9 had the lowest proportion, selected by 67 nursing student interns, making up 20.5% of the total.

Most items had the highest proportion of responses in the "sometimes" (3-point) option, indicating a moderate level of stress perception. The combined percentages of the "often" and "always" options generally exceeded 40%, suggesting that the overall stress level among nursing student interns was relatively high, particularly in areas such as emotional control and problem-solving.

Table 20 Frequency and percentage of trainee nursing student interns Perceived Stress Scale，PSS scores (n=327)

Psychological Stress	**Frequency**	**Percentage (%)**
Low stress (14-32.66)	60	18.35
Middle stress (32.67-51.2)	63	19.27
High stress (51.3-70)	204	62.38
Total	**327**	**100**

Table 20 shows that among the nursing student interns, a total of 204 individuals reported high stress levels, accounting for 62.38% of the total. Those with moderate stress levels numbered 63, representing 19.27%, while 60 individuals reported low stress levels, making up 18.35%. This table indicates that the majority of nursing student interns are in a high-stress state.

The associate between the factors and the psychological stress level of nursing student interns

Table 21 Gender with Psychological stress level (n=327)

Gender	Psychological stress level			X^2	P-value
	Low score	Middle	High		
Male	14(24.14%)	13(22.41%)	31(53.45%)		
Female	46(17.10%)	50(18.59%)	173(64.31%)	2.55	0.26**
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**		

Table 21 shows the distribution of stress levels among nursing student interns of different genders, along with the chi-square test (X^2) conducted to analyze the association between gender and stress levels.

According to the data, the number of female nursing student interns in the high-stress group was 173(64.31%), significantly higher than that of males 31(53.45%) people. The same trend was observed in the low-stress and moderate-stress groups. However, the chi-square test results showed a chi-square value of 2.55 with a p-value of 0.26 (>0.05), indicating no statistically significant association between gender and stress levels. The two variables are independent, suggesting that stress levels may be more influenced by other factors among year 3 and year 4 nursing student interns.

Table 22 Age with Psychological stress level (n=327)

Age...Years	**Psychological stress level**			**Exact P-value**
	Low	**Middle**	**High**	
20-22	38(18.18%)	40(19.14%)	131(62.68%)	
23-25	22(18.65%)	23(19.49%)	73(61.86%)	0.05**
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**	

Table 22 presents the distribution of stress levels among nursing student interns across different age groups, along with a chi-square test (X^2) to analyze the association between age and stress levels.

High stress was the predominant stress level across all age groups, with proportions exceeding 60%, and no significant difference was observed between the two groups (P＞ 0.05**). The stress distribution ratios were highly similar between Year 3 (20-22 years old) and Year 4 (23-25 years old) groups, with both low and moderate stress accounting for less than 20%. The data suggest that psychological stress is widespread among nursing student interns, necessitating targeted interventions.

Table 23 Education level with Psychological stress level (n=327)

Education level	Psychological stress level			X^2	P-value
	Low	Middle	High		
Year 3	15(18.29%)	20(24.39%)	47(57.32%)		
Year 4	45(18.37%)	43(17.55%)	157(64.08%)	1.94	0.37**
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**		

Table 23 presents the distribution of stress levels among nursing student interns at different educational levels (grades), along with a chi-square test (X^2) to analyze the association between educational level and stress level.

From the table, it can be observed that high stress is the predominant stress level among year 3 and year 4 nursing student interns, particularly for year 4 interns, with 157(64.08%) individuals. The distribution of low and moderate stress is relatively smaller, primarily concentrated among year 4 nursing student interns. The chi-square test results show a chi-square value of 1.94 and a p-value of 0.37 (>0.05), indicating that there is no statistically significant association between education level (year) and stress level, and the two are independent of each other.

Table 24 Live at from address with Psychological stress level (n=327)

Live at from address	Psychological stress level			X^2	P-value
	Low	Middle	High		
Urban	17(18.68%)	17(18.68%)	57(62.64%)		
Rural	43(18.22%)	46(19.49%)	147(62.29%)	0.03	0.06**
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**		

Table 24 presents the distribution of stress levels among nursing student interns from different residential areas, along with a chi-square test (X^2) to analyze the association between residential location and stress levels.

High stress is the primary stress level among both urban and rural nursing student interns, particularly among those from rural areas, with 147(62.29%) individuals. The distribution of low and moderate stress is relatively smaller, mainly concentrated among rural nursing student interns. The chi-square test results indicate a chi-square value of 0.03 and a P-value of 0.06 (>0.05), suggesting that there is no statistically significant association between residence (urban and rural) and stress levels, and the two are independent of each other.

Table 25 Ethnic with Psychological stress level (n=327)

Ethnic	Psychological stress level			X^2	P-value
	Low	Middle	High		
Han	50(18.38%)	53(19.49%)	169(62.13%)		
Minority	10(18.18%)	10(18.18%)	35(63.64%)	0.06	0.06**
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**		

Table 25 shows the distribution of stress levels among nursing student interns of different ethnic groups, with a chi-square test (X^2) conducted to analyze the association between ethnicity and stress levels.

High stress is the predominant stress level among both Han and ethnic minority nursing student interns, particularly among Han nursing student interns, with 169(62.13%) individuals. Low and moderate stress levels are relatively less common and are primarily observed among Han nursing student interns. The chi-square test results indicate a chi-square value of 0.06 and a p-value of 0.06 (>0.05), suggesting no statistically significant association between ethnicity (Han and ethnic minorities) and stress levels, with the two being independent of each other.

Table 26 Cumulative time of clinical internship(months) with Psychological stress level (n=327)

Cumulative time of clinical internship(months)	**Psychological stress level**			**X^2**	**P-value**
	Low	**Middle**	**High**		
6-10	33(17.55%)	42(22.34%)	113(60.11%)		
>10	27(19.42%)	21(15.11%)	91(65.47%)	2.69	0.26**
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**		

Table 26 shows the distribution of stress levels among nursing student interns with different cumulative clinical practice durations, and a chi-square test (X^2) was conducted to analyze the association between practice duration and stress levels.

High stress was the predominant stress level among nursing student interns with internship durations of 6–10 months and >10 months, particularly for those interning for 6–10 months, with 113(60.11%) individuals. Low and moderate stress levels were relatively less common and were primarily observed among interns with 6–10 months of experience. The chi-square test results indicated a chi-square value of 2.69 and a p-value of 0.26 (>0.05), suggesting no statistically significant association between internship duration and stress levels, with the two variables being independent of each other.

Table 27 Average monthly income per person (yuan/month/person) with Psychological stress level (n=327)

Average monthly income per person (yuan/month/person)	**Psychological stress level**			**X^2**	**P-value**
	Low	**Middle**	**High**		
<1000yuan	10(14.08%)	16(22.54%)	45(63.38%)		
1000yuan-2000yuan	20(20.20%)	17(17.17%)	62(62.63%)		
2001yuan-3000yuan	16(17.98%)	15(16.85%)	58(65.17%)	2.64	0.85**
>3000yuan	14(20.59%)	15(22.06%)	39(57.35%)		
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**		

Table 27 presents the distribution of stress levels among nursing student interns with different average monthly incomes (yuan/month/person), and a chi-square test (X2) was conducted to analyze the association between income and stress levels.

High stress was the predominant stress level across all income groups, particularly among nursing student interns earning 1000-2000 yuan (62 individuals) and 2001-3000 yuan (58 individuals). Low and moderate stress levels were relatively less common and were primarily observed among nursing student interns in the 1000-2000 yuan and 2001-3000 yuan income brackets. The chi-square test results showed a chi-square value of 2.64 and a p-value of 0.85 (>0.05), indicating no statistically significant association between income level and stress level. The two variables are independent of each other.

Table 28 Major with Psychological stress level (n=327)

Major	Psychological stress level			Exact P-value
	Low	Middle	High	
Nursing	52(20.08%)	55(21.24%)	152(58.68%)	0.01**
Midwifery	2(8.70%)	4(17.39%)	17(73.91%)	
Oral(nurse)	6(13.33%)	4(8.89%)	35(77.78%)	
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**	

Table 28 presents the distribution of stress levels among nursing student interns across different majors.

High stress was the predominant stress level across all majors, particularly among nursing student interns (152 individuals) and oral nursing student interns (35 individuals). The distribution of low and moderate stress was relatively limited, mainly concentrated in the nursing student interns. The chi-square test results showed a P-value of 0.01 $<$ 0.05), indicating statistically significant association between major and stress levels, suggesting that the two variables are independent of each other.

Table 29 Level of the nature and content of nursing work (n=327)

Level of the nature and content of nursing work	Stress level PSS			Exact P-value
	1	2	3	
No pressure(1-2 point)	57(81.43%)	13(18.57%)	0(0.00%)	
Moderate stress (3 point)	1(1.33%)	15(20.00%)	59(78.67%)	<
Severe stress (4-5point)	2(1.10%)	35(19.23%)	145(79.67%)	0.001**
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**	

Table 29 shows the analysis of the impact of the nature and content of nursing work on the PSS stress level. The number of nursing student interns with severe stress was the largest (182 people). The second largest number was nursing student interns with moderate stress (75 people). The number of nursing student interns with no pressure was the smallest (70 people). The exact p-value is below 0.001, indicating that there was a statistically significant association between the nature and content of nursing work and the stress level.

Table 30 Level of personal knowledge and skills (n=327)

Level of personal knowledge and skills	**Stress level PSS**			**Exact P-value**
	1	**2**	**3**	
No pressure (1-2 point)	58(79.45%)	15(20.55%)	0(0.00%)	＜0.001**
Moderate stress (3 point)	2(28.57%)	3(42.86%)	2(28.57%)	
Severe stress (4-5point)	0(0.00%)	45(18.22%)	202(81.78%)	
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**	

Table 30 shows the analysis of the impact of personal knowledge and skills on PSS stress level. The number of nursing student interns with severe stress is the largest (247 people). The second is nursing student interns with no pressure (73 people). The number of nursing student interns with moderate stress is the smallest (7 people). The exact p-value is below 0.001, indicating that there is a statistically significant association between personal knowledge and skills and stress level.

Table 31 Level of clinical environment and interpersonal relationships (n=327)

Level of clinical environment and interpersonal relationships	**Stress level PSS**			**Exact P-value**
	1	**2**	**3**	
No pressure (1-2 point)	58(78.38%)	15(20.27%)	1(1.35%)	<0.001**
Moderate stress (3 point)	2(25.00%)	5(62.50%)	1(12.50%)	
Severe stress (4-5point)	0(0.00%)	43(17.55%)	202(82.45%)	
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**	

Table 31 shows the effects of clinical environment and interpersonal relationship level on the PSS stress level of nursing student interns. The number of nursing student interns with severe stress was the largest (245 people). The second largest number was nursing student interns with no pressure (74 people). The smallest number of nursing student interns with moderate stress is the smallest (8 people). The exact p-value is below 0.001, indicating that there was a statistically significant association between clinical environment and interpersonal relationships and stress level.

Table 32 Level of psychological gap (n=327)

Level of psychological gap	Stress level PSS			Exact P-value
	1	2	3	
No pressure(1-2 point)	32(72.73%)	10(22.73%)	2(4.54%)	＜0.001**
Moderate stress(3 point)	28(14.43%)	39(20.10%)	127(65.47%)	
Severe stress(4-5point)	0(0.00%)	14(15.73%)	75(84.27%)	
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**	

Table 32 shows the analysis of the impact of psychological gap on PSS stress level. The number of nursing student interns with moderate stress is the largest (194 people). The second is nursing student interns with severe stress (89 people). The number of nursing student interns with no pressure is the smallest (44 people). The exact p-value is below 0.001, indicating that there is a statistically significant association between psychological gap and stress level.

Table 33 Level of patients' attitudes and comments (n=327)

Level of patients' attitudes and comments	Stress level PSS			Exact P-value
	1	2	3	
No pressure (1-2 point)	2(66.67%)	1(33.33%)	0(0.00%)	0.04**
Moderate stress (3 point)	9(11.39%)	16(20.25%)	54(68.36%)	
Severe stress (4-5point)	49(20.00%)	46(18.78%)	150(61.22%)	
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**	

Table 33 shows the impact of patient attitude and evaluation on the stress level of nursing student interns. The number of nursing student interns with severe stress was the largest (245 people). The second largest number was nursing student interns with moderate stress (79 people). The number of nursing student interns with no stress was the smallest (3 person). The exact p-value is greater than 0.05, slightly higher than the conventional significance threshold (0.05), indicating that the correlation between patient attitude and evaluation and stress level was weak, but there was still a certain trend.

Table 34 level of clinical role positioning for nursing student interns (n=327)

Level of clinical role positioning for nursing student interns	**Stress level PSS**			**Exact P-value**
	1	**2**	**3**	
No pressure (1-2 point)	58(79.45%)	15(20.55%)	0(0.00%)	＜0.001**
Moderate stress (3 point)	2(33.33%)	3(50.00%0	1(16.67%)	
Severe stress (4-5point)	0(0.00%)	45(18.15%)	203(81.85%)	
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**	

Table 34 shows the relationship between clinical role orientation and stress level of nursing student interns. The number of nursing student interns with moderate to severe stress was the largest (248 people). The second largest number was nursing student interns with no pressure (73 people). The smallest number was nursing student interns with moderate stress (6 people). The exact p-value is below 0.001, indicating that there was a statistically significant correlation between clinical role orientation and stress level of nursing student interns.

Table 35 level of clinical assessment and evaluation (n=327)

Level of clinical assessment and evaluation	**Stress level PSS**			**Exact P-value**
	1	**2**	**3**	
No pressure (1-2 point)	49(51.58%)	15(15.79%)	31(32.63%)	＜0.001**
Moderate stress (3 point)	11(5.73%)	40(20.83%)	141(73.44%)	
Severe stress(4-5point)	0(0.00%)	8(20.00%)	32(80.00%)	
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**	

Table 35 shows the relationship between clinical assessment and stress level of nursing student interns. The number of nursing student interns with moderate stress is the largest (198 people). The second largest number is nursing student interns with no pressure (95 people). The smallest number is nursing student interns with severe stress (40 people). The exact p-value is below 0.001, indicating that there is a statistically significant correlation between clinical assessment and stress level.

Table 36 Level of employment and examination (n=327)

Level of employment and examination	Stress level PSS			Exact P-value
	1	2	3	
No pressure (1-2 point)	51(79.69%)	13(20.31%)	0(0.00%)	
Moderate stress (3 point)	9(12.50%)	13(18.06%)	50(69.44%)	
Severe stress (4-5point)	0(0.00%)	37(19.37%)	154(80.63%)	＜0.001**
Total	**60(18.35%)**	**63(19.27%)**	**204(62.38%)**	

Table 36 shows the analysis of the relationship between employment and examination pressure and the psychological stress level of nursing student interns. The number of nursing student interns with moderate to severe stress is the largest (191 people). The second is the nursing student interns with moderate stress (72 people). The number of nursing student interns with no pressure is the smallest (64 people). The p-value is below 0.001, indicating that there is a statistically significant association between employment and examination pressure and stress level.

Table 37 Level of teaching (n=327)

Level of teaching	Stress level PSS			Exact P-value
	1	2	3	
No pressure (1-2 point)	44(48.35%)	18(19.78%)	29(31.87%)	＜0.001**
Moderate stress (3 point)	16(8.08%)	36(18.18%)	146(73.74%)	
Severe stress (4-5point)	0(0.00%)	9(23.68%)	29(76.32%)	
Total	**60**	**63**	**204**	

Table 37 shows the relationship between teaching pressure and the psychological stress level of nursing student interns. The number of nursing student interns with moderate pressure is the largest (198 people). The second is the number of nursing student interns with no pressure (91 people). The number of nursing student interns with severe stress is the smallest (38 people). The exact p-value is below 0.001, indicating that there is a statistically significant correlation between teaching pressure and stress level.

CHAPTER V

CONCLUSION AND DISCUSSIONS

The title of the study was factors associated with psychological stress among nursing student intern at Hainan Vocational University of Science and Technology in Yunlong Campus.This study aims to study of psychological stress of nurse student intern at Hainan Vocational University of Science and Technology in Yunlong Campus and to find the associate between the factors and psychological of nurse student intern at Hainan Vocational University of Science and Technology in Yunlong Campus . The study population consists of the research subjects are the nursing student interns of Hainan University of Science and Technology, including year 3 college students and year 4 undergraduates of the nursing major, totaling 1140 people individuals. The sample size was determined using Yamane Taro's formula, yielding a final sample of 327 individuals, selected through stratified sampling method. The study employed a structures questionnaire as the primary research instrument, comprising the following sections: Section 1: Individual information form;Section 2: Stress Source Scale for Nursing student interns ; Section 3: Perceived Stress Scale, PSS.The collected data were analyzed using statistical software, employing the Descriptive statistics, chi-square test method for data processing. The study findings are structured as follows:

5.1 Conclusion

5.2 Discussion

5.3 Study limitation

5.4 Generalizability

5.5 Recommendation for Further Research

Conclusion

Individual information

This study selected nursing student interns majoring in Nursing, Midwifery, and oral(nurse) from Hainan Vocational University of Science and Technology in Yunlong Campus as the research subjects, totaling 327 individuals, including year 3 and year 4 students.

In this study, the majority of participants were female (82.26%), with ages concentrated mainly between 20 and 22 years old, accounting for 63.91% of the total. There were more year 4 nursing student interns than year 3r, making up 74.92% of the total. Nursing majors accounted for 79.20%, followed by midwifery (7.04%) and oral(nurse) (13.76%). Most nursing student interns came from rural areas (72.17%), with the Han ethnic group being the majority (83.18%). The largest proportion of nursing student interns had an internship duration of 6–10 months, accounting for (57.49%) of the total. The average monthly household income per person was mostly between 1,000 and 2,000 RMB, representing 30.27% of the participants. The highest number of nursing student interns were assigned to the ophthalmology department, making up 7.03% of the total.

Stress Source Scale for Nursing Student Interns

This study determined the main sources of stress for nursing student interns by analyzing the frequency, percentage, mean and standard deviation of the nursing student interns stress source scale.

According to the results of the study, the highest score for the stress source of nursing student intern is the evaluation of nursing student intern by patients and their families in the attitude and evaluation of patients. Among them, there is 1 person with no stress (0.3%),

2 people with mild stress (0.6%), 86 people with moderate stress (26.3%), 127 people with moderate to severe stress (38.8%), and 111 people with severe stress (33.9%). The average value is 4.1 and the standard deviation is 0.8, indicating that most interns scored close to 4.1, the data distribution is relatively concentrated, and the stress perception is relatively consistent.

Psychological stress level of nursing student interns

Objective: To study of psychological stress of nursing student interns at Hainan Vocational University of Science and Technology in Yunlong Campus. The psychological stress of nursing student interns was measured using the Perceived Stress Scale, PSS-14.

When analyzing the frequency and percentage of the Perceived Stress Scale, PSS, it was found that most items had the highest proportion in the "sometimes" (3 points) option, indicating that the stress perception was at a medium level. The combined proportion of the "often" and "always" options generally exceeded 40%, indicating that the overall stress level of the respondents was high, especially in terms of emotional control and problem solving.

According to the results of the study, 204 nursing student interns (62.38%) had high stress levels, 63 (19.27%) had moderate stress, and 60 (18.35%) had mild stress. Therefore, it can be seen that the psychological stress of interns is mostly in a high stress state.

The associate between the factors and the psychological stress level of nursing student interns

Objective: To find the associate between the factors and psychological stress of nurse student intern at Hainan Vocational University of Science and Technology in Yunlong

Campus. The chi-square test method was used to analyze the correlation between each influencing factor and the psychological stress level.

Chi-square test analysis showed that the following 8 influencing factors were significantly correlated with the level of psychological stress: the nature and content of nursing work, personal knowledge and skills, clinical environment and interpersonal relationships, psychological gap, clinical role positioning for nursing student interns, clinical assessment and evaluation, employment and examination, and teaching.

Discussion

The results of this study show that academic stress, employment stress, and interpersonal stress are statistically significantly correlated with the psychological stress level of interns, and can increase the psychological stress level of interns. This conclusion is consistent with the research of Bai Nan (Bai Nan, 2021). However, Bai Nan's article did not reflect that other factors such as the nature and content of work, psychological gap, and personal knowledge and skills can also affect the level of psychological stress.Nursing student intern have a large psychological gap when compared with clinical medical interns, especially in terms of work content and nature (mean value is 3.41). This psychological gap has a significant negative impact on the psychological state and professional identity of nursing student intern. The psychological gap is also reflected in the article of Campbell et al. (Campbell et al., 2022), especially the self-doubt and anxiety caused by comparison with other students.Uncertainty about employment prospects is an important factor affecting mental health, especially concerns about future career development, which is consistent with the concerns of nursing student intern about their career prospects. The data of this study

showed that career prospects (mean value of 3.38) were a medium to high source of stress, so nursing student intern had greater career prospects pressure, which is consistent with the research results of Immigration Lawyer (Immigration Lawyer, 2020) and You Liming et al. (You Liming et al., 2022).The results of this study showed that nursing student intern felt stressed about the "social status of nursing work", with an average score of 3.40 ± 1.10, indicating that most nursing student intern considered low social status to be a moderate to high stress source. Low social status may cause interns to doubt their professional value, which in turn affects their professional identity and job satisfaction. This is consistent with the results of Tang Wenjia et al. (Tang Wenjia et al.,2024-03-25).The tediousness and workload of nursing work are one of the main sources of psychological stress for nursing student intern. The item "stress and risk of nursing work" is mentioned in the nature and content of nursing work. When engaging in nursing work, one faces the risk of needlestick injuries. Needlestick injuries can cause anxiety, fear and self-blame in nursing student intern, affecting their work performance and learning enthusiasm. If needlestick injuries occur frequently or are improperly handled, nursing student intern may develop a rejection of the nursing profession and even affect their career choices. The results of this study showed that the mean value of stress and risk in nursing work was 3.41 (moderate stress), which is consistent with the results of Peng Hua et al. (Peng Hua et al., 2022).The article by Wang Yinhua et al. (Wang Yinhua et al., 2022) mentioned the importance of skills training. Skills training plays an important role in reducing the occurrence of sharp injuries among nursing student intern, improving occupational safety awareness, enhancing clinical operation ability, and enhancing psychological coping ability. Through systematic training, nursing student intern can better cope with various challenges in clinical work, reduce occupational exposure risks, and ensure the safety of themselves and others. The data of this study showed that the

mean value of the item "unsolid basic nursing operation skills" was 3.33, and the mean value of "unskilled use of instruments and equipment" was 3.39, indicating that nursing student intern have a certain degree of pressure on how to master skills. This study suggests that skills training can be used to reduce psychological pressure, while also avoiding the occurrence of risks such as needlestick injuries.The article by Zhang Qian et al. (Zhang Qian et al., 2023) showed that high-intensity workload and complex working environment are important factors leading to psychological stress. When medical students face high-intensity workload and complex working environment during internship or work, it will lead to increased psychological stress. The results of this study showed that the score of tediousness and labor load of nursing work was 3.41 ± 1.04, and the score of working environment was 3.15 ± 0.93, indicating that high-intensity workload and complex working environment can affect the psychological stress level of nursing student intern, which is consistent with the research results of Zhang Qian et al.This study pointed out that the psychological stress of nursing student intern mainly comes from workload, career prospects, clinical environment, attitudes of patients and their families, etc., which is consistent with the research of Yang Xiaojuan et al. (Yang Xiaojuan et al., 2018).The results of this study show that most of the psychological stress of nursing student intern is in a high-stress state. The article by Sun Hui et al. (Sun Hui et al., 2019) shows that psychological stress problems are a common phenomenon, especially when facing the high expectations of patients and their families, the high intensity of nursing work, and the uncertainty of career development. The item with the highest stress source score in this study was the attitudes and evaluations of patients and their families, which is consistent with the research results of Sun Hui et al.The results of this study showed that 62.4% of nursing student interns had a high level of psychological stress. This is consistent with the results of Ferreira et al. (Ferreira, L. C et al., 2021). The results of Ferreira et al. showed that

the overall stress level of medical students was >50% moderate to severe. The results of Shi Yanping et al. showed that nurses (especially young nurses and nursing student intern) are generally in a high-stress state, and high stress has a significant impact on their professional growth and mental health.

This study found that the relationship between nursing student intern and patients and their families can affect the level of psychological stress of nursing student intern. This result is different from the study of Aljohani, W et al. (Aljohani, W et al, 2021), which showed that there was no statistically significant correlation between the relationship between nursing student intern and patients and their families and the level of psychological stress. This may be due to the combined influence of cultural background, differences in clinical experience, design of research tools, sample characteristics and statistical significance.Campbell et al. also mentioned that economic pressure is an important factor affecting the level of psychological stress. Li Yajie et al. (Li Yajie et al., 2021) found that low-income groups have higher levels of stress. However, the data of this study showed that the impact of income level on psychological stress was not significant (P value = 0.85), which may be because the impact of economic pressure on psychological stress is long-term and indirect, so it was not fully manifested during the internship.The results of this study showed that the highest-scoring item for the source of stress for nursing student intern was the evaluation of nursing student intern by patients and their families in the attitude and evaluation of patients, with an average of 4.06 and a standard deviation of 0.81. This research result is different from the results of Lin Yin et al. (Lin Yin et al., 2021). The results of Lin Yin et al. showed that the highest-scoring item for the source of stress for nursing student intern was employment and examinations, with an average of 2.95 and a standard deviation of 0.95. This may be due to factors such as the research sample, research background, research methods, questionnaire

design, research time, and individual differences among nursing student intern. These factors work together to lead to differences in the perception and scoring of stress sources among nursing student intern in different studies.The results of the study by Jones, B. J et al. (Jones, B. J et al., 2020) showed that the main source of stress was related to sleep quality. This study showed that the stress of nursing student intern came more from work content, patient attitudes and career development. The sources of stress for nursing student intern are more complex, involving clinical operations, patient communication, professional identity and other aspects. This may be due to differences in their living environment, personality, experience and coping ability.In the study by Sun Yumei et al. (Sun Yumei et al., 2022), stress mainly came from learning tasks, time management, and autonomous learning ability; while the stress in this study mainly came from factors in the clinical environment such as the nature of work, career prospects, and patient evaluation. This may be related to the different emphases of the research purpose and stress sources.This study covers the sources of stress during the entire internship period and lists specific sources of stress in more detail, such as the attitudes and evaluations of patients and their families, the three-shift work system, and clinical role positioning. Through detailed data analysis, this study revealed more specific sources of stress and provided a more specific basis for future intervention measures. Wang Qingping et al. (Wang Qingping et al., 2020) focused more on psychological stress in the later stages of internship. This may be due to differences in research focus and research methods.The literature by Lan Xianlan et al. (Lan Xianlan et al., 2021) pointed out that the psychological stress of intern nurses is affected by many factors, including gender, educational background, internship department, etc. However, the results of this study showed that factors such as gender, education level, place of residence, nationality, internship time, major, department, etc. had no significant effect on the psychological stress level of

nursing student intern (all P values were greater than 0.05). However, the working environment and tasks of the department may have an impact on the psychological stress of nursing student intern (P value was 0.05). These differences are mainly due to differences in research background, research methods and research purposes. The research of Lan Xianlan et al. focused more on theoretical analysis and the proposal of psychological counseling strategies, while this study focused more on statistical analysis of data, providing more specific stress levels and influencing factors.The study by Li Yajie et al. (Li Yajie et al., 2021) found that young people and low-income groups had higher stress levels, while the results of this study showed that there was no statistically significant correlation between age and income level and psychological stress levels, which may be related to insufficient sample size, small effect size, large data variation, and no significant correlation between variables.The study by Rafati et al. (Rafati, F. et al., 2021) showed that the instructor's teaching methods and attitudes had a significant impact on students' perceived stress. However, the results of this study showed that the instructor's teaching methods had little impact on the perceived stress of nursing student intern (mean value was 1.88), but the instructor's recognition and attitude towards the nursing student intern work had a certain impact on perceived stress (mean value was 3.34).(Wu Yinuo 2020) mentioned in his paper that medical staff lack sufficient social support at work, especially from hospital management and colleagues. In this study, the pressure of nursing student intern came more from the evaluation of patients and their families, and the impact of social support was relatively small. Because nursing student intern have not yet officially entered the workplace, their social support mainly comes from schools and internship units, while medical staff's social support comes more from hospital management and colleagues.The study by Lavoie-Tremblay et al. (Lavoie-Tremblay, M et al., 2022) showed that students' stress levels gradually increased with the increase of

academic years. This study showed that the stress levels of nursing student intern were generally high, with 62.38% of nursing student intern being in a high-stress state, and there was no significant difference in the stress levels of nursing student intern of different grades.The results of the study by Park et al. (Park, C. L. et al., 2021) showed that the psychological stress level of most nursing student intern was mild to moderate, but most of the nursing student interns in this study were in a state of high stress. This may be because Park et al. adopted methods such as yoga to reduce the stress level of nursing student intern, but this study did not provide specific intervention measures.

Study Limitation

1. The samples of this study were only from nursing student intern at Hainan Vocational University of Science and Technology in Yunlong Campus. The geographical and school backgrounds of the samples were relatively limited and may not fully represent nursing student interns from other regions or other schools. Although the sample size was large (n = 327), the small sample size in some groups (such as a few departments or low-income groups) may lead to insufficient statistical power and inability to detect real differences.

2. This study mainly used the chi-square test to analyze categorical variables, but did not conduct a more in-depth analysis of continuous variables (such as regression analysis), which may have overlooked some potential influencing factors.

3. The study adopted a cross-sectional design, which can only reflect the psychological stress level at a certain point in time and cannot track the changing trend of stress levels over time.

4. The current study was mainly a descriptive study, which aimed to understand the psychological stress level and influencing factors of nursing student intern, but no intervention measures were designed, and no intervention and control groups were set up to evaluate the effectiveness of the intervention.

Generalizability

1. The results of this study can provide a reference for psychological stress management for nursing student intern at t Hainan Vocational University of Science and Technology in Yunlong Campus.

2. Nursing schools and training institutions can adjust nursing curriculum and internship arrangements based on the results of this study to help nursing student intern better cope with psychological stress.

3. Based on the results of this study, hospitals can optimize the internship arrangements and working environment of nursing student intern and reduce the psychological pressure of nursing student intern.

4. Society and families can provide more support and understanding for nursing student intern based on the results of this study.

Recommendation for Further Research

1. Future studies can design intervention experiments, set up intervention and control groups, and evaluate the effects of intervention measures such as psychological support, stress management training, and mentor support. A randomized controlled trial

design can be used to ensure that the intervention and control groups are comparable in baseline characteristics.

2. Future studies should expand the sample size and cover more regions and different types of medical schools to increase the generalizability and representativeness of the research.

3. Track the changes in the psychological stress of nursing student intern during the internship and observe the changing trends of stress levels at different stages of the internship. Data can be collected at different stages of the internship (such as the beginning, middle, and end of the internship).

4. Further explore specific stressors, especially those factors that lead to high stress levels, such as evaluations of patients and their families, attitudes of patients and their families toward nursing student intern, etc. Qualitative research (such as in-depth interviews and focus group discussions) can be used to gain a deeper understanding of nursing student intern feelings and coping strategies for these stressors.

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APPENDIX

Appendix A

Interview forms Research Title

Factors associated with psychological stress among nursing student intern in Hainan Vocational University of Science and Technology

Consent day Date.....Month.....Year.....

I am Mr. / Mrs. / Miss. . . . . .

address.....

Read the details from the information sheet for participants in the research project and I agree to voluntarily participate in the research project.

I have received a copy of the consent form that I signed and dated, along with an information sheet for research participants. This is before signing the consent form to conduct this research. I was explained by the researcher about the purpose of the research. The duration of the research, research methods, dangers or symptoms that may arise from the research. or from the medicine used Including the benefits that will arise from the research and guidelines for treatment by other methods in detail I have had enough time and opportunity to ask questions until I have a good understanding. The researcher answered various questions willingly and without concealment until I was satisfied.

I have the right to terminate my participation in the research project at any time. There is no need to inform the reason. and termination of participation in this research It will not affect treatment or other rights that I will continue to receive. The

researcher guarantees that my personal information will be kept secret. and will be disclosed only with my consent. Other persons on behalf of the research sponsoring company Human Research Ethics Committee the Food and Drug Administration may be permitted to inspect and process my information. This must be done for the purpose of verifying the accuracy of the information only. By agreeing to participate in this study, I am giving consent to have my medical history reviewed.

I have read the above and have a complete understanding of it. Willing to participate in research willingly. Therefore, signed this consent document.

.....Sign the person giving consent.

(.....) Name of person giving consent

Date .....Month.....Year.....

I have explained the purpose of the research, the research methods, dangers or adverse reactions or risks that may arise from the research. or from the medicine used Including the benefits that will arise from thorough research. Let the participants in the research project named above know and have a good understanding. Ready to sign the consent document willingly

.....

Signed by the researcher

(.....)

Name of researcher in detail

Date .....Month……..Year…….

.....	.....
Witness signature	Witness signature
(.....)	(.....)
Name of witness in detail	Name of witness in detail
Date .....Month…..Year…….	Date .....Month……..Year…….

Factors associated with psychological stress among nursing student intern in Hainan Vocational University of Science and Technology

…….....

Dear Participants

This study aims to investigate the sources of psychological stress and the level of psychological stress of nursing student interns at Hainan Vocational University of Science and Technology**.** Participation in this study is voluntary and the information you provide will be confidential, which means that your name will not be mentioned anywhere and the information you provide will only be presented in summary form**.**

Please carefully select the answer and possible answers for each question**.** Select and block **(**√**)** the answer option that best represents your views, knowledge, attitudes, and practices**.** If you have any concerns or other questions about the questions, please inform the interviewer**.**

Introduction of the Questionnaire

The questionaire is divided into 3 part percent as follows;

Part I Individual information form

Part II Stress Source Scale for Nursing Student Interns

Part III Perceived Stress Scale，PSS

Huang Bingbing

Master of Public Health

Chiang Rai Rajabhat University

Part I Individual information form

Guidance: Please select careful the answer for each question and choose the answer by marking **(✓)**the response option that best represents**.**

1**.** Gender （）1**.** Male （）2**.** Female

2**.** Age**……**Years

3**.** Education level （）1**.** Year 3 （）2**.** Year 4

4**.** Live at from address （）1**.** Urban （）2**.** Rural

5**.** Ethnic （）1**.** Han （）2**.** Minority

6**.** Cumulative time of clinical internship **(**months**)** （）1**.** 1-3 （）2**.** 4-5

（）3**.** 6-10 （）4**.** ＞10

7**.** Average monthly income per person **(**yuan/month/person**)**

（）1**.** <1000 （）2**.** 1000-2000 （）3**.** 2001-3000 （）4**.** >3000

8**.** Major （）Nursing （）Midwifery （）oral**(**nurse**)**

9**.** Current internship department**……**

Part II Stress Source Scale for Nursing Student Interns

Guidance: The following table is to understand your main sources of stress**.** Please carefully select each answer and choose the answer by marking **(✓)** the option that best represents it**.**

factor	entry	Stress level				
		No pressure 1	Mild stress 2	Moderate stress 3	Moderate to severe stress 4	Severe stress 5
The nature and content of nursing work	The tediousness and workload of nursing work					
	Career Prospects					
	Pressure and risks in nursing work					
	Three-shift work system					
	The social status of nursing work					
Personal knowledge and skills	Patient health education					
	Participate in patient rescue					
	Communicate effectively with patients					
	Basic nursing skills are not solid					
	Lack of professional knowledge and skills					
	Determine changes in patients' conditions and handle clinical emergencies					
	Unskilled use of equipment					
Clinical environment and interpersonal relationships	Integrate into the working atmosphere of the department					
	Familiar with the work flow of each department					
	Familiar with the environment and equipment of clinical departments					
	Dealing with various interpersonal relationships					
Psychological gap	Compared with clinical medicine interns, the difference in work content and nature causes psychological gap					
	Compared with clinical medicine teachers, nursing teachers are weak.					
	Patients and their families					

factor	entry	Stress level				
		No pressure 1	Mild stress 2	Moderate stress 3	Moderate to severe stress 4	Severe stress 5
	have different levels of recognition for clinical medicine interns and nursing student interns					
Patients' attitudes and comments	Evaluation of patients and their families on nursing student interns					
	Establish a good nurse-patient relationship					
	Attitudes of patients and their families towards nursing student interns					
Clinical role positioning for nursing student interns	Daily care is mostly provided by nursing student interns					
	Consider nursing student interns as a supplementary workforce for the department					
	Ignore their identity as learners					
	Non-nursing work such as running errands is mostly done by nursing student interns					
Clinical assessment and evaluation	The head nurse's evaluation of the nursing student interns					
	Skills and theory assessment during internship					
	Evaluation of teaching teachers on nursing student interns					
Employment and Examination	Prepare for postgraduate entrance examination or take nursing professional examination or graduation examination					
	The contradiction between preparing for various exams and reducing study time					
	Employment exams and interviews					
Teaching	The teaching method of the instructor					
	The degree of recognition of the teaching teachers for the work of the nursing student					

factor	entry	Stress level				
		No pressure 1	Mild stress 2	Moderate stress 3	Moderate to severe stress 4	Severe stress 5
	interns					
	The attitude of teachers towards nursing student interns					

Part III Perceived Stress Scale，PSS

Guidance**:** The following table is designed to understand your psychological stress level**.** Please carefully select each answer and mark **(✓)** the option that best represents the answer**.**

entry	score				
	Never 1	Almost no 2	Sometimes 3	Often 4	Always 5
1. Feeling irritated when unexpected things happen					
2. Feeling that you cannot control important things in life					
3. Feeling nervous and stressed					
4. Feeling that you can successfully handle annoying trivial matters in life (reverse question)					
5. Feeling that you are effectively dealing with major changes in life (reverse question)					
6. Feeling that you can confidently handle personal problems (reverse question)					
7. Feeling that things are going well for you (reverse question)					
8. Feeling unable to handle all the things you have to do					
9. Feeling that you can control the annoying emotions in your life (reverse question)					
10. Feeling that you can control everything (reverse question)					
11. Feeling that you often get angry because you can't control what happens					
12. Often think that					

entry	score				
	Never 1	Almost no 2	Sometimes 3	Often 4	Always 5
there are things you have to do yourself					
13. Feeling that you can control the way you arrange your time (reverse question)					
14. You often feel that difficult things are piling up and you can't overcome them					

Appendix B

Validity and Reliability

Reliability Analysis

Internal consistency reliability reflects the degree of relevance of each question in the questionnaire. Internal consistency reliability is usually measured by Cronbach's α coefficient in SPSS software. Cronbach's α coefficient value is between 0 and 1. The larger the α coefficient value is, the better the correlation between questionnaire items is, that is, the higher its internal consistency reliability is. Generally speaking, an α coefficient greater than 0.8 indicates excellent internal consistency, 0.7~0.8 indicates good, and an α coefficient of 0.6~0.7 indicates average and acceptable. If it is lower than 0.6, it means that the internal consistency is poor, and consider modifying the questionnaire scale.

Overall reliability analysis

Cronbach's Alpha	Sample Capacity	Number of items
0.956	50	49

According to the overall reliability coefficient, it can be seen that the standardized reliability coefficient is 0.956, indicating that the overall reliability of the questionnaire is excellent.

Validity Analysis

Validity refers to the degree to which the measured results reflect the content to be examined. The more consistent the measured results are with the content to be examined, the higher the validity; otherwise, the lower the validity. The validity test

needs to look at the significance of the KMO coefficient and the Bartlett sphericity test. The KMO coefficient ranges from 0 to 1. The closer it is to 1, the better the structural validity of the questionnaire. If the significance of the Bartlett sphericity test is less than 0.05, we can also believe that the questionnaire has good structural validity.

KMO and Bartlett's test		
KMO sampling suitability measure		0.826
Bartlett's test of sphericity	Approximate Chi-Square	3194.867
	Degrees of Freedom	1176
	Significance	0.000

KMO and Bartlett tests were used to verify validity. The coefficient result of the KMO test was 0.826, the chi-square value of the Bartlett test was 3194.867, and the significance = 0.000 < 0.01, indicating that the overall validity of the questionnaire was excellent.

Attachment: Screenshot of analysis results

Reliability

[DataSet2]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.956	49

Factor Analysis

[DataSet2]

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.826
Bartlett's Test of Sphericity	Approx. Chi-Square	3194.867
	df	1176
	Sig.	.000

BIOGRAPHY

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