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Relationship of Demographic Profile to Satisfaction in Interprofessional Collaboration among Medical-Surgical Ward Nurses in Selected Hospitals of Shandong, China: A Cross-Sectional Study

Meng Li [a, *], Cyrelle D. Agunod [b]

Graduate School, Angeles University Foundation, United States
[a] li.meng@auf.edu.ph, [b] agunod.cyrelle@auf.edu.ph

ABSTRACT

With the spread of the concept of team medicine, active nurse-doctor collaboration is closely related to nursing quality. Nursing standards recognize that collaborative practice is a necessary condition for high-quality patient care, but many nurses are often reluctant to participate in interprofessional teams, indicating that challenges in nurse-doctor collaboration still exist. This study aimed to investigate the relationship between demographic data and nurse interprofessional satisfaction of medical and surgical nurses in tertiary hospitals in Shandong Province, and to provide a reference direction for improving teamwork. Methods: The research method was a cross-sectional study. Medical and surgical nurses in three tertiary hospitals in Shandong Province were surveyed. Medical and surgical nurses who were officially registered in the hospital and had been engaged in internal medicine or surgery for at least one year were selected. They were aged 18 to 45 years. The researchers used SPSS software to analyze the data, and descriptive statistics (frequency percentage distribution, mean score, and standard deviation) were used to present the satisfaction scores. If the data did not follow a normal distribution, nonparametric tests were used. Results: The average scores of the interprofessional collaboration satisfaction scale for the participating nurses were: "overall expectation" 2.67; "perception dimension of professional collaboration" 3.78; "The overall relationship satisfaction of professional cooperation" 3.83; "Communication and tolerance of interprofessional collaboration" 3.80; "Equality of interprofessional collaboration" 3.81; "Satisfaction with interprofessional collaboration" 2.98. The results of non-parametric tests showed that there was a significant difference between marriage and nurses' satisfaction with interprofessional collaboration ($P<0.05$). Conclusion: The overall satisfaction of nurses with interprofessional collaboration in three tertiary hospitals in Shandong Province was generally average. The three hospitals should improve the management model and care about the mental health of nurses according to factors such as the marital status of nurses. Nurses should make a good distinction and plan between work and life to promote interprofessional collaboration.

KEYWORDS

Medical-surgical nurses; Demographic profile; Satisfaction with interprofessional collaboration; Relationship to interprofessional collaboration

1. INTRODUCTION

Interprofessional collaboration (IPC) is a cornerstone of effective health care delivery in today's dynamic environment of inpatient hospital care (Urisman et al., 2018). Effective collaboration between nurses and physicians is critically important around the globe. Both the Joint Commission on Healthcare Accreditation and the American Nurses Credentialing Center (ANCC) Magnet

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Recognition Program have identified collaborative, interdisciplinary relationships as a hallmark of a healthy work environment as evidenced by improved nurse retention.Good interprofessional collaboration is a key requirement for safe and effective care in both medical and surgical nursing settings. Effective nurse-physician collaboration is essential to a healthy work environment and optimal patient outcomes. (Boev, C. et al., 2022). In addition, collaborative practice has the added benefit of reduced healthcare costs and increased job satisfaction for all members of the interprofessional team. Numerous reports in the medical literature show that ineffective physician-nurse collaboration has been shown to lead to physician and nurses' job disabilities, and compromise the quality of patient care.

Interprofessional collaboration has been identified as an essential element of high-quality health care in a European study, but physicians and nurses differ in their views on many aspects, including the emphasis on collaboration and joint decision-making. These differences were explained by gender, the historical origins of the two professions, and differences in socioeconomic status, education, and socialization of doctors and nurses (Pomari, 2019). There is also research showing that happiness at work reduces turnover and is a strong predictor of organizational commitment. Friendly relationships and teamwork both positively contributed to RNs' perceptions of well-being. In addition, communication and collaboration promote a healthy work environment, while social support from colleagues and supervisors is associated with intentions to remain in a hospital work environment (Ylitörmänen et al., 2019). A study by Miller KL et al. found that nurses' collaboration with other professionals was influenced by emotional work considerations. The establishment and maintenance of nursing teamwork, corridor conflict with physicians, and the failure of interdisciplinary teams to acknowledge the importance of nursing's core nursing values were important factors supporting nurses' interprofessional disengagement (Miller et al., 2018). It can be seen that there are barriers to interprofessional cooperation. From the perspective of nurses, the age, education, working years, departments, and professional and value differences between nurses and doctors will all be potential obstacles that affect nurses' satisfaction with interprofessional cooperation.

A national survey conducted by the China Association for Science and Technology also shows that only 48.5% of nurses believe that the working relationship between doctors and nurses in their departments is good (Zhang, 2018). In the study of general hospitals in Guangdong Province by Lin Xijun et al., it is particularly noteworthy that the lowest-scoring item in the dimension of "cooperative relationship between doctors and nurses" is "doctors and nurses have a good working relationship." (Lin et al., 2018). In the study by Yilmaz et al., nurses emphasized the key elements of respect, relationships, and communication as components of effective collaborative practice. He also pointed out that the cooperative practice between doctors and nurses is weak and there are some difficulties and obstacles. (Yilmaz, K., & Taşçi-Duran, E. 2022). By the end of 2022, according to the National Health and Medical Commission, the ratio of doctors and nurses in China has grown to 1:1.18, which is still lower than the national level. For nurses who are under stress for a long time, it is easy to have a negative impact on interprofessional cooperation. It can be seen that there are barriers to interprofessional cooperation. From the perspective of nurses, the age, education, working years, departments, and professional and value differences between nurses and doctors will all be potential obstacles that affect nurses' satisfaction with interprofessional cooperation.

The nurse's role is constantly changing due to national and global challenges that emphasize professional collaboration within and outside the health sector. The World Health Organization's Global Strategic Directions for Strengthening Nursing and Midwifery 2016-2020 states that nurses should "work together to maximize the capabilities and potential of nurses and midwives, and to promote education and continuing professional Development" (World Health Organization, 2016-2020). Today's work environment also urges nurses to work collaboratively to achieve high-quality and cost-effective care. This also reflects that only reliable interprofessional cooperation can play the overall effect of modern hospitals. Exploring the obstacles to interprofessional cooperation is the direction of continuous efforts of national health departments. In the past few years, the prevalence

of complicated and chronic health disorders has led to the immense need for an effective healthcare team(Lavelle et al.,2017). Western countries have long started to carry out educational research to improve the level of medical care cooperation, and countries in the EU region will face a shortage of high-quality nurses (Zander et al., 2017). Therefore, maintaining a healthy and satisfied workforce is critical.

At present, although the research on doctor-nurse professional cooperation is getting more and more attention. Michael Palapal conducted a cross-sectional study on Filipino therapists' experiences and attitudes toward IPE and collaboration to label the professed scope of IPE involvement, among Filipino occupational therapists, physical therapists, and speech-language pathologists (SLPs) (Sy M. P., 2017). A national survey of SLPs' commitment to interprofess-ional collaborative practice in schools was conducted by Danika Pfeiffer et al (Pfeiffer, 2019). There is a huge research gap in literature reviews in China, most studies are conducted in a single setting or a single medical sector target population or from the perspective of doctor-to-nurse satisfaction, focusing more on doctors' attitudes towards cooperation and problems, or research on doctor-nurse collaboration, doctor-patient collaboration, and nurse collaboration. Research on the relationship between nurses' satisfaction with interprofessional collaboration and nurses' demographics has not been fully explored.Second, good interprofessional collaboration is essential for healthcare services and is associated with high-quality patient care, higher patient satisfaction, and better health outcomes. This study aimed to investigate the satisfaction of medical and surgical nurses with interprofessional collaboration in tertiary hospitals in Shandong Province using a cross-sectional approach and to analyze the relationship between satisfaction and the general information of the researchers (age, sex, years of clinical nursing service, department, education, position, marital status, and labor characteristics). This study fills an important gap in the literature on the collaboration between nurses and professionals in two important departments: medical and surgical.

2. STUDY OBJECTIVES

2.1. General Objective

The purpose of this study was to investigate nurses' satisfaction with interprofessional collaboration and to identify demographic factors that influence their perceptions of collaboration. By exploring nurse satisfaction and demographic factors, this study aims to gain valuable insights into the dynamics of interprofessional collaboration from the nurses' perspective. These findings will inform the development of targeted strategies to effectively enhance collaboration between physicians and nurses to improve patient outcomes.

2.2. Specific Objectives

Guided by the overall objective, the study aims to answer the following questions:

(1) To describe the respondents' socio-demographic and work characteristics.

(a) Age,

(b) Gender,

(c) Education level,

(d) Departments,

(e) Identity,

(f) Years of clinical nursing service.

(g) Marital status,

(h) Method of appointment.

(2) Describes respondents' satisfaction with interprofessional collaboration according to Expectation of professional cooperation; Perception of professional collaboration; The overall relationship satisfaction of professional cooperation; Trust of professional cooperation; Communication and tolerance of interprofessional collaboration; Equality of interprofessional collaboration; Satisfaction with interprofessional collaboration.

(3) To explore the relationship between the respondents' demographic variables and satisfaction with interprofessional collaboration.

3. REVIEW OF RELATED LITERATURE

3.1. Interprofessional Cooperation

The word "collaboration" is derived from the Latin collaborare, meaning "to work together", and is defined as follows: "to work with or together with others, especially in an intellectual endeavor" (Plus, 2018). Nurses may interpret the benefits of collaboration in different ways. Implication (Moore & Prentice, 2018). Interprofessional collaboration (IPC) is a way of communication in which 2 or more healthcare professionals share their knowledge through discussion, and provide their best management for the patients, their families, and health organizations (Ansa et al., 2020). Thus, in the healthcare sector IPC is a collaborative partnership responsible for the quality of care to the patients according to their needs. IPC in education and practice is recognized by the World Health Organization (WHO) as a unique method for delivery of health that will also help to relieve the global manpower deficit in this field. (Fernandez et al., 2020) It is a crucial component of healthcare care and is linked to patients experiencing better health outcomes (Peduzzi et al., 2019).

In the past, the nurse-physician relationship was characterized by the authority of the physician and the compliance of the nurse, with the physician represented as father and instruction. Nurses should only focus on patient care and follow doctor's orders (House & Havens, 2017). For example, before 2012 in China, influenced by traditional concepts, there were grade differences between doctors and nurses, and the social status of nurses was lower than that of doctors (Zeng et al., 2018). In later studies, from the initial "nurses relying on doctors" to the later "medical and nursing interdependence", the professionalism and status of nurses are also getting higher and higher. The level of communication between doctors and nurses in Middle Eastern countries shows that nurses act as assistants to doctors (El-Hanafy, 2018). In Japan, regarding the difficulty of nurse-physician collaboration (Honda & Takamizawa, 2018), there is still a major dependency between doctors and nurses. Due to the improvement of people's living standards and the increasing complexity of patient care, nurses need to be given more independence and development in professional cooperation in order to better promote the development of medical nursing models.

3.2. Attitude and Satisfaction of Medical-Surgery Nurses Towards Interprofessional Cooperation

Most surveys around the world have found that nurses generally have a positive attitude towards medical care and nursing cooperation, and nurses score higher than doctors on the attitude of medical care and nursing cooperation, and most scholars' research results are consistent. Despite cultural differences, nurses value physician-nurse collaboration more than physicians (Hojat et al., 2017). Nurses are more enthusiastic about working together than doctors, who see collaboration as less important (Zheng J et al., 2018). Nurses pay more attention to medical care cooperation and have a more positive attitude than doctors. The reason may be that nurses are objectively lower than doctors in social status, and nurses are more inclined to medical care cooperation. Especially in China and under the subtle influence of traditional concepts for a long time, most people accept that the main

job of nurses is to implement doctor's orders, complete drug administration, treatment, nursing and health education, and the work of doctors is two parallel lines. There is a lack of Efficient communication and collaboration, responsible nurses can not more clearly grasp the patient's diagnosis and treatment plan and ideas. Nurses are very aware of the importance of establishing a good relationship with doctors, because doctors have more sources of knowledge and information, which helps them share knowledge and experience, so as to obtain more information, which is more beneficial to their work. With the popularization of higher nursing education and the development of the overall nursing responsibility system, nurses no longer need to meet the implementation of dry mechanical doctor's orders, but need to understand the patient's diagnosis and treatment, take the initiative to complete the nursing work, improve their professional quality, and realize their self-cultivation. value. Nurses, therefore, hope to achieve this by participating in medical and nursing collaborations (Hojat et al., 2017). Therefore, nurses pay more attention to the collaborative relationship between professions.

Although most nurses are willing to subjectively participate in medical and nursing cooperation, their satisfaction with interprofessional cooperation is lower than that of doctors. Results using the Healthcare Team Attitudes Scale in the survey by Jabbar et al. showed that the majority of respondents (88.1% response rate) held a positive attitude towards the IPC and strongly agreed with the nine positive statements in the scale (Jabbar, 2023). As a result, physicians were more satisfied with collaboration, while nurses were less satisfied. Some studies have shown that doctors pay too much attention to the diagnosis and treatment of diseases to a certain extent, which leads to the low satisfaction of nurses with mutual cooperation. In addition, there is also a gap between the two parties in their understanding and perception of medical and nursing cooperation. This gap is an important factor in nurses' dissatisfaction with professional work, and even leads to nurses' resignation. Physicians thus expressly or covertly resist equal rights to interprofessional collaboration, thereby affecting nurses' satisfaction with interprofessional collaboration.

3.3. Barriers Affecting Interprofessional Satisfaction of Medical-Surgical Nurses

In the conclusion of the study by Boev, C. All participants emphasized the importance of communication and the link between effective collaboration and better patient outcomes. Whereas nurses value respect, doctors emphasize the importance of relationships (Boev et al., 2022). Also, although most studies indicate that doctors and nurses should have similar views and attitudes regarding teamwork, however, many studies have shown that there are differences in views and attitudes regarding teamwork between doctors and nurses. They disagree on what constitutes an effective working partnership (House & Havens, 2017). Members must appreciate each other's opinions and knowledge in order to earn mutual respect. In the research of Tang, C., the factors affecting doctor-nurse collaboration are mentioned, including communication, respect and trust, power inequality, understanding of professional roles and task priorities, and corresponding strategies to improve doctor-nurse collaboration are proposed for the obstacles, Including interprofessional education and interdisciplinary rounds, other factors influencing physician-nurse collaboration were work priorities, understanding of professional responsibilities, respect, and equal authority (Tang et al., 2018). With the enhancement of people's health awareness and the development of nursing disciplines, this kind of interprofessional teamwork has become a trend. However, medicine and nursing are two independent disciplines. On the one hand, medical staff have different priorities when serving patients. On the other hand, doctors and nurses have different attitudes and perceptions towards medical-nursing cooperation, which leads to the perception of medical-nursing cooperation by doctors and nurses. There are differences in levels (Qiao C, 2021).

In addition, gender, professional title, working years, etc. in sociodemographic data are related to the level of medical and nursing cooperation. There are many studies on this aspect at home and abroad. The reasons for interprofessional barriers suggested in the Italian study are gender, the historical origins of the two professions, and differences in socioeconomic status, education, and socialization

of doctors and nurses (Pomari, 2019). Nurses' perceptions of collaboration vary across clinical practice areas. When nurses and doctors were surveyed on their perceptions of collaboration, doctors consistently reported higher levels of perceived collaboration compared to nurses (Collette et al., 2017). Communication factors, cognitions, and attitudes were found in the study of Liu Shaoye et al. Factors and management factors account for a relatively high proportion of adverse factors affecting medical-nursing cooperation, while personnel factors and technical factors account for a relatively small proportion of adverse factors affecting medical-nursing cooperation (Liu S. 2021). In the investigation by Zhang J et al., it was found that the level of medical-nursing cooperation is affected by their professional titles. Nurses have the highest score for medical-nursing cooperation. With the promotion of professional titles, the score of medical-nursing cooperation decreases (Zhang J, 2021). Dong X et al. analyzed the status quo and influencing factors of medical-nursing cooperation perceived by nurses in tertiary-level hospitals and found that the influencing factors of the level of medical-nursing cooperation perceived by nurses are departments, professional titles, and interpersonal exchanges between doctors and nurses, prompting hospital managers Measures should be taken based on influencing factors such as departments, professional titles, and interpersonal exchanges between doctors and nurses to enhance medical-nursing cooperation (Dong X et al. 2019).Research by Wang W (Wang W et al. 2017)and others shows that as professional titles are promoted, nurses' evaluation of cooperation decreases, because nurses with high professional titles have more knowledge reserves, high skill levels, and strong ability to deal with emergencies. They hope to have more skills in their daily work. However, in actual work, doctors may not be aware of the role and energy of nurses. The level of medical-nursing cooperation perceived by nurses in surgical wards, emergency departments, and operating rooms is significantly higher than that in medical wards, because the conditions of patients in these three types of departments are relatively urgent and it is difficult for doctors to complete diagnosis and treatment independently and require effective cooperation with nurses."Some scholars also believe that medical nurses have a higher evaluation of medical-nursing cooperation than surgical nurses because medical patients mostly have chronic diseases and there is relatively sufficient time for communication between doctors and nurses (Dong X et al. 2019). In addition, compared with married nurses, unmarried nurses have a higher evaluation of medical-nursing cooperation, because married nurses not only face daily work, but also bear family responsibilities. The double pressure makes them prone to burnout and emotional exhaustion, which affects their enthusiasm for work. As a result, it is easy to be more dissatisfied with medical and nursing cooperation. Unmarried nurses are enthusiastic and energetic at work, and can actively and proactively cooperate with doctors, which is more conducive to teamwork (Song Y. 2021).

3.4. Future Research Perspectives

The population health model of the future requires healthcare professionals to practice in a well-functioning team, delivering safe, high-quality, and high-value care. Exploring medical-surgical nurses' satisfaction with and barriers to interprofessional collaboration In addition to providing value in creating a healthy work environment, effective interprofessional collaboration among healthcare professionals benefits patients and fosters discipline development. Most studies have studied the problems between nurses and doctors or other professions in the medical team from the perspectives of the development process of medical care cooperation, the attitude of medical care cooperation, or the development model of medical care and nursing cooperation. Views or existing problems, and did not analyze the problem of interprofessional cooperation from the perspective of nursing staff. It can be seen that improving medical and nursing cooperation is still an important step to promote the development of modern medical models, but there are few studies on interprofessional cooperation from the perspective of nurses. Reliable interprofessional collaboration remains an essential requirement for the development of modern or future healthcare models. Improving the relationship between doctors and nurses and job satisfaction of nurses is one of the research hotspots in the future to reduce the loss of nursing staff (Shi et al., 2023). Future studies should include a larger, equal

sample of nurses and physicians. It would also be interesting to interview both groups of doctors and nurses separately and together. Shared experiences may yield rich data from each discipline. Therefore, as a nursing researcher, we should consider the current nursing situation in my country, learn from foreign experience, conduct quantitative evaluation of nursing staff through evaluation tools, scientifically and accurately investigate the relationship between medical and surgical nurses' satisfaction with interprofessional collaboration and nurses' demographic data, and promote the comprehensive development of the medical industry in China and the world.

4. METHODS

4.1. Study Design and Locale

This study is a quantitative cross-sectional study. The study area was selected as three tertiary first-class hospitals in Shandong Province, including the First People's Hospital of Jining City, the Affiliated Hospital of Jining Medical College, and the Second Affiliated Hospital of Shandong First Medical University.

4.2. Study Participants

4.2.1. Sample Size and Sampling

Purposeful sampling of medical-surgical nurses was performed from three selected hospitals according to voluntary inclusion and exclusion criteria. A total of 246 valid questionnaires were collected, including 96 from Jining People's Hospital, 76 from the Affiliated Hospital of Jining Medical College, and 74 from the Second Affiliated Hospital of Shandong First Medical University.

4.2.2. Inclusion and Exclusion Criteria

Inclusion: Nursing staff, aged 18-45 years old, officially registered in three selected tertiary first-class hospitals, entered the hospital's internal medicine-surgery department from 2018-2024, and worked in internal medicine or surgery for at least 20 years after the implementation of innovative electronic medical records in 2022-2024 One year.

Exclusion: Internships and advanced studies in the hospital, nursing staff who are on maternity leave, breastfeeding leave, sick leave, shifts or other reasons, or working for less than one year, in departments other than internal medicine or surgery, aged over 45 years old, not Nurses who wish to participate in research.

4.3. Research Instruments

4.3.1. General information questionnaire

A self-designed questionnaire was used to investigate the general information of nurses, including eight items including age, sex, education, position, Years of clinical nursing service, and department.

4.3.2. Nurses' Satisfaction Scale for Interprofessional

Nurses' Satisfaction Scale for Interprofessional Cooperation Nurses' Satisfaction Scale for Interprofessional Cooperation was compiled by Lu Nan (Lu & Zhang, 2010) and evaluated by five experts with more than 10 years of clinical experience in the nursing field. The scale was based on previously validated, reliable, published instruments and was deemed suitable for the purpose of this study. This scale is in Chinese and can be used directly without translation.It is divided into 7 dimensions , 20 items:Nurses' satisfaction with interprofessional cooperation expectations, inter-professional cooperation perception, inter-professional overall relationship, inter-professional cooperation trust, inter-professional communication and tolerance, inter-professional equality, and professional cooperation. A 5-point Likert scale was used, ranging from 1 = "very dissatisfied" to 5

= "very satisfied". The higher the average score, the more satisfied the nurses are with interprofessional collaboration.The Cronbach's alpha of the scale is 0.953>0.7, indicating that the reliability of this questionnaire is good, and the content validity coefficient is 0.968>0.5.

Table 1. Reliability analysis results

Cronbach's coefficient	Number of items
0.953	20.000

α=0.953>0.7, This shows that the reliability of this questionnaire is good.

Table 2. Validity analysis results

KMO sampling suitability quantity.		0.968
Bartlett's test of sphericity	Chi-square last read	5086.890
	Degrees of freedom	190.000
	Significance	0.000

4.3.3. Informed consent form

Select the informed consent form that meets the relevant provisions of the "Measures for Ethical Review of Biomedical Research Involving Humans" (2016).

4.4. Ethical Considerations

This study was approved by the Graduate School of Anglas University and the selected hospitals.

5. STATISTICAL ANALYSIS OF DATA

Under the guidance of a statistician, researchers will analyze data using Statistical Package for the Social Sciences (SPSS) software and use descriptive statistics (Frequency, Percentage, Mean) to describe participant demographic characteristics and satisfaction scores. According to the demographic characteristics, the overall average inter-professional cooperation satisfaction was comparatively analyzed. First, the data was tested for normality. The test results showed that the data did not obey the normal distribution, so a non-parametric test was used. If the demographic variable had two categories, the Mann-Whitney U test was used. However, if the demographic variable has more than 2 categories, the Kruskal-Wallis test will be used to test whether there is a significant difference between the demographic characteristics and the overall average interprofessional collaboration satisfaction, test statistic $P < 0.05$, there is a significant difference.

6. RESULTS

6.1. Description and Analysis Results of Nurses' General Information (Table 3)

A total of 246 valid questionnaires were collected in this survey, and descriptive statistical analysis was performed on the demographic information of the participants (see Table 1). Among them, in terms of age, those <25 years old accounted for 32.11%, and those aged 25-35 accounted for 50%. 17.89% were aged 36-45, and the proportion of those aged 25-35 was relatively large. In terms of gender, females accounted for 52.03% and males accounted for 47.97%, and the number of female samples was close to that of male samples. In terms of education, 57.72% had a college degree, 20.73% had a bachelor's degree, 13.82% had a postgraduate degree, 4.88% had a doctorate, and 2.85% had a doctorate. The proportion of those with a college degree was relatively large. In terms of departments, internal medicine and surgery accounted for 56.91% and 43.09% respectively, and the number of

internal medicine and surgery was similar. In terms of positions, Junior Nurses accounted for 34.15%, Primary Nurses accounted for 33.74%, Intermediate Nurses (Supervising nurses) accounted for 24.08%, and Senior Nurses accounted for 7.32%. Junior Nurses and Primary Nurses accounted for 24.08%. Nurses accounted for a large proportion; in terms of years of clinical work, nurses with less than 5 years accounted for 36.18%, nurses with 5-10 years accounted for 36.59%, nurses with more than 10 years accounted for 27.24%, and the number of nurses with clinical nursing time <5 years and 5-10 years was similar; in terms of marital status, single nurses accounted for 49.59%, married nurses accounted for 45.12%, and divorced nurses accounted for 5.28%. The number of single and married nurses was large and the number was similar; in terms of recruitment method, contract system accounted for 47.56%, filing system accounted for 33.33%, labor dispatch system (labor personnel system) accounted for 13.41%, and health establishment accounted for 5.69%. The number of nurses in the contract system was relatively large.

Table 3. Descriptive analysis of respondent's demographic profile (n=246)

Variable	Categories	Frequency	Percentage
Age	<25	79	32.11%
	25-35	123	50.00%
	36-45	44	17.89%
Sex	Female	128	52.03%
	Male	118	47.97%
Education	Bachelor's degree	142	57.72%
	Associate's degree	51	20.73%
	Master's degree	34	13.82%
	Doctorate degree	12	4.88%
	Post-doctorate	7	2.85%
Department	Internal Medicine	140	56.91%
	Surgical	106	43.09%
Position	Junior Nurse	84	34.15%
	Primary Nurse	83	33.74%
	Intermediate Nurse (Supervising nurse)	61	24.80%
	Senior Nurse	18	7.32%
Years of clinical nursing service	< 5 years	89	36.18%
	5-10 years	90	36.59%
	> 10 years	67	27.24%
Marital Status	Single	122	49.59%
	Married	111	45.12%
	Divorce	13	5.28%
Recruitment Method	Contract system	117	47.56%
	Filing system	82	33.33%
	Labor dispatch system (Labor personnel system)	33	13.41%
	Health establishment	14	5.69%

6.2. Summary of the Interprofessional Cooperation Satisfaction Scale (Table 4)

As shown in Table 2, in the expectation dimension of interprofessional cooperation, the average score of the item "overall expectation" was 2.67; the total average score of the perception dimension of professional collaboration was 3.78, among which the average score of the item "Clarity of doctor's order" was 3.83, the average score of the item "Collaborative attitude, mutual respect and building prestige" was 3.74, the average score of the item "Emergency handling capacity" was 3.83, and the average score of the item "The tone used when discussing a patient's condition or the execution of a doctor's order" was 3.73; The overall relationship satisfaction of professional cooperation dimension

had a total average score of 3.83, among which the average score of the item “Degree of harmony” was 3.83, the average score of the item “Cooperation and complementarity” was 3.80, and the average score of the item “Mutual understanding” was 3.87, which was the highest score in this dimension; the total average score of the dimension of Trust of professional cooperation was 3.80, the average score of the item “Handling of problematic orders” was 3.82, and the average score of the item “Discussing and checking doctor's orders” was 3.83. The average score of the "together" item was 3.75, and the average score of the "Necessary communication between doctors and nurses about patient's condition" item was 3.84, which was the highest score in this dimension; the total average score of the "Communication and tolerance of interprofessional collaboration" dimension was 3.80, the average score of the "Professional explanation in the face of patient complaints" item was 3.84, which was the highest score in this dimension, the average score of the "Communication on collaborative issues" item was 3.78, the average score of the "Exchange atmosphere" item was 3.80, and the average score of the "communication skills" item was 3.78; the total average score of the "Equality of interprofessional collaboration" dimension was 3.81, the average score of the "Department stat" item was 3.92, which was the highest score in this dimension, the average score of the "salary and benefits" item was 3.77, and the average score of the "Equality of care" item was 3.74; the total average score of the "Satisfaction with interprofessional collaboration" dimension was 2.98, the average score of the "Satisfaction gap compared to expectations" item was 2.26, and the average score of the "overall" item was 2. The average score of the "Expectation of professional cooperation" item was 3.70; among them, the "Expectation of professional cooperation" dimension scored the lowest, and the "Overall relationship satisfaction of professional cooperation" dimension scored the highest.

Table 4. Summary of the Interprofessional Cooperation Satisfaction Scale

Items	Mean	Std. dev.
Expectation of professional cooperation	2.67	1.28
1. Overall expectation	2.67	1.28
Perception of professional collaboration	3.78	1.00
2. Clarity of doctor's order	3.83	1.24
3. Collaborative attitude, mutual respect and building prestige	3.74	1.16
4. Emergency handling capacity	3.83	1.15
5. The tone used when discussing a patient's condition or the execution of a doctor's order	3.73	1.28
The overall relationship satisfaction of professional cooperation	3.83	0.98
6. Degree of harmony	3.83	1.13
7. Cooperation and complementarity	3.80	1.21
8. Mutual understanding	3.87	1.17
Trust of professional cooperation	3.80	0.99
9. Handling of problematic orders	3.82	1.21
10. Discuss and check doctor's orders together	3.75	1.13
11. Necessary communication between doctors and nurses about patient's condition	3.84	1.19
Communication and tolerance of interprofessional collaboration	3.80	0.97
12. Professional explanation in the face of patient complaints	3.84	1.05
13. Communication on collaborative issues	3.78	1.24
14. Exchange atmosphere	3.80	1.15
15. Communication skills	3.78	1.22
Equality of interprofessional collaboration	3.81	1.04
16. Department status	3.92	1.13
17. Salary and benefits	3.77	1.26
18. Equality of care	3.74	1.26
Satisfaction with interprofessional collaboration	2.98	0.57
19. Satisfaction gap compared to expectations	2.26	1.21
20. Overall satisfaction	3.70	1.23

6.3. Comparative Analysis of Demographic Characteristics on Overall Average Interprofessional Collaboration Satisfaction(Table5)

Since the data is not normally distributed, nonparametric tests were used. If the demographic variable has 2 categories, Mann-Whitney U test will be used. However, if the demographic variable has more than 2 categories, the Kruskal-Wallis test will be used .p-value<0.05 means there is a significant difference and is statistically significant. It is worth noting in Table 3 that marital status was assessed by the Kruskal-Wallis test. The difference between Marital Status and overall average interprofessional cooperation satisfaction is statistically significant (p-value<0.05), which indicates that different marital status will lead to different satisfaction levels of nurses' interprofessional cooperation.

Table 5. Comparative analysis of the overall average interprofessional cooperation satisfaction according to demographic profile

Variable	Group	Overall average of satisfaction	χ2 / U statistic	p-value
Age	<25	3.64 ± 0.78	5.28	0.071
	25-35	3.60 ± 0.85		
	36-45	3.88 ± 0.63		
Sex	Female	3.59 ± 0.84	7030.50	0.349
	Male	3.73 ± 0.75		
Education	Bachelor's degree	3.64 ± 0.79	3.45	0.485
	Associate's degree	3.75 ± 0.78		
	Master's degree	3.84 ± 0.62		
	Doctorate degree	3.39 ± 1.05		
	Post-doctorate	3.15 ± 1.14		
Department	Internal Medicine	3.62 ± 0.86	7346.00	0.894
	Surgical	0.72± 0.71		
Position	Junior Nurse	3.59 ± 0.87	2.5591	0.465
	Primary Nurse	3.67 ± 0.75		
	Intermediate Nurse (Supervising nurse)	3.72 ± 0.78		
	Senior Nurse	3.78 ± 0.76		
Years of clinical nursing service	< 5 years	3.68 ± 0.76	3.4344	0.180
	5-10 years	3.58 ± 0.87		
	> 10 years	3.76 ± 0.74		
Marital Status	Single	3.61 ± 0.79	6.5050	0.039
	Married	3.75 ± 0.78		
	Divorce	3.43 ± 0.97		
Recruitment Method	Contract system	3.60 ± 0.83	2.1420	0.543
	Filing system	3.72 ± 0.74		
	Labor dispatch system (Labor personnel system)	3.74 ± 0.75		
	Health establishment	3.65 ± 1.75		

6.4. Discussion

6.4.1. Age

The research results show that there is no significant difference between age category and nurses' satisfaction with interprofessional collaboration (P>0.05). This result is consistent with the research results of Ma Ling et al. (Ma L et.al, 2023) in 2023 . There are also early studies that point to a

relationship between age and nurses' satisfaction with interprofessional collaboration. Older nurses have higher satisfaction with interprofessional collaboration, which may be related to the fact that nurses <25 years old and those aged 25-35 years old are more likely to have higher satisfaction with interprofessional collaboration. The group faces greater life pressures, such as buying a house, getting married, having children, and educating children. Nurses under the age of 25 are in the stage of skill acquisition or adapting from study to career. They are in the learning and maturing stage of working or communicating with collaborators, so they will inevitably encounter various professional or communication problems. Second, they want a two-way exchange of knowledge with physicians and strongly advocate for equity in decision-making and implementation. However, some doctors consider themselves to be the main decision-makers, which prevents nurses from receiving effective feedback on their ideas in a timely manner, affecting the satisfaction of nurses in this age group with interprofessional collaboration. The working mood of nurses aged 36-45 also tends to be stable and her working style is easy to accept.

6.4.2. Sex

In the gender grouping, the average satisfaction score of men is higher than that of women, but the difference in scores is not statistically significant at P>0.05. Partially consistent with the research results of Zheng Yushu et al. (Zheng Y, 2021), male nurses have slightly higher job satisfaction, but in his study there was a significant difference in job satisfaction between the gender of nurses. relationships, social opportunities, career development opportunities, and receiving praise and recognition for their work, while female nurses scored higher in benefits, benefits, and career development opportunities. This may be related to differences in promotions and benefits provided to male and female nurses in the study area.

6.4.3. Education

In terms of education level, the results of this study showed that there was no significant difference between education level and nurses' satisfaction scores with interprofessional collaboration (P>0.05). The results of this study are consistent with those of AnY et.al (2023), which may be due to imperfect policies for talents with different academic qualifications in the research field. A good policy introduces higher education talents, and wages and benefits can meet the requirements of higher education talents. The hospital pays more attention to higher education nursing staff and promotes cross-professional exchanges with those higher education nursing staff to exchange the latest professional knowledge, thereby improving nurses' understanding of Interprofessional satisfaction provides better opportunities for clinical and scientific research development.

6.4.4. Department

In the department grouping, the satisfaction score of internal medicine nurses was higher than that of surgical nurses, but P>0.05, and the difference in scores was not statistically significant. This result is consistent with the research results of Dong Xu et al. (Dong X, 2019). Internal medicine nurses evaluated the cooperation of internal medicine nurses better than surgical nurses. The reason for this phenomenon may be that most of the work of surgeons is carried out in the operating room. They pay more attention to the method and success of the operation. When formulating the diagnosis and treatment plan, they rarely consider the interactive discussion with nurses. Nurses are more likely to operate according to the doctor's instructions. Most patients in the internal medicine department have chronic diseases. Doctors have more time to communicate with nurses about patients' diseases and nursing information, and jointly provide chronic disease management education for patients. This conflicts with the research results of Chen Jing et al. (Chen J, 2018). The reasons are analyzed as follows: the treatment methods of internal medicine and surgical diseases are different, and the focus of medical and nursing attention is different, which leads to insufficient communication between medical and nursing staff and inconsistent views on medical and nursing.

6.4.5. Position

In the Position group, P>0.05 There is no statistical significance in the score difference. Some research results have found that with the promotion of Position and the increase of working years, nursing staff's satisfaction with medical and nursing cooperation decreases (Wang W,2017). Nurses with low Position and short working hours often rely too much on doctors when making decisions for patients, and are more inclined to cooperate with doctors and nurses. For nurses with high professional titles and long working hours, they hope to have two-way knowledge exchange with doctors, and strongly advocate fairness in the decision-making and implementation process. However, some doctors believe that they are the main decision-makers, so that nurses cannot receive effective feedback on their ideas in a timely manner, and nurses have a low evaluation of the status of medical-nursing cooperation.

6.4.6. Years of clinical nursing service

The results of this study show that the interprofessional cooperation satisfaction score of nurses with high qualifications is higher than that of nurses with medium working years and low working years, and there is no significant difference at P>0.05. This is partially consistent with the research results of Chen Guofeng et al. (Chen G et.al., 2017). Highly qualified nurses have higher satisfaction with inter-professional cooperation. The most direct relationship between long-term work experience and them is higher work ability and professional status, and they are easier to be led. and recognition from colleagues. They have a strong sense of organizational belonging and self-achievement, so they are more willing to cooperate and communicate with other employees. Satisfaction with interprofessional collaboration and job satisfaction were also higher. Patterson's foreign research results suggested that working years are one of the factors that affect the psychological maturity of nurses. That is, the longer the working experience, the higher the team psychology score and the corresponding higher degree of team cooperation (Zhang C et.al ,2018).

6.4.7. Marital status

In the marital status group, the overall average of satisfaction for singles is 3.61 ± 0.79, the overall average of satisfaction for married is 3.75 ± 0.78, and the overall average of satisfaction for divorce is 3.43 ± 0.97, and there is a significant difference at P<0.05, there is statistical significance. The significance indicates that married nurses have a higher overall average of satisfaction among interprofessionals. This result may be related to the research hospital's scheduling of married nurses or the inclusiveness of married nurses. This result is consistent with the research results of Zheng Yushu et al. (Zhang Y, 2021), believes that there are differences between married nurses, unmarried nurses and divorced nurses in terms of "balance between family and work", "opportunities for career development", and "control and responsibility for work".

6.4.8. Recruitment Method

In the labor system grouping, P>0.05 showed no statistical significance in the score difference. There are differences in the scores of various indicators of job satisfaction between staff nurses and contract nurses, but the statistical difference is not significant.

7. CONCLUSION AND RECOMMENDATIONS

7.1. CONCLUSIONS

The number of clinical nurses and the overall academic level have increased significantly. Clinical nurses' knowledge level, communication level and predictive analysis ability have all improved significantly. However, barriers remain to interprofessional cooperation in modern medical models. The results of this study showed that the satisfaction rates of nurses in Shandong selected hospitals

were generally general, and the relationship between marital status and nurses' satisfaction with interspecialties in the demographic characteristics of nurses was statistically significant.

7.2. RECOMMENDATIONS

7.2.1. Hospital management

Regularly understand the work situation of nurses and regard them as their normal work. Combined with the different marital status of nurses, help nurses establish a positive attitude, help them rebuild their professional self-confidence, flexibly arrange shifts, do not treat them specially because of being single or divorced, and ensure that nurses have normal rest time.

Regularly conduct psychological assessments on nurses and other medical and nursing staff to detect problems early and intervene. Carry out training to improve interpersonal skills, so that nurses and collaborators can open their hearts and communicate with each other, and effectively establish a parallel and complementary medical and nursing relationship.

Department leaders should comprehensively consider the differences in the general conditions of nurses, adjust their own management methods, and adapt to a better management model (Qiao C et.al, 2021).Managers should take into account both organizational benefits and the physical and mental health of employees, take care of their family and personal needs, provide support and dependence to single and divorced nurses, alleviate negative emotions.

7.2.2. Nursing staff

Individual nurses need to continuously improve their technical operation and communication skills, improve their cooperation ability and awareness, and actively cooperate with their partners to complete medical care content, promote patient recovery, and improve the quality of life of patients.

Individual nurses should improve their ability to resist stress, actively deal with problems in life and work, relieve negative emotions in a timely manner, and communicate with leaders in a timely manner.

7.2.3. Researchers

With the deepening of the concept of multidisciplinary cooperation, how to obtain effective interprofessional cooperation is an issue worthy of attention. Researchers need to continue to investigate the obstacles to cooperation between nurses and other medical workers in depth to promote the formation of good cooperative relationships.In addition, the demographic characteristics and research results mentioned in the article have different applicability in different hospitals, and there may be other confounding factors. Scholars still need to further study and confirm, and a wider range of clinical and teaching interventions should be implemented to timely evaluate the effectiveness of nurse professional cooperation improvement strategies.

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