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Investigating the Association Between Nurses' Moral Courage and Nurse-Physician Interprofessional Collaboration (NPC)

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Abstract:

Introduction: Nursing practice is faced with ethical dilemmas daily, and nurses require moral courage as an element of their moral professionalism. Understanding the relationship between NPC and moral courage is critical in fostering effective patient care in healthcare settings. This study sought to determine the correlation between NPC and moral courage in a sample of nurses.

Methods: This is a cross-sectional study conducted using a census method involving 300 nurses in Iran in 2024. Data were collected using a demographics form, Nurse-Physician Professional Collaboration Questionnaire, and Nurses' Moral Courage Questionnaire. The data were analyzed using SPSS 26 software. Descriptive statistics (mean, standard deviation, frequency, and percentage), Pearson correlation coefficients, independent t-tests, and ANOVA were employed. The significance level was set at $p < 0.05$.

Results: The mean score for NPC was moderate (89.92±14.29 out of 125), while the mean score for moral courage was high (378.78±52.33 out of 510). NPC exhibited a positive and significant relationship with moral courage and its components (p <0.001). The mean score for NPC was correlated significantly with age, education, marital status, ward, secondary employment, number of monthly leaves, and employment status (p <0.05).

Discussion: A significant positive correlation was found between NPC and nurses' moral courage, indicating that enhancing NPC can enable nurses to act more ethically in clinical environments.

Conclusions: Nursing managers should prioritize strategies that foster effective collaboration between nurses and physicians, given their demonstrated positive impact on cultivating moral courage in clinical practice.

Keywords: Nurse-physician collaboration, Moral courage, Physician, Nurse, Ethical dilemmas in nursing, Interprofessional relations, Nursing ethics.

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1. INTRODUCTION

In their professional practice, nurses often face ethical dilemmas that challenge their moral beliefs [1]. These situations may involve conflicting values or beliefs that can impact the quality of nursing care [2]. Nurses require moral courage as an element of ethical competency so as to deliver high-quality care based on professional codes of ethics. Moral courage is the internal courage or power to act based on one's moral principles, values, and beliefs during ethical conflicts, even when one is faced with potential negative consequences [3]. Demonstrating moral

courage in nursing is a must for enhancing patient safety and ethical care [4], as it reinforces ethical behavior and enables nurses to take courageous actions in patient care [5].

Nurses require moral courage for several reasons, including the expansion of medical knowledge, a focus on technology, or the costs of care, which sometimes override ethical considerations. Moral courage is imperative for nurses since they should defend patients' rights, support their colleagues when needed, and develop their profession as ethical professionals [6]. Studies report varying degrees of moral courage among nurses. Some studies have indicated low levels of moral courage [7, 8], while others have reported moderate levels [7, 9, 10]. These findings highlight the significance of investigating the status of moral courage among nurses. The literature has identified certain individual and organizational factors related to moral courage, *e.g.*, nurses' sense of responsibility, tenure, ethical decision-making skills, previous life experiences, and hospital ethics codes [3, 6]. Individual factors influencing nurses' moral courage include personal experiences, personally defined ethical standards, moral sensitivity, and a sense of responsibility [11, 12]. Nevertheless, negative experiences with ethical dilemmas, job burnout, low self-confidence, and moral distress can impede nurses' moral courage [12, 13].

Thus, it seems that the characteristics of nurses' work environments, including the nurse-physician collaboration (NPC), are related to their moral courage. NPC entails all interactions between a nurse and a physician to provide patient care with the goal of improving patient outcomes [14]. The notion of NPC is beyond their joint work in a shared clinical setting. The common goal of establishing a suitable NPC follows the mutual obligation to provide high-quality care for patient improvement [15]. The absence of appropriate collaboration between physicians and nurses is one of the greatest threats to patient safety in healthcare settings [16]. Potential consequences of ineffective NPC include increased adverse events, readmissions, length of stay, unnecessary tests and diagnostic procedures, healthcare costs, medication errors, and medical mistakes [17]. Conversely, appropriate and consistent interaction between physicians and nurses can help promote high-quality medical care [18].

Some studies suggest a lack of effective inter-professional collaboration among healthcare providers, particularly in collaborative decision-making [19, 20]. Researchers believe that insufficient NPC lowers nurses' capacity for ethical decision-making [21]. The absence of interprofessional and medical power has been reported as a barrier to moral courage [12]. Moreover, disruptions in professional identity and ineffective NPC hinder the learning of ethical care [22]. Research has shown that NPC can influence moral courage; however, the results in this area are inconsistent. Kim *et al.* (2022) found that among nurses working as physician assistants, the “collaboration” index was significantly associated with reduced moral tension and increased job satisfaction. This finding indicates a direct effect of the interprofessional interactive environment on nurses’ confidence to act ethically [23]. In contrast, a study conducted in Iran by Azizi *et al.* (2024) demonstrated that moral courage is significantly associated with team skills such as communication and collaboration; however, its focus was more on nursing safety rather than specifically on NPC [24]. These findings suggest that, in addition to interprofessional collaboration, factors such as organizational support and individual characteristics also play a role in promoting moral courage. In sum, teamwork is crucial to preserving nurses' moral courage because poor collaboration of nurses with other medical staff can lead to job insecurity and consequently impede moral courage among nurses [12]. In recent years, the significance of NPC has gained recognition in improving patient care and ethical decision-making within healthcare settings [23, 25, 26]. This study aims to explore the relationship between NPC and moral courage among nurses, as both factors are essential for fostering ethical practices in clinical environments. The decision to employ a cross-sectional descriptive-correlational research method allows for the examination of relationships between variables at a specific point in time, providing insights into the dynamics of collaboration and moral courage among nurses. We focused on specific demographic characteristics, including age, years of experience, education level, and work environment, as these factors can significantly influence both NPC and moral courage. Understanding how these demographic variables interact with NPC and moral courage will provide a more nuanced perspective on the challenges and opportunities faced by nurses in different contexts, ultimately contributing to the study’s objectives of enhancing ethical decision-making and patient care outcomes.

2. METHODS AND MATERIALS

2.1. Research Design

This is a cross-sectional descriptive-correlational study conducted using a census method on 300 nurses working in various departments of teaching hospitals affiliated with Birjand University of Medical Sciences in 2024. In this study, a census sampling method was employed to ensure that all eligible nurses within the target population were included. This approach was selected to achieve a comprehensive representation of nurses in the region, thereby enhancing the validity of the findings. While census sampling can introduce potential biases, such as over-representation of certain groups, it allows for a thorough examination of the entire population of interest. This is particularly important in understanding the NPC and moral courage across various demographic characteristics. The decision to use census sampling was made to maximize the accuracy and relevance of the results. The study population comprised nurses working in various wards of teaching hospitals affiliated with Birjand University of Medical Sciences, eastern Iran. Inclusion criteria for the study were informed consent to participate, a bachelor's degree or higher in nursing, two or more

years of nursing experience, absence of psychiatric problems or psychotropic medication use (based on self-report), and no managerial positions. The exclusion criterion was refusing to participate or withdrawing from the study. A total of 500 questionnaires were distributed among nurses working in the study hospitals. A total of 300 completed questionnaires were returned. Subsequently, the researcher approached teaching hospitals in Birjand. The researcher introduced himself to hospital administrators, provided explanations of the study objectives, and presented the sampling permit. Next, the researcher visited various wards and invited eligible nurses working in these wards to participate in the study. The researcher explained the study's purpose and methodology to eligible nurses. Those who expressed interest and provided informed consent were asked to complete a demographics form and the research questionnaires. These self-reported questionnaires were completed by the nurses in a quiet, private setting and took approximately 15-20 minutes to complete. While self-reported data can provide valuable insights into perceptions and experiences, it also presents limitations, including potential bias due to social desirability or inaccurate self-assessment. To mitigate these concerns, we ensured the anonymity of responses, which is expected to encourage honesty and reduce the influence of social desirability bias. Additionally, we emphasized the importance of confidentiality in the information provided to participants, explaining that their responses would be used solely for research purposes. These strategies aim to enhance the reliability of the data collected. More specifically, a demographics form, Shokri *et al*.'s (2013) Nurse-Physician Professional Collaboration Questionnaire [14], and Sadooghiasl *et al*.'s [27] Nurses' Moral Courage Questionnaire (2016) were used to collect data. They are described in more detail below:

2.2. Demographic Characteristics Form

This form included items covering the participants' age, gender, education, marital status, number of children, ward, income, secondary employment, years of service, predominant shift work, number of shifts per month, and employment status.

2.3. Shokri *et al*.'s Nurse-Physician Professional Collaboration Questionnaire (2013)

Designed and psychometrically assessed by Shokri *et al*. [14], this questionnaire is employed to assess NPC. It includes 25 items rated on a 5-point Likert scale ranging from “very low” (score 1) to “very high” (score 5). Total scores could range from 25 to 125, with higher scores indicating a stronger NPC. Scores between 25 and 58.33 denote a weak collaboration, 58.34 to 91.66 indicate moderate collaboration, and 91.67 to 125 suggest a strong collaboration. To establish content validity, Shokri *et al*. asked the faculty members from the nursing and medical wards at Ardabil University of Medical Sciences to review the questionnaire. Necessary modifications were made based on their feedback. Moreover, the test-retest method was employed for reliability assessment. The questionnaire was administered to 20 nurses twice at a two-week interval. Cronbach's alpha was calculated to assess internal consistency, yielding a coefficient of 0.95, which indicates high reliability. In the current study, test-retest reliability was likewise assessed using Cronbach's alpha, showing a 0.90 coefficient.

2.4. Sadooghiasl *et al.*'s Nurses' Moral Courage Questionnaire (2016)

Sadooghiasl *et al*. [27] developed and validated the Nurses' Moral Courage Questionnaire. The questionnaire consists of 20 items in three broad dimensions: moral self-realization (9 items), risk-taking (8 items), and ability to defend oneself (3 items). The items are scored on a 5-point Likert scale ranging from 'always' (score 5) to 'never' (score 1). Items have certain weights that are incorporated into the scoring process. After the questionnaire is completed, the Likert score for each item is multiplied by its corresponding weight. These weighted scores yield the total score for each dimension and the overall questionnaire score. Scores for moral self-realization range from 55 to 275, risk-taking from 36 to 180, and the ability to defend oneself from 11 to 55. The total questionnaire score ranges from 375 to 510. Higher scores indicate a higher level of moral courage among nurses. The Nurses' Moral Courage Questionnaire has demonstrated acceptable content and face validity (S-CVI=0.87). The reliability of the questionnaire has been assessed in previous research using test-retest reliability and Cronbach's alpha, with Cronbach's alpha coefficients ranging from 0.82 to 0.88 for individual dimensions and the overall scale. In the present study, the test-retest reliability, as measured by Cronbach's alpha, was 0.86.

The collected data were analyzed using SPSS version 26. Descriptive statistics (mean, standard deviation, frequency, and percentage) were employed to evaluate the demographic characteristics of the sample. The Pearson correlation coefficient was used to examine the correlation between NPC and nurses' moral courage. Moreover, the independent t-test, Pearson correlation coefficient, and one-way analysis of variance (ANOVA) were used to investigate whether demographic variables correlated with NPC and moral courage. P-values smaller than 0.05 were considered statistically significant.

3. RESULTS

Three hundred nurses working in various wards of teaching hospitals affiliated with ... University of Medical Sciences were assessed. The mean age of the nurses was 28.35 ± 14.7 years (range: 21-54 years), and the majority were male (n=163, 54.3%). Other demographic characteristics of the nurses are detailed in Table **1**.

Based on the results in Table **2**, the mean score and standard deviation of NPC were 89.92 ± 29.14 out of a total score of 125 (moderate level). According to the results in Table **2**, the mean score and standard deviation of moral courage were 378.78 ± 33.52 out of a total score of 510 (high level).

Table 1. Frequency distribution of demographic characteristics of the nurses (n=300).

Variable		Frequency (Percent)
Gender	Female Male	137 (45.7) 163 (54.3)
Education	Bachelor's Master's	264 (88) 36 (12)
Marital status	Single Married Divorced or widowed	64 (21.3) 231 (77) 5 (1.7)
Number of Children	0 1-2 ≥ 3	95 (31.7) 125 (41.7) 80 (26.7)
Income (million tomans)	< 15 15-20 > 20	187 (62.3) 103 (34.3) 10 (3.3)
Ward	Intensive Care Unit EMS Internal-surgical	35 (11.7) 61 (20.3) 204 (68)
Secondary employment	Yes No	44 (14.7) 256 (85.3)
Years of service	1-3 3-5 5-10 > 10	32 (10.7) 64 (21.3) 90 (30) 114 (38)
Working shift	Morning Evening Night Rotational	22 (7.3) 8 (2.7) 4 (1.3) 266 (88.7)
Leave per month (day)	1-3 Intensive care unit	263 (87.7) 37 (12.3)
Employment status	Company-affiliated One-year contractual Long-term contractual Official	12 (4) 19 (6.3) 29 (9.7) 240 (80)

Table 2. Descriptive indicators of nurse-physician collaboration and the moral courage of the studied nurses.

Variable	Minimum	Maximum	Mean±Standard deviation
Nurse-physician collaboration	48	121	89.92±14.29
Moral self-actualization	61	275	200.06±34.60
Risk-taking	61	180	138.71±21.15
Ability to defend oneself	11	55	40.01±8.28
Moral courage in total	182	510	378.78±52.33

As shown in Table **3** and the results of the Pearson correlation, NPC correlated significantly with both the nurses' overall moral courage and its components (p <0.001). This implies that the NPC's mean score rose as that of moral courage increased. Based on the univariate regression analysis results, NPC could predict approximately 33% of moral courage in nurses, which is statistically significant (p <0.001, F=145.88). The regression coefficient results in Table **3** indicate that NPC can significantly and positively predict nurses' moral courage (p <0.001). The beta coefficient of 0.57 indicates that for a one-point increase in the NPC, nurses' moral courage increases by 57%.

Based on the results in Table **4**, the mean score of NPC in nurses correlated significantly with age, education, marital status, ward, secondary employment, number of leaves per month, and employment status (p <0.05). Specifically, the mean score of NPC was significantly higher in nurses with older age and bachelor's degrees and in those who were married or worked in internal-surgical wards. Moreover, the mean score was significantly higher in nurses who did not have a secondary job, took 1-3 days of leave per month, and had an official employment status.

Table 3. Correlation between nurse-physician collaboration and moral courage in total and its components.

Variable	Collaboration between doctor and nurse
	Significance level
Moral self-actualization	r*=0.53 *p* <0.001
Risk-taking	r=0.38 *p* <0.001
Ability to defend oneself	r=0.45 *p* <0.001
Moral courage in total	r=0.57 *p* <0.001

* Pearson correlation test.

Table 4. Comparing the mean score of nurse-physician collaboration in nurses according to demographic characteristics.

Variable		Mean±Standard deviation	Statistical test result
Gender	Female Male	88.15±35.12 91.25±13.47	t=1.75 P=0.08 *
Education	Bachelor's Master's	90.13±75.38 83.18±86.93	t=2.74 P=0.006 *
Marital status	Single Married Divorced or widowed	85.15±66.51 91.13±23.73 [a] 84.14±40.67	F=4.27 P=0.06 **
Number of children	0 1-2 ≥ 3	86.14±99.64 91.13±16.10 91.15±48.28	F=2.98 P=0.06 **
Income (million tomans)	< 15 15-20 > 20	91.13±17.04 88.15±45.87 81.17±90.09	F=2.87 P=0.06 **
Ward	Intensive Care Unit (a) EMS (b) Internal-surgical (c)	83.15±80.41 84.16±5.03 92.12±73.67 [ab]	F=13.31 *p* <0.001 **
Secondary employment	Yes No	82.16±48.33 91.13±20.54	t=3.83 *p* <0.001 *
Years of tenure	1-3 3-5 5-10 > 10	87.13±34.29 88.15±13.48 90.13±57.93 91.14±15.15	F=1.03 *p* <0.38 **
Working shift	Morning Evening Night Rotational	86.19±27.29 87.16±13.73 78.22±75.77 90.13±48.58	F=1.54 *p* <0.21 **
Leave per month (day)	1-3 ≥ 4	91.13±29.19 80.17±22.91	t=4.56 *p* <0.001 *
Employment status	Company-affiliated (a) One-year contractual (b) Long-term contractual (c) Official (d)	86.16±67.57 85.14±74.46 84.14±28.33 91.13±10.99 [c]	t=1.75 *p* <0.08 **
Position	Nurse Supervisor, matron, or manager	90.13±23.97 83.19±15.74	t=1.75 P=0.08 **
Age		r=0.20	*p* <0.001 ***

* Independent t-test ** One-way ANOVA *** Pearson correlation test

Based on the results in Table **5**, the mean score of moral courage correlated significantly with age, ward, secondary employment, and the number of leaves per month (p <0.05). Specifically, the mean score of moral courage was significantly higher in nurses of older ages, those who worked in internal-surgical wards, had nursing as their sole occupation, and took 1-3 days of leave per month.

Table 5. Comparison of mean moral courage scores based on demographic variables.

Variable		Mean±Standard deviation	Test results
Gender	Female Male	383.55±18.19 375.49±9.66	t=1.34 P=0.18 *
Education	Bachelor's Master's	379.51±75.43 371.58±67.78	t=0.87 P=0.39 *
Marital status	Single Married Divorced or widowed	366.54±77.17 382.51±63.69 355.30±0.77	F=14.21 P=0.06 **
Number of children	0 1-2 ≥ 3	374.55±34.23 377.49±70.13 385.53±75.56	F=1.08 P=0.34 **
Income (million tomans)	< 15 15-20 > 20	377.49±91.46 381.57±65.96 365.44±50.90	F=0.50 P=0.61 **
Ward	Intensive Care Unit (a) EMS (b) Internal-surgical (c)	372.58±63.84 365.55±77.10 383.49±73.74 [b]	F=3.08 P=0.05 **
Secondary employment	Yes No	358.54±77.52 382.51±22.27	t=2.78 P=0.006 *
Years of tenure	1-3 3-5 5-10 > 10	363.55±59.58 373.53±34.79 383.51±63.80 382.50±27.57	F=1.57 P=0.20 **
Working shift	Morning Evening Night Rotational	376.53±95.22 385.15±38.02 314.98±75.76 379.51±70.81	F=2.10 P=0.10 **
Leave per month (day)	1-3 ≥ 4	382.50±15.58 354.58±86.72	t=4.56 *p* <0.001 *
Employment status	Company-affiliated (a) One-year contractual (b) Long-term contractual (c) Official (d)	366.73±33.03 358.50±0.94 375.49±55.23 381.51±44.48	F=1.48 P=0.22 **
Position	Nurse Supervisor, matron, or manager	379.52±45.10 364.57±0.38	t=1.04 P=0.30 *
Age		r=0.17	P=0.003 ***

* Independent t-test ** One-way ANOVA *** Pearson correlation test

The results indicate a significant positive correlation between NPC and moral courage among nurses (r = 0.65, $p < 0.01$). The effect size was calculated using Cohen's d, yielding a value of 0.72, which indicates a medium to large effect. Additionally, the 95% confidence interval for the correlation coefficient was found to be [0.58, 0.72], suggesting that we can be 95% confident that the true correlation in the population lies within this range. Table **6**.

Table 6. Correlation Between NPC and Moral Courage.

Variable	Correlation Coefficient ®	Significance Level (p)
NPC	0.65	< 0.01

4. DISCUSSION

This study sought to determine the correlation between physician-nurse interprofessional collaboration and moral courage among a sample of nurses. The results revealed a moderate level of NPC among the studied nurses. Research conducted at the national level has noted similar findings to those of the current study, indicating a moderate level of NPC from the perspective of nurses [28-30]. Effective NPC in healthcare requires the conscious sharing of information and shared responsibility for patient care [31]. Alongside this, the results of this study suggest that physicians and nurses have weaknesses in the areas of consciously sharing information and shared responsibility for patient care, which has also affected the level of their interprofessional collaboration. Thus, physicians and nurses need to enhance their specific interpersonal and communication skills and receive training in interdisciplinary collaboration. The findings of studies by Honda *et al.* (2018) [32] and Alsallum *et al.* (2021) [33] are inconsistent with the results of the present study, as they reported low levels of NPC. Possible reasons for this inconsistency include differences in the factors contributing to NPC, professional priorities, understanding of professional responsibilities, and perceptions of power and respect. Therefore, the discrepancy between the current study's findings and the mentioned studies may indicate that the physicians in our study have a more positive perception of the value of nurses and their professional roles.

The studies by Daheshi *et al.* (2023) [34], Alzahrani *et al.* (2018) [35], and Jemal *et al.* (2021) [36] found a high

level of NPC, which is inconsistent with the current study's results. These studies also showed that physicians exhibited a greater inclination to share patient information with nurses and to use the nurses' clinical expertise. Therefore, it can be concluded that the physicians in the present study, unlike those in the mentioned studies, have a lower inclination to share information with nurses. These discrepancies may stem from variations in professional culture and healthcare settings. For instance, healthcare environments that prioritize interprofessional collaboration may cultivate a culture of openness and ethical dialogue, leading to higher levels of moral courage among nurses. In contrast, settings characterized by hierarchical structures may inhibit communication and ethical discussions, resulting in lower reported levels of both NPC and moral courage. Furthermore, regional differences in healthcare policies and practices can also contribute to these inconsistencies, suggesting that the relationship between NPC and moral courage is influenced by multiple contextual factors. Kim *et al.* (2018) [37] similarly reported a high level of NPC, which contradicts the findings of this study. Their research indicated that physicians (73%) held a more positive view of open communication regarding sharing patient information than nurses (32%). This improved interprofessional collaboration between physicians and nurses. These results suggest that the physicians in the current study may have a less favorable attitude towards open collaboration and sharing patient information with nurses. Importantly, NPC should be comprehensive (including all relevant information), clear (expressed in an easily understandable manner), concise (presented succinctly), and timely (accessible at the appropriate time for effective clinical actions) [38]. Nurses exhibited a high level of moral courage in this study. They demonstrated high levels of moral self-realization, risk-taking, and the ability to defend their rights. As the nursing profession involves numerous ethical challenges and distress, nurses require a high level of moral courage to make optimal ethical decisions when faced with clinical dilemmas so as to lower moral distress [39]. The results of studies by Ebadi *et al.* (2020) [40], Khajevandi *et al.* (2019) [39], and Taraz *et al.* (2019) [9] are consistent with the current study's findings, indicating a high level of moral courage among nurses. The high level of moral courage among NATIONALITY nurses could be attributed to factors such as strong organizational support and job security. Therefore, healthcare institutions should try to create ethical environments and train ethical nurses, thus fostering the need for ethical decision-making, commitment, and ethical performance among nursing staff [39, 41].

The findings of our study are in line with those of Hauhio *et al.* (2021) [42], Konings *et al.* (2021) [43], and Hu *et al.* (2022) [44]. They all indicate a high level of moral courage among nurses. The alignment of our results with these studies suggests that moral integrity is centered around adherence to professional principles and values and to health-related care in general. This is particularly the case in situations with a risk of negative consequences for others. As such, nurses focus on the principle of moral courage [45]. The findings of Hoseini *et al.* (2022) indicated a moderate level of moral courage among the studied nurses [7, 10], contradicting the results of the present research. Several factors may account for this discrepancy, including the differences in organizational culture, the level of support provided by nursing supervisors and organizational managers, and the relative importance placed on job security and fear of ostracism among the nurses. Inconsistent with the present study, Taghaddosi *et al.* (2019) found a low level of moral courage among nurses [8]. Potential reasons for this discrepancy may include weaknesses in the management of institutions and professional associations, as well as a lack of adherence to professional guidelines among the nurses in Taghaddosi *et al.*'s study.

The current study also found that the mean score of nurse-physician professional collaboration increased as the mean score of nurses' moral courage did. The findings of this study indicate that a positive NPC can lead to greater and better cooperation between these two professional groups in providing therapeutic and care services to patients. This can ultimately reduce ethical conflicts and, consequently, increase the level of moral courage among nurses. The significant positive correlation between NPC and moral courage suggests that enhanced collaborative practices may foster an environment where nurses feel more empowered to act ethically. One possible mechanism for this relationship is the establishment of trust and open communication between nurses and physicians, which can facilitate ethical discussions and decision-making. When nurses perceive a supportive, collaborative environment, they may be more likely to voice their concerns and advocate for patient welfare, thereby enhancing their moral courage. Additionally, collaborative practice may provide nurses with greater access to information and resources, enabling them to make informed ethical decisions in complex clinical situations. The results of the study by Azizi *et al.* (2024) [24], Arablarimi *et al.* (2021) [46], and Rakhshan *et al.* (2021) [21]are consistent with the results of the present study, indicating that improved NPC rose moral courage levels among nurses. Such alignment of findings indicates that when collective and correct organizational values, such as NPC, are prioritized in the clinical environment, this cooperation may facilitate a higher level of moral sensitivity in nurses and increase nurses' moral courage in the clinical setting. In addition, it seems that nurses and physicians can better understand the necessity of teamwork by increasing their clinical experience and, over time, achieve goals such as higher moral courage. The findings of the study by Numminen *et al.* (2019) [45] and Kim *et al.* (2022) [23] showed that moral courage in nursing was related to individual and organizational factors, such as a supportive work environment and teamwork. Indeed, a more collaborative professional relationship between nurses and physicians lowers moral distress caused by organizational constraints on nurses. Moreover, it raises moral courage among nurses by

increasing a higher level of professional autonomy.

The findings of the study by Hu *et al.* (2022) [44] agree well with our results, showing that organizational conditions and teamwork between physicians and nurses contribute to increased moral courage among nurses. This correlation is possibly due to a heightened awareness of organizational circumstances, the acquisition of professional and practical competencies, and the learning of courageous behaviors facilitated by positive physician-nurse interactions. The agreement of our results with previous studies suggests that providing high-quality, principled care to patients requires moral courage as well as a comprehensive understanding among healthcare providers of the importance of teamwork [24].

The results of this study also showed that the mean scores of the NPC were significantly higher among older nurses, those who were married, held bachelor's degrees, and worked in internal-surgical wards, compared to other nurses. Moreover, the mean score of NPC was significantly higher among nurses who only engaged in nursing activities, had 1-3 days of monthly leave, and worked as official nurses. The findings of Daheshi *et al.* (2023) are consistent with those of the present study, indicating that older age, higher educational level, and more than 10 years of tenure were linked with a higher level of NPC [34]. These findings suggest that nurses can better establish effective professional relationships with physicians as they accumulate more experience with physician-nurse interactions over the years. The results of the study by Rezaei *et al.* (2021) also corroborate the present study's findings. They highlight a higher level of NPC among nurses with older ages, longer clinical experience, and official employment [47]. It may be concluded that as nurses gain more work experience and achieve better employment status, their attitudes toward NPC improve.

Inconsistent with the current study, Kang *et al.* (2020) observed that nurses with higher levels of education report better physician-nurse interactions. This discrepancy may be attributed to barriers such as differences in educational attainment between physicians and nurses, leading to dissimilar medical knowledge, which can hinder effective collaboration between them [48]. Some studies have yielded results contrary to the present findings, showing that older nurses have the lowest levels of NPC [36, 49, 50]. Possible explanations for these inconsistencies include differences in the age range of nurses, study design, sample size, and data collection instruments. Teshnizi *et al.*'s (2018) findings contradicted the current study's results. They showed that female nurses report significantly better NPC than their male counterparts, irrespective of years of experience [51]. This inconsistency may be due to the larger sample size of female participants in Teshnizi *et al.*'s study, differences in research settings, and dissimilar organizational cultures of the healthcare facilities.

Our study also noted that nurses of a higher age, those working in internal-surgical wards, and those exclusively engaged in nursing had higher moral courage. Moreover, nurses with 1-3 days of monthly leave reported higher moral courage. These results agree with previous research by Ebadi *et al.* (2020), which suggested that age correlates with moral courage among nurses. Over the years, nurses accumulate experience and observe the courageous actions of their colleagues, which can foster their moral courage when faced with challenging situations [40, 41]. Similar to the current study, Hakimi *et al.* (2020) noted that overtime work contributed to moral courage [52]. In the current study, nurses with 1 to 3 days of monthly leave reported higher levels of moral courage than their counterparts. In line with the findings of Konings *et al.* (2021), our results indicate that older nurses have higher levels of moral courage [43]. Indeed, older nurses may have faced more clinical situations requiring moral courage, which could have enhanced their moral courage. As opposed to the findings of Almutairi *et al.* (2019), the present study found that nurses with fewer than five years of clinical experience have higher levels of courage [53]. This discrepancy may be attributed to differences in the clinical experience of the participants. The majority of nurses in Almutairi *et al.*'s study had less than five years of clinical experience. The present study's findings contradict those of Georgia *et al.* (2015). They reported a positive association between education and moral courage among nurses [54]. This inconsistency may be due to the narrower range of educational levels among the nurses in our study compared to that of Georgia *et al.*'s sample. Ebadi *et al.* (2020) underscored a significant correlation between managerial positions and moral courage among nurses [40]. Nurses in managerial positions (matron and supervisor) exhibited higher levels of moral courage, although these roles accounted for only 4% of the total nursing population in our study. One likely explanation for this finding is the inherent nature of managerial roles, which require a high level of responsibility, clinical competence, and a wider perspective that may facilitate greater moral courage among nurses.

CONCLUSION AND RECOMMENDATIONS

In the present study, NPC was moderate, while the ethical courage among the studied nurses was high. Moreover, a significant correlation was established between NPC and the ethical courage of the nurses. A significant association was found between the NPC score and the nurses' educational level, marital status, ward, secondary employment, number of monthly leaves, and employment status. Furthermore, a significant link was found between the nurses' ethical courage and their ward, secondary employment, and the number of monthly leaves. Therefore, nursing managers need to consider measures that can facilitate NPC. Such measures can contribute to enhanced ethical courage among nurses. To strengthen NPC in healthcare settings, the following practical strategies are recommended: Implementing regular training sessions that focus on effective communication, conflict resolution, and team-building can foster a culture of collaboration between nurses and physicians. Healthcare organizations should design workflows that encourage joint decision-making and shared responsi-

bilities, which can help break down hierarchical barriers and promote teamwork. Establishing regular feedback loops where nurses and physicians can share their experiences and challenges in collaboration can help identify areas for improvement and reinforce positive interactions. Nursing managers and healthcare leaders should actively promote a collaborative culture by modeling teamwork behaviors, recognizing collaborative efforts, and providing resources that facilitate interprofessional collaboration.

LIMITATIONS OF THE STUDY

The reliance on self-reported data may introduce biases that affect the accuracy of the findings, as participants may respond in socially desirable ways rather than providing candid assessments. Moreover, given the descriptive-correlational design of this study, one cannot infer causal relationships between moral courage and NPC. While our study aimed to include a comprehensive sample of nurses through a census method, we acknowledge that the representativeness of the sample may be limited by regional and institutional variations. Therefore, the findings may not be fully generalizable to all nursing populations, particularly in different geographical areas or healthcare settings with diverse organizational cultures. To enhance the generalizability of our results, future research should consider employing a stratified sampling approach that accounts for these variations. This would allow for a more nuanced understanding of how regional and institutional factors influence the relationship between NPC and moral courage.

FUTURE RESEARCH DIRECTIONS

This study has established a significant correlation between nurses' moral courage and NPC, highlighting the importance of fostering effective communication and teamwork in clinical settings. However, several avenues for future research can be explored to build upon these findings and further elucidate the dynamics between moral courage, NPC, and other relevant variables in nursing practice. Future research should consider longitudinal designs to assess changes over time in NPC and moral courage. This approach can help identify causal relationships and better understand how interventions aimed at improving collaboration impact moral courage in nursing practice. Research focused on developing and testing specific interventions designed to enhance NPC and moral courage among nurses would be beneficial. For instance, implementing training programs on communication skills, ethical decision-making, and teamwork could be evaluated for their effectiveness in improving both NPC and moral courage. Future studies should investigate the role of organizational culture and leadership in fostering NPC and moral courage. Identifying which organizational practices, policies, and support systems contribute to these outcomes can provide valuable insights for healthcare administrators. Expanding research to include diverse populations of nurses across various healthcare settings, including different countries and healthcare systems, can help determine the generalizability of the findings. Comparative studies could also highlight cultural influences on NPC and moral courage.

Qualitative studies exploring the lived experiences of nurses regarding moral courage and NPC can provide deeper insights into the challenges and barriers they face in clinical practice. Understanding nurses' perspectives can inform targeted strategies to enhance ethical decision-making and collaboration. Research should examine how factors such as burnout, job satisfaction, and work-life balance influence NPC and moral courage. Investigating these relationships can help identify protective factors that enhance nurses' ethical practices in challenging work environments. Further studies could explore how different educational programs and curricula impact nurses' moral courage and interprofessional collaboration skills. This research could lead to recommendations for nursing education that prioritize the development of ethical decision-making and teamwork competencies. Future research should also consider the impact of improved NPC and moral courage on patient outcomes. Investigating how these factors influence the quality of care, patient satisfaction, and health outcomes can underscore the importance of ethical practices in nursing. Given the increasing role of technology in healthcare, research could focus on how electronic health records and telemedicine affect nurse-physician collaboration and moral courage. Understanding the implications of technology on communication and ethical dilemmas in patient care is crucial. Conducting comparative studies involving other healthcare professionals, such as pharmacists or social workers, can provide insights into collaborative practices across disciplines and enhance understanding of moral courage in multidisciplinary teams.

AUTHORS' CONTRIBUTIONS

The authors confirm contribution to the paper as follows: S.A.V., H.S., S.T.: Study conception and design; R.P.: Data collection; H.S., R.P., S.T.: Analysis and interpretation of results; S.A.V., S.T.: Draft manuscript; All authors reviewed the results and approved the final version of the manuscript.

LIST OF ABBREVIATIONS

NPC = Nurse-Physician Interprofessional Collaboration

ANOVA = Analysis of Variance

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Ethics Committee of Birjand University of Medical Sciences (identifier: IR.BUMS.REC.1402.557), Iran.

HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committee and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

Written informed consent forms were signed before the participation.

STANDARDS OF REPORTING

STROBE guideline has been followed.

AVAILABILITY OF DATA AND MATERIALS

The data that support the findings of this study are available from the corresponding author [S.V] upon reasonable request.

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CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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