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# The Relationship between Nurses' Moral Intelligence and Caring Behaviors among Nurses in Neonatal Intensive Care Units

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## Abstract

**Background:** Neonatal intensive care units (NICUs) represent highly complex health care environments, where nurses face ethical dilemmas, emotional stressors, and difficult clinical decision-making processes. Moral intelligence, understood as the capacity to use ethical principles and values in decision-making and professional behavior, might affect nurses' caring behaviors and patient care. Although many pieces of research have been published internationally, there is a scarcity of research on this relationship among NICU nurses in Palestine. **Objective:** To examine the relationship between moral intelligence and caring behaviors among nurses working in NICUs in Palestinian hospitals. **Methods:** A cross-sectional design was carried out among 171 nurses who work in level II and III NICUs in governmental hospitals in the West Bank. Data were gathered through the Moral Intelligence Questionnaire and the Caring Behaviors Assessment Tool Nursing Version–Short Form (CBAN-SF). The data analysis included descriptive statistics, Pearson correlation, independent-samples t-tests, ANOVA, and multiple linear regression analyses using SPSS version 27. **Results:** The participants had relatively high scores for their moral intelligence (mean =  $71.8 \pm 5.4$ ) and caring behavior (mean =  $99.8 \pm 12.4$ ). Moral intelligence correlated positively with caring behavior ( $r = 0.314$ ,  $p < 0.001$ ). Caring behavior correlated positively with the age of the participant ( $r = 0.266$ ,  $p < 0.001$ ) and nursing experience ( $r = 0.294$ ,  $p < 0.001$ ). Nurses of the female gender exhibited significantly higher scores in caring behavior than nurses of the male gender ( $p = 0.009$ ). Multiple regression analysis indicated that moral intelligence ( $B = 0.701$ ,  $p < 0.001$ ) and female gender ( $B = 5.147$ ,  $p = 0.005$ ) were significantly related to caring behavior accounting for 23% of the variance. **Conclusions:** Moral intelligence is positively correlated with caring behaviors in NICU nurses. Enhancing the moral intelligence of nurses can help enhance their caring behaviors.

**Keywords:** moral intelligence, caring behaviors, neonatal intensive care unit, nurses, Palestine.

## 1. Introduction

Neonatal intensive care units (NICUs) are among the most complicated environments in the medical field because nurses must give highly specialized care to very ill and prematurely born infants [1]. NICU nurses encounter many ethical challenges, stressors, and difficult decisions when it comes to life-sustaining interventions and the care of dying patients [2]. This demands not only clinical expertise but also sound ethics and morals for the maintenance of a high level of patient-centered care [3,4].

### 1.1 Background

Ethical dilemmas such as restarting ventilation, discontinuing treatment, parental disagreement, and managing health care resource distribution are commonplace among NICU nurses. During such scenarios, nurses are required to make ethical decisions that require them to be empathic and at the same time adhere to professional guidelines. Therefore, the presence of moral intelligence among NICU nurses will contribute positively to their ability to perform their duties ethically and effectively. Knowing about this connection will aid in improving ethical practice among NICU nurses and consequently enhance the outcomes for the babies [4,5].

Though many studies have been conducted internationally on moral intelligence and caring practices in the nursing profession, there is insufficient amount of such studies in the Palestinian healthcare system especially regarding nurses operating in NICUs. Previous studies were conducted in Western nations and other healthcare settings of the Middle Eastern region. Such healthcare settings have considerable organizational differences with those in Palestine due to cultural backgrounds, moral standards and health care facilities in those areas. Consequently, conclusions made by those studies may not fully represent the hardships encountered by Palestinian NICU nurses. Nurses in Palestine encounter various issues regarding politics, economy, and healthcare, such as the shortage of medical supplies, the shortage of healthcare staff, overload, and uncertainties in the field of healthcare. The listed above factors may affect the making of the right ethical decisions, demonstrate moral awareness, and show compassion by nurses in the workplace. Nevertheless, despite the listed above obstacles, there are no numerous studies devoted to the Palestinian nurses' practices of providing compassionate care amid ethical issues and intense emotional situations in intensive care units. In the Palestinian literature, one may find the information concerning job satisfaction, stress, professional burnout, and the quality of nurses' care. However, the aspect of moral intelligence, which is an essential ethical competence of nurses, has not been studied extensively yet. So far, there are no studies on the Palestinian topics concerning the relation between moral intelligence and compassionate care in neonatal intensive care units. This shortage indicates the need for further studies to be done to understand the role of moral intelligence in enhancing caring behaviors and improving neonatal nursing care in Palestinian hospitals. The investigation of such connection in the Palestinian context may aid nursing educators, health professionals, and policy makers in developing better educational and work environments that enhance nurses' ethical decisions and caring behaviors. Therefore, the purpose of this study was to investigate the correlation between the nurses' moral intelligence and caring behaviors among NICUs nurses.

### 1.2 Objectives

The purpose of this study was to investigate the correlation between the nurses' moral intelligence and caring behaviors among NICUs nurses.

## 2. Related Work

The concept of moral intelligence is concerned with the use of ethical values and principles in one's personal goals, behaviors, and interactions with other individuals. It entails such aspects as honesty, responsibility, empathy, and forgiveness, and allows one to make proper decisions and behave in a correct manner in the workplace [6]. In nursing, moral intelligence allows nurses to make decisions in complicated healthcare situations in an ethical manner, adhere to professional standards, and safeguard patients' rights and dignity [7]. Research demonstrates that moral intelligence makes nurses competent in coping with difficult ethical situations and being responsible for their behavior in healthcare organizations [5,8].

Nursing care is considered the most significant and primary component of nursing practice. It reflects the way in which nurses act, think and communicate with each other for the purpose of improving the patients' health, emotional and psychological state as well as general well-being. According to the Theory of Human Caring developed by Watson, caring includes such components as empathy, verbalization, emotional support, respect towards patients and commitment to fulfilling their needs [9]. In neonatal intensive care units, the implementation of caring behaviors plays a particularly crucial role since newborns are extremely vulnerable and incapable of expressing their needs, thus the presence of caring nurses ensures the safety and successful treatment of the babies [10]. Currently, more attention is being paid to exploring the relationship between ethical competence and caring behavior in nursing research. Studies prove that nurses who have a high level of moral values and ethical awareness tend to demonstrate kind behaviors and deliver full care to their patients and families [11,12]. At the same time, encountering challenging moral problems and situations and making ethical decisions can have a negative impact on nurses' emotions and affect their caring behavior in a negative way, especially in intensive care units where nurses face numerous stressful situations and work under great pressure [13].

## 3. Methodology

### Design, Setting, Population, and Sample

A cross-sectional study was conducted on nurses working in NICUs in the West Bank hospitals. The study was carried out between 1 June and 1 July 2026. The study's inclusion criteria were met by nurses working in level II and III NICUs in governmental hospitals throughout the West Bank. These hospitals were chosen because they are prominent providers of newborn care, with well-established NICUs that represent nurses working in larger, publicly supported healthcare facilities. Furthermore, the uniform rules and procedures used by these institutions contribute to a consistent work environment, increasing the generalizability of the study's results. As essential foundations of the healthcare system in Palestine, these organizations have also offered an opportunity for gaining important information from nurses whose practice is characterized by acute risks. Information was collected at 11 NICUs with about 150 incubators each.

A convenience sampling technique was adopted to ensure that there was a representative sample of NICU nurses for the study. Raosoft software was used to calculate the sample size taking into consideration a total number of 300 respondents, a response distribution of 50%, a margin of error of 5% and a confidence interval of 95%. This gave an estimated sample size of 169. To minimize attrition, 200 nurses were recruited for the study; however, 171 participated and answered the questionnaires.

The study's inclusion criteria required participants to be full-time NICU nurses with informed consent and at least six months of unit experience. This criterion made sure that participants had enough real-world experience and familiarity with the duties and difficulties of working in a NICU. Nurses who had administrative positions, worked part-time, or were on leave or absent were not included. Administrators were purposefully left out since their duties are mostly managerial and do not directly involve patient care at the bedside.

## Study instruments

The instrument comprised three sections. The first section gathered demographic characteristics such as age, gender, educational level, and nursing work experience.

The second section assessed moral intelligence which was assessed by the 40-item Moral Intelligence Questionnaire by Lennick & Kiel [7]. Responses rated on a Likert scale ranging from strongly disagree to strongly agree produced a total potential score between 40 and 200. Scores were changed to a 100-point scale. Higher scores indicate higher levels of moral intelligence. Also, the total scale may rate based on 90-100 was exceptional, 80-89 was very good, 70-79 was decent, and below 69 was poor. This tool's dependability (Cronbach's alpha) was stated as 0.897.

The third section was the Caring Behaviors Assessment Tool Nursing Version-Short Form (CBAN-SF) [14]. CBAN-SF enables nurses to evaluate their own care behaviors across seven factors: humanism/faith-hope/sensitivity, helping/trust, and expression of positive/negative feelings, supportive/protective/corrective environment, teaching/learning, human needs assistance, and existential/phenomenological/spiritual forces. In addition, the scale proved to be highly reliable with Cronbach's alpha coefficient of 0.97 for all items combined. High ratings on CBAN-SF imply more satisfaction from nurses' care behavior. CBAN-SF was earlier validated for application to nurses from Palestine to ensure the cultural relevance [11,15].

Validation of the questionnaire was conducted by three experts in the medical and nursing education domain to check the content validity of the instrument. In addition to that, a pilot study on 15 NICU nurses was conducted to evaluate the feasibility and reliability of the test instruments used. The value of the Cronbach's alpha for moral intelligence scale and caring behaviors scale is 0.86 and 0.89 respectively. Additionally, the nurses who participated in the pilot study were not included in the main research to lessen the possibility of bias. It took participants 15 to 20 minutes to complete the questionnaire, which is deemed appropriate. The final study also assessed Cronbach's alpha coefficient for moral intelligence and caring behaviors, with findings of 0.90 and 0.92, respectively.

### 3.1 Data Collection

After securing approval to conduct the study, the researcher visited hospitals and convened with the head nurses overseeing neonatal intensive care units. The researcher outlined the study's aims and requested the preparation of lists containing the names of nurses working in these units along with their duty schedules for subsequent meetings. Following that, the researcher explained the goals of the research to the nurses. Those nurses who agreed to join the research were given informed consent forms that they signed prior to filling out the questionnaire. Questionnaires were administered personally, and the interview session was face-to-face. Since all the participants could speak English, the questionnaire in paper form was provided in English.

### 3.2 Analysis Methods

Statistical analysis of data was done using Statistical Package for the Social Sciences (SPSS), version 27. Descriptive statistics involving frequencies, percentages, means, and standard deviations were used to provide an overview of demographics and profession, moral intelligence, and caring behavior scores of the participants. Pearson's correlation coefficient was used to examine the correlation among caring behavior, moral intelligence, age, and nursing experience of the participants. Independent samples t-tests and one-way ANOVA were used to compare differences in caring behavior scores based on gender and education level, respectively. Those variables found to be significantly correlated with caring behavior from the bivariate analysis were then included in the multiple linear regression analysis. Statistical significance was set at  $p < 0.05$ .

## 4. Experiments and Results

The mean age of the participants was 31.5 years  $\pm 5.6$ . Female participants 116 (67.8%) constituted most of the sample. Regarding educational attainment, most participants 121 (70.8%) held a bachelor's degree. In terms of professional experience, the participants had an average of  $6.5 \pm 4.5$  years of nursing work experience, as seen in Table 1.

Table 1. Demographic and professional characteristics of the participants (N = 171)

| Characteristics            |                  | n   | %    | M (SD)     |
|----------------------------|------------------|-----|------|------------|
| Age                        |                  |     |      | 31.5 (5.6) |
| Gender                     | Male             | 55  | 32.2 |            |
|                            | Female           | 116 | 67.8 |            |
| Educational Level          | Diploma          | 22  | 12.9 |            |
|                            | Bachelor         | 121 | 70.8 |            |
|                            | Master and above | 28  | 16.4 |            |
| Work Experience in Nursing |                  |     |      | 6.5 (4.5)  |

The analysis revealed that the mean moral intelligence score was  $71.8 \pm 5.45$  on a scale ranging from 20 to 100, indicating a relatively high level of moral intelligence among the participants. The overall mean score for caring behavior was  $99.8 \pm 12.4$ , suggesting that participants generally demonstrated positive caring behaviors in their nursing practice. Among the dimensions of caring behavior, the highest mean score was observed for Supportive/Protective/Corrective Environment ( $M = 22.8 \pm 2.7$ ) while the lowest mean scores were reported for Existential/Phenomenological/Spiritual Forces ( $M = 11.06$ ,  $SD = 1.53$ ), as seen in Table 2.

Table 2. Distribution of the study variables (N = 171)

| Variable                                  | M    | SD   |
|-------------------------------------------|------|------|
| Moral intelligence                        | 71.8 | 5.4  |
| Caring behavior                           | 99.8 | 12.4 |
| Humanism/ faith-hope/ sensitivity         | 14.5 | 2.6  |
| Helping/ trust                            | 14.1 | 2.8  |
| Expression of positive/ negative feelings | 11.3 | 1.5  |

|                                                 |      |     |
|-------------------------------------------------|------|-----|
| Teaching/ learning                              | 14.7 | 2.2 |
| Supportive/ protective/ corrective environment  | 22.8 | 2.7 |
| Humans need assistance                          | 11.2 | 1.9 |
| Existential/ phenomenological/ spiritual forces | 11.1 | 1.5 |

The analysis revealed that there was a statistically significant positive correlation between caring behavior and moral intelligence ( $r = 0.314$ ,  $p < 0.001$ ), indicating that nurses with higher levels of moral intelligence tended to demonstrate higher levels of caring behavior. Caring behavior was also positively correlated with age ( $r = 0.266$ ,  $p < 0.001$ ) and years of nursing experience ( $r = 0.294$ ,  $p < 0.001$ ), suggesting that older and more experienced nurses exhibited stronger caring behaviors. Significant differences in caring behavior scores were observed according to gender ( $t = 2.691$ ,  $p = 0.009$ ). Female participants reported higher caring behavior scores ( $M = 101.8 \pm 10.3$ ) compared with male participants ( $M = 95.7 \pm 15.2$ ), as seen in Table 3.

Table 3. Association of caring behavior scores with moral intelligence and demographic/professional characteristics

| Variable                   |                  | n   | M     | SD   | Statistical test | p value   |
|----------------------------|------------------|-----|-------|------|------------------|-----------|
| Moral Intelligence         |                  |     |       |      | $r = 0.314^{**}$ | $< 0.001$ |
| Age                        |                  |     |       |      | $r = 0.266^{**}$ | $< 0.001$ |
| Gender                     | Male             | 55  | 95.7  | 15.2 | $t = 2.691$      | 0.009     |
|                            | Female           | 116 | 101.8 | 10.3 |                  |           |
| Educational Level          | Diploma          | 22  | 103.5 | 8.7  | $F = 2.158$      | 0.119     |
|                            | Bachelor         | 121 | 100.0 | 13.0 |                  |           |
|                            | Master and above | 28  | 96.3  | 11.5 |                  |           |
| Work Experience in Nursing |                  |     |       |      | $r = 0.294^{**}$ | $< 0.001$ |

The overall regression model was statistically significant ( $F=12.406$ ,  $p<0.001$ ), and it explained 23.0% of the variation in caring behavior ( $R^2=0.230$ ; adjusted  $R^2=0.212$ ). Moral intelligence was found to be a significant positive predictor of caring behavior ( $B=0.701$ ,  $p<0.001$ ). Particularly, one unit increase in moral intelligence will lead to about 0.70 increase in caring behavior scores. Also, gender was found to be a significant predictor such that women nurses had higher caring behavior scores than men ( $B=5.147$ ,  $p=0.005$ ). That is, being a woman will bring about an increase in caring behavior score by about 5.15 units, as depicted in Table 4.

Table 4. Predictors of caring behavior: multiple linear regression

| Predictor          | Caring Behavior |      |       |         |        |       |
|--------------------|-----------------|------|-------|---------|--------|-------|
|                    | B               | Beta | t     | p value | 95% CI |       |
|                    |                 |      |       |         | Lower  | Upper |
| Moral Intelligence | .701            | .309 | 4.500 | .000    | .394   | 1.009 |
| Age                | .035            | .016 | .094  | .925    | -.775  | .705  |

|                                                                            |       |      |       |      |       |       |
|----------------------------------------------------------------------------|-------|------|-------|------|-------|-------|
| Work Experience in Nursing                                                 | .862  | .314 | 1.844 | .067 | -.061 | 1.785 |
| Gender (Female)                                                            | 5.147 | .195 | 2.829 | .005 | 1.555 | 8.738 |
| R <sup>2</sup> = 0.230, adjusted R <sup>2</sup> =0.212, F= 12.406, p=0.000 |       |      |       |      |       |       |

## 5. Discussion

The results of this study have shown that nurses in NICU of Palestine possessed quite high moral intelligence and caring behaviors, which means that all participants had high ethical values and caring practices. Such results can be explained by the peculiarity of neonatal intensive care when nurses must make ethical decisions and provide compassionate care for critically ill babies and their families. The results obtained from this study are in line with the results of other studies conducted previously, which have shown the interconnection between ethical competence and quality nursing care. Karabey reported that nurses had high levels of moral intelligence and high levels of caring behaviors, with a statistically significant positive relationship between the two constructs [16]. The study concluded that nurses who possess stronger moral values and ethical decision-making abilities are more likely to exhibit caring behaviors in clinical practice, which supports the current findings. Similarly, Afrasiabifar et al. found that nurses demonstrated good caring behaviors and that moral sensitivity was positively associated with caring behavior [17]. The authors argued that ethical awareness enhances nurses' ability to provide compassionate, patient-centered care. These findings support the present study by suggesting that stronger ethical attributes are reflected in higher-quality caring practices. Further support comes from Chen et al., who examined nursing interns and found that moral sensitivity was positively associated with caring behaviors [18]. The study also demonstrated that empathy partially mediated this relationship, indicating that ethical awareness contributes to caring practice through enhanced understanding of patients' needs. This evidence reinforces the notion that ethical and moral intelligence are important determinants of caring behaviors among nurses.

The current study is distinguished from Afrasiabifar et al. study in terms of the fact that the former indicated that nurses' moral sensitivity was not high, but moderate [17]. At the same time, caring behavior was assessed as good. The reasons for such a difference between results may lie in differences in settings of care provision, culture, load, organization, and measurement. Specifically, the authors themselves admit the possibility of the significant impact of social and cultural factors on the ethical perception and behavior of nurses that may lead to variations between different studies and even countries. In addition to it, differences between studies may arise due to methodological reasons. In the commentary on the research in the field of caring behavior of nurses, it was said that self-report measure may tend to overrate the actual caring behavior because of the positive self-evaluation of nurses.

In relation to the caring behavior dimensions, it was found that the highest mean scores were recorded for the dimension of Supportive/Protective/Corrective Environment, then Teaching/Learning and Humanism/Faith-Hope/Sensitivity. It should be noted that the findings coincide with the results of a study carried out among NICU nurses conducted by Ayed et al., where the highest mean scores for caring behaviors were recorded for the dimension related to creation of a supportive, protective and corrective environment, followed by the Teaching/Learning dimension and Humanism behaviors [11]. According to the authors, NICU nurses attach importance to creating such an environment for their neonatal patients because such patients are especially vulnerable and need constant monitoring and protection from possible complications. Moreover, education and support of parents is an integral part of neonatal nursing because families need to be prepared to participate in the infant's care both when they stay in the hospital and afterwards.

The importance of the Teaching/Learning dimension can also be attributed to the growing emphasis placed on family-centered care in the neonatal environment. Parents of hospitalized babies usually feel stressed, anxious, and uncertain, which makes it necessary for the nurses to teach them about their baby's problems and treatment as well as feeding techniques and discharge plans. In turn, teaching becomes an essential part of the everyday nursing practice in NICUs and greatly contributes to the impressions of caring behavior. Also, high marks in the Humanism/Faith-Hope/Sensitivity dimension reveal the efforts of nurses to show respect, empathy, and kindness to the infants and their parents regardless of technology-oriented neonatal care. This result is consistent with the Theory of Human Caring, according to which the key role of nursing practice is played by the creation of a healing environment, hope, sensitivity, and the establishment of meaningful interpersonal relationships [19]. On the other hand, lower results in the dimensions of Existential/Phenomenological/Spiritual Forces and Expression of Positive/Negative Feelings have been observed. This result corresponds to research conducted in critical care departments, since the psychosocial and spiritual aspects of care often get less consideration than the physical and technical aspects. The highly specialized and rapid rhythm of NICUs requires that the nurses pay more attention to immediate care, patient monitoring, and issues concerning patients' safety. Besides, the nurses may lack confidence in their ability to address the spiritual needs of patients and talk to them about their emotions, especially in conditions characterized by a high level of acuity and workload. As a result, the manifestation of caring behaviors involving emotional expression and spirituality becomes less common than behaviors involving safety and protection [20].

An important finding from this study was the presence of a significant positive correlation between moral intelligence and caring. It was found that nurses with high levels of moral intelligence possessed significant amounts of caring behavior, thus indicating that ethical competence and moral reasoning can be considered as essential aspects in the development of nursing practices. The results of this study confirm the theoretical perspectives that emphasize that caring is the aspect of ethical and moral nature and not just a technical one. Nurses with high moral values will show empathy, dignity, respect, accountability, and patient-centeredness. The results of the study are consistent with other studies that showed a positive relationship between moral intelligence and caring behaviors of nurses. For example, according to Karabey and Yıldız [21], nurses with high moral intelligence scores showed better caring behaviors, whereas, in turn, Mollazadeh et al. stated that the enhancement of moral intelligence can contribute to the improvement of the quality of nursing care [22]. The results like the ones obtained in this study were found by Afrasiabifar et al. [17].

Another important relationship found in this study is the significant positive correlation among caring behaviors, age, and years of experience in nursing practice. In this case, older nurses and nurses with many years of work experience were observed to exhibit more caring behaviors than younger nurses with less work experience. This can be attributed to the accumulation of professional skills and expertise as well as the development of effective communication skills in experienced nurses. Experienced nurses usually demonstrate high confidence in dealing with complicated clinical settings and can identify the physical, emotional, and psychosocial needs of patients and families.

Differences in gender were also noted in the current study where female nurses had significantly high scores of caring behaviors compared to their male counterparts. In addition, gender was significantly predictive of caring behavior in the regression model implying that the female nurses had high levels of caring behavior despite the adjustment for moral intelligence, age, and experience of nursing. The results of the study are similar to those of

some previous research which indicated significantly high levels of caring behavior among female nurses, possibly due to social and cultural considerations which make women nurture and express themselves emotionally. Caring is one of the competencies in professional nursing which can be learned by all nurses irrespective of their gender. Moral intelligence emerged as the most significant independent predictor of caring behavior through the multiple linear regression analysis conducted. Despite controlling age, gender, and nursing experience, there was still a significant relationship between moral intelligence and caring behavior. It shows how much importance ethical abilities can play a role in shaping nursing behaviors. Nurses who have high moral intelligence will be more inclined to integrate ethical values in their daily behaviors in the form of compassion, responsibility, honesty, advocacy, and show respect towards patients and their families. The findings are in line with previous literature which supports the role of moral intelligence in determining professional nursing behaviors [21,22].

Overall, the regression analysis showed that 23% of the variation in caring behavior could be attributed to moral intelligence and gender, hence showing that moral intelligence and gender significantly determine the caring behaviors of NICU nurses. Nevertheless, a relatively large amount of variance is unexplained, implying that there are other variables like emotional intelligence, organizational culture, leadership support, job satisfaction, workload, and professional commitment which influence caring behaviors. Further research on these variables is recommended to gain better insight into caring behaviors.

### Implications of the Study

The results of this study are crucial for nursing education, clinical practice, and healthcare administration in Palestine. It is necessary for nursing educators to ensure that moral intelligence development, ethical decision making, and reflective practices are included in undergraduate and postgraduate training. Moreover, healthcare facilities must ensure that an environment where nurses are provided opportunities to deliver compassionate patient care prevails. Moral intelligence development can help in achieving superior quality care, patient/family satisfaction, and overall better neonatal nursing care. These results emphasize the need for healthcare administrators to invest in nurses' moral and ethical development.

### Strengths and Limitations

There are several strengths in this study, among them being the fact that the topic is an under-researched one in the Palestinian healthcare system and that the sample included nurses from various governmental NICUs in the West Bank. Valid and reliable instruments were used in measuring the variables in this study, and there were high levels of internal consistency for these instruments and multivariate analysis used to establish independent predictors of caring behavior. There are several limitations to be aware of in this study. For instance, the cross-sectional design makes it impossible to establish causality between moral intelligence and caring behaviors. There were some forms of bias present because data was collected using self-reported questionnaires. Only 23% of the variance of caring behavior was explained by the regression model.

## 6. Conclusions and Future Work

Based on the findings from this study, nurses showed relatively high levels of moral intelligence and caring behavior. That is, it was found that there was a significant positive correlation between moral intelligence and caring behavior, implying that those nurses who have higher moral intelligence will also show relatively high levels of caring behavior in the process of practicing their profession. Caring behavior had a positive association

with age and years of practice of nurses while female nurses were found to show significantly higher levels of caring behavior compared to male nurses. Moral intelligence and being female also served as the significant predictors of the caring behavior. Overall, based on the results of this study, it is important to emphasize the significance of the development of moral intelligence of nurses as one way of promoting their caring behavior. As a result, moral intelligence, ethical decision making, reflection, and value-based education need to be incorporated in nursing education programs through undergraduate and professional nursing education curricula. Nursing leaders need to create an ethical environment that nurtures the moral intelligence and caring of nurses. In future, research designs that are either longitudinal or experimental need to be used to find out any causal relationship and intervention measures for increasing moral intelligence among nurses. Also, more research is needed to find other factors associated with caring behavior including emotional intelligence, organizational culture, leadership support, workload, job satisfaction, and professional commitment.

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## 8. Declarations

### Funding

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### Conflict of interest/Competing interests

Researcher declares no conflict of interest with any organization regarding the materials discussed in this paper.

### Ethics approval and consent to participate

Approval was obtained from the Institutional Review Board (IRB) of Arab American University (R-2026/A/90/N). The nurses were made aware of the objective of the research and that participation was voluntary and that they could withdraw at any time without any repercussions by the researcher. Confidentiality was assured by the researcher since no names or any other identifiable information about the participants was collected or disseminated. Participation in the research was strictly voluntary.

### Consent for publication

Not applicable.

### Data availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

### Materials availability

Materials used in this study are available from the corresponding author upon reasonable request.

## Code availability

No custom code was generated for this study.

## Author(s) Contribution

Ahmad Ayed conducted the study and wrote the manuscript. The author read and approved the final manuscript.

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