

Moral distress among Iranian neonatal intensive care units' health care providers: a multi-center cross sectional study

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Abstract

Due to the unique nature of the neonatal intensive care unit (NICU) and its moral distress, this study aimed to investigate moral distress in the NICU. This cross-sectional study was conducted on 234 physicians and nurses working in the neonatal wards of eight hospitals. The Corley's Moral Distress Scale was used to collect data. Findings showed that 25 of the participants were physicians and 209 were nurses. The intensity and frequency of distress among physicians and nurses were assessed as moderate. The mean intensity and frequency of moral distress among nurses and physicians were 48.3%, 41.5% and 46.46%, 15.62% respectively. The results showed that the mean intensity and frequency of distress were higher, however not significantly, among nurses. The intensity and frequency of moral distress had a statistically significant and direct correlation with the intention to leave and the number of staff in each working shift among the nurses. Moral distress in the NICU practitioners was moderate, so addressing this issue and trying to alleviate it was important. Identifying the causes behind moral distress can help adopt appropriate measures to prevent and reduce them.

Keywords: Ethical conflict; Moral distress; Moral dilemmas; Neonatal intensive care unit; Mental health; Iran.

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Introduction

Advances in technology have overshadowed the healthcare settings and have created more tension among the treatment team in recent decades. Treatment team members face a variety of tensions in their work environment, causing numerous problems; one of the most important of which is moral distress (1). Moral distress is an emotional and mental pain and discomfort, in which the person makes moral mistakes due to real or mental limitations while having the necessary awareness and ability to make moral judgments (2, 3). Moral distress is a concept that people experience in different professions. Nursery and medicine are among the professions encountering morally distressing situations from the beginning of their study to their retirement due to the unique nature of the job (4). From among the members of the care and treatment teams, nurses have the longest and deepest human connections with the patients (1). As a result, they are more likely to experience moral distress than other treatment team members (5). Moral distress occurs when nurses are unable to put their ethical choices into practice (6). The pressure imposed on the nurses by the health organizations and institutional policies, working with incompetent colleagues, poor management, high workload, lack of facilities and manpower are factors that can contribute to moral distress. Additionally, the inability to make decisions, compulsion to carry out orders, and taking unnecessary actions in end-of-life care are other possible factors (7).

Moreover, various factors such as race, nationality, social, and cultural factors can affect the intensity of moral distress (8). Moral distress exposes nurses and patients to adverse consequences. The experience of moral distress by the Pediatric Intensive Care Unit and Neonatal Intensive Care Unit (NICU) caregivers affects the quality of care (9, 10). That causes several problems for the patients, including increased pain intensity, inadequate care, and increased length of hospital stay (11, 12). Experiencing moral distress also exposes nurses to emotional exhaustion, burnout, disappointment, withdrawal, job dissatisfaction, resignation, leave, and turnovers (13, 14). Moral distress is associated with negative effects on mental health in the form of anxiety and failure in the professional life of the treatment team members. In the case of incompatibility, its negative effects are manifested in feelings of worthlessness, anger, depression, shame, and unhappiness in professional life. The results of studies suggested that the personal life of individuals will surely be affected by the negative effects of moral distress (15). In fact, when the caregivers are not able to support the patient, they will have an uncomfortable and hurtful feeling, which if repeated, will disrupt their adaptation, self-esteem and ability to provide care. In this situation, they may use negative adaptive methods that can affect the quality of patient care and cause secondary complications (1).

A study conducted in Italy reported moderate moral distress in nurses but failed to find any association between their education, age, and work experience and the

intensity of their moral distress (6). Another study in the southwestern US state of Colorado reported high levels of moral distress among Intensive Care Unit (ICU) nurses (1). In Swedish nurses, low intensity of moral distress was reported (16). Studies conducted in Iran have indicated moderate to high levels of perceived moral distress among nurses (17-19). In recent years with the advancements in neonatology, perinatology, and infertility treatments, there have been more expectations from the family and treatment team members to help infants survive despite their poor prognosis, being premature, having very low birth weight, and being sick.

The goal is not just to keep these infants alive and short-term and long-term complications are inevitable. Enduring to care for these infants with such an unfavorable prognosis is itself a predisposing factor, which causes moral distress in nurses or physicians, placing them under numerous moral pressures. Therefore, identifying the causes, having a better understanding of these factors, and examining moral distress in NICU nurses or physicians enable health policymakers and managers to take appropriate measures to prevent and reduce this distress. This issue has been studied to some extent in other countries. Similar studies in the sociocultural context of Iran can, therefore, provide information to reduce moral distress and improve working conditions for health care providers. Thus, we have investigated the moral distress among Iranian neonatal

intensive unit health care providers.

Methods

Study design

This cross-sectional study recruited nurses and physicians from level II or III NICUs of eight hospitals affiliated to Tehran University of Medical Science, Shahid Beheshti University of Medical Science, and Iran University of Medical Sciences in Tehran, Iran from December 2020 to early March 2021.

All of the nurses (bachelor and/or Master of Science) and physicians (neonatologists, fellowships in neonatology and pediatricians) who worked at NICUs of Arash, Shariati, Bahrami, Children's Medical Center, Akbarabadi, Ali-Asghar, Valieasr, and Mofid hospitals were recruited for 12 months.

These are teaching hospitals with level II and III referral NICUs and 30 to 50 NICU beds, which admit infants with all medical and surgical and neurosurgical problems, except for cardiac surgery, from all over the country. Also, they have facilities for sophisticated procedures, imaging evaluations or consultation services for pediatric subspecialties, metabolic disorders, congenital malformations, hypoxic-ischemic encephalopathy (HIE), and neonatal seizure, the common causes of the referral of infants to these hospitals.

Participants were selected via convenience sampling. The sample size was determined as 134 nurses and physicians, with a significance level of 0.05, power of 0.8, and

an effect size of 0.24. Considering the attrition rate (10%), a total of 234 nurses and physicians were asked to participate in the study. Six of the participants who did not complete the questionnaires fully or Six of the participants who did not complete the questionnaires fully were excluded.

Finally, the data of 234 questionnaires were analyzed. The inclusion criteria were being involved in care at neonatal intensive care for more than 12 months.

Data collection

Data were collected with the cooperation of one researcher trained on the research objectives and completing the questionnaires. The research objectives and procedures were explained to all the participants and their written informed consent was obtained. The participants completed the questionnaires in a quiet place. Questionnaires took 15-20 minutes to complete and the sampling period lasted from December 2020 to early March 2021.

The following data collection tools were used:

Demographic and job characteristics questionnaire included 12 items of age, gender, marital status, educational degree, hospital name, experience, experience in NICU, employment status, work shift, job satisfaction in NICU, and intentions to leave the service.

The moral distress was assessed using Corely et al. moral distress questionnaire with 21 items. Its reliability was determined by test-retest to be 0.86 (20). It measures an individual's perceptions of a situation based

on the intensity of moral distress and the frequency of the encountered situation. The Moral Distress Scale-Revised (MDS-R) includes two subscales: (1) frequency ranging from 0 (never) to 4 (very frequently) and (2) intensity ranging from 0 (none) to 4 (great extent). The total score of each question is obtained by multiplying the intensity score by that of frequency, summing up to a 0-16 score. Moral distress is accordingly scored as low (0-96), moderate (97-192), and high (193-288). MDS-R has been translated to different languages and proved valid and reliable (21, 22). It has also been translated to Persian by Soleimani et al. who reported the three-factor structure of the Persian version of the tool and a Cronbach's alpha of 0.71 for the whole tool and 0.685-0.853 for its subscales (23). In the present study, the reliability of MDS-R using Cronbach's alpha coefficient for the whole tool was 0.85.

Data analysis

Data were analyzed using SPSS-23 (SPSS Inc., Chicago, IL, USA) software by descriptive statistics (mean, frequency and percentage). To determine the data distribution, the One-Sample Kolmogorov-Smirnov Test was used. Comparison of normal data was done using test-re-test and one-way ANOVA. Moreover, Pearson test were used for assessing the quantitative variables. The power and significance levels were set at 0.8 and $\alpha = 0.05$, respectively.

Ethical Approval

All ethical considerations of the study were approved by the institutional review board

and the research ethics committee at Tehran University of Medical Sciences, Tehran, Iran (IR.TUMS.VCR.REC.1395.403). All participants in the study were informed of the study objectives and signed a written informed consent form and were assured of the confidentiality of their personal information and the voluntary nature of participation.

Result

Findings indicate that out of 234 participants, 25 (10.7%) were physicians and 209 (89.3%) were nurses, and 215 (91.9%) were female. Sixty-nine of the participants (29.4%) had less than or equal to 5 years of experience working in hospitals. Sixteen (5%) had the intention to leave the service soon and 129 participants (56%) planned to do so sometime in the future. From the other point of view, eighty-nine and 16 of participants had no intention to leave the

service. The mean intensity and frequency of moral distress among nurses were 48.36 ± 17.27 and 41.5 ± 16.13 respectively. As for the physicians, they were 46.46 ± 16.3 and 36.56 ± 15.62 , respectively. The intensity and frequency of distress among physicians and nurses were assessed as moderate with no statistically significant difference (Table 1).

Table 1- Intensity and frequency of moral distress in physicians and nurses

| | Moral distress (mean) | |
|------------|-----------------------|---------------------|
| | Frequency mean (SD) | Intensity mean (SD) |
| Physicians | 36.56 (15.62) | 46.46 (16.3) |
| Nurses | 41.5 (16.13) | 48.36 (17.27) |
| Total | 46.96 (16.10) | 48.18 (17.13) |
| *P value | 0.249 | 0.656 |

There was a significant correlation between the intensity and the frequency of nursing moral distress and some demographic factors between nursing staff. (Table 2)

Table 2- Relationship between intention to leave the service and the intensity and frequency of moral distress among study participants

| | Moral distress | |
|---|---------------------|---------------------|
| | frequency mean (SD) | Intensity mean (SD) |
| Emminent intention to leave the service | 50.37 (13.66) | 53.28 (11.25) |
| Possible Intention to leave the service, but were still working | 44.16 (14.59) | 52.29 (15.24) |
| No intention to leave the service | 35.46 (17.46) | 40.62 (19.35) |
| *P value | 0.002 | 0.004 |

*ANOVA Test

As shown in Table 3, a direct correlation was observed between the frequency of moral distress and the number of staff in the morning and evening shifts, suggesting a

surge in the frequency of moral distress with the increase in the number of working personnel (Tables 3).

Table 3- Correlation between frequency and intensity of moral distress and demographic variables of the study participants

| | | Moral distress | |
|-------------------------------|----------------|----------------|-----------|
| | | Frequency | Intensity |
| Morning staff | Correlation(r) | 0.290 | 0.158 |
| | P. value* | 0.001 | 0.100 |
| Evening staff | Correlation(r) | 0.239 | 0.161 |
| | P. value* | 0.006 | 0.840 |
| Work experience in NICU | Correlation(r) | .137 | .180 |
| | P. value* | .129 | .055 |
| Overall work experience | Correlation(r) | .047 | .084 |
| | P. value* | .599 | .368 |
| Overtime working | Correlation(r) | -.057 | .026 |
| | P. value* | .625 | .832 |
| Number of daily working hours | Correlation(r) | -.013 | -.063 |
| | P. value* | .903 | .569 |

*Pearson Correlation Test

Discussion

We found the mean intensity and frequency of distress between nurses and practitioners was high and moderate respectively. This was higher, among nurses compare to practitioners, however not significantly, among nurses. The high level of technology and the unknown outcomes of NICU newborns have made the care and treatment in this ward associated with moral distress for physicians and nurses (24). Once nurses and physicians are faced with a critical situation, they experience a great deal of moral distress and caregiver feels the provided care is not in the best interest of the infant (25). Infants are a vulnerable population and caring for them can cause various forms of moral distress, and their caregivers are exposed to unique moral distress. Therefore, identifying the causes of moral distress may improve not only the working environment but also the quality of care for the patients (26).

Studies in the NICU have repeatedly revealed long-term and aggressive treatment

in neonates as the main source of moral distress among the medical professions. Moral distress is also a cause of dissatisfaction among nurses and physicians (27). In 2016, Janvier et al. conducted a systematic study that identified disproportionate usage of technologies, not perceived to be in a patient's best interest and powerlessness to act as the most important cause of moral distress in the NICU (27).

In our study, the mean scores were higher among females compared to males. The findings of Trotochaud et al., a study in Atlanta are consistent with our study. They found that moral distress among medical staff in the Canadian NICUs was moderate, with nurses experiencing higher distress than physicians and other care team members. Moral distress was also higher among women than men, with a rate reaching up to 17 times more distress in NICU (26).

Dryden-Palmer et al. conducted a study to identify the causes of moral distress among the clinicians in the Canadian pediatric and

neonatal ICUs. They concluded that neonatal physicians and nurses experience high levels of moral distress (28). St Ledger et al. conducted a qualitative study to assess moral distress following end-of-life decisions perceived by the physicians and nurses in the neonatal intensive care units in Belfast. They reported moral distress to be significant (29). Dodek et al., in a study from Vancouver, identified that the ICU nurses face critical conditions requiring important decisions, and these situations make the experience of moral distress among them more likely. Therefore, nurses suffer from higher rates of moral distress compared to physicians in ICU (30).

In several studies, moral distress was more prevalent among nurses. In a systematic review by YektaKooshali et al., the intensity and frequency of moral distress among nurses were reported to be moderate in 2018 (12). Hally et al. concluded that the NICU nurses who scored high in measure of moral distress for health care professionals are more likely to leave their work (31).

In the present study, there was no significant relationship between the intensity and frequency of moral distress among physicians and the demographic factors. While in nurses, a statistical significant and direct relationship was found between the moral distress and intention to leave and the number of personnel in each working shift. Higher intensity and frequency of distress was reported among individuals with the intention to leave, either now or later. There was a direct correlation between the frequency of moral distress and the number

of personnel working in the morning and evening shifts, i.e., the higher was the number of staff in each shift, the higher was the frequency of moral distress.

The findings of the present study are consistent with previous studies. Joolaei et al. reported moderate levels of moral distress among nurses in Iran in 2012. They also found no significant statistical relationship between moral distress and nurses' desire to continue working in the nursing profession (19). Berhie et al. reported that nurses repeatedly suffer from moral distress, with a rate of as high as 83.7%. A significant relationship was also found between moral distress and poor communication between physicians and nurses, manpower shortage, low work experience, lack of effective and specialized care, and poor decision making (32).

Another study by Molloy et al., found a significant inverse relationship between perceived moral distress and a person's age and years of service, whereas moral distress was significantly correlated with the ward type (33). It seems that, firstly, having more work experience reduces certain stress-causing factors, and secondly, individuals use different methods to adapt and resolve the intensity of moral challenges. Yeganeh et al. found a significant direct relationship between moral distress and the degree of professional autonomy (17). In this regard, Molloy et al. found that one of the most important factors affecting moral distress among NICU nurses is their perception of moral distress. Not believing in having a prominent role in decision-making for neonatal resuscitation can cause moral

distress (33). Gallagher et al. found that NICU nurses and physicians in their professional role as caregivers for infants face issues, not previously encountered or completely defined in practice; these situations result in moral distress (34).

Moreover, Strandas et al., reported that caregivers of vulnerable infants are constantly trying to make a balance to protect their patients; as a result, they experience moral distress (35). Boss et al., found that in the neonatal and pediatric wards, medical interns experience moral distress following contact with the infant's parents, other physicians, and members of the health care team (36).

In general, based on the findings of the present study and Previous studies, moral distress is moderate among NICU nurses in the university hospitals in Tehran, so addressing this issue and alleviating it would have a significant impact. By identifying the causes of moral distress, appropriate measures can be taken to prevent and reduce them.

Strengths and Weaknesses

The study aimed to evaluate the level of moral distress among health care providers in the Iranian neonatal intensive care units.

Being multi-centric and sampling from several hospitals affiliated with different universities is the strength of the study, and increases the generalizability of the results. In our study, the use of self-reporting scales is the main limitation. Although we guaranteed the information to be kept confidential, some physicians and nurses

may not have provided truthful answers.

Conclusion

The mean levels of moral distress among NICU physicians and nurses and its direct relationship with the number of people present in each working shift points out the need for more attention of the policymakers. In this regard, we should try to raise awareness of moral distress, its causes and correlational factors through strategies such as setting up training workshops and establishing related ethical committees in clinical settings. Furthermore, raising awareness of positive adaptation strategies and mechanisms can help reduce burnout and turnover in this sector. The causes of moral distress could be minimized through designing solutions to improve the working condition of medical staff, especially nurses and physicians, the key elements in treatment and care, and consequently increase the quality of care. To generalize the results, a study with larger sample size and using locally designed tools are recommended.

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Conflicts of Interests

There are no conflicts of interests.

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