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Countering Moral Distress in ECMO nurses with Case-Review Debriefings

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By

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Abstract

Background: Moral Distress occurs when nurses know the ethically correct action to take, but they are restrained from taking it. It is especially prevalent in nurses caring for critically ill patients, such as those on extra-corporeal membrane oxygenation (ECMO). Effectively addressing moral distress is crucial to the growth and health of the nursing profession, which is the cornerstone of quality and safety in healthcare.

Purpose: The purpose of this project was to evaluate the effectiveness of case-review debriefings on moral distress of ECMO nurses.

Conceptual Framework: Analysis of Moral Distress Process was utilized. This framework addresses moral distress as a process that articulates various concepts such as uncertainly, moral sensitivity and moral deliberation. The processes of moral competencies guided the intervention and tools utilized in this project.

Methodology: Thirty-nine critical care registered nurses with specialty training in ECMO were invited to participate in this quasi-experimental study with a pre/post intervention survey design. The intervention was two case-review debriefings. The Moral Distress Scale-Revised for Health Care Providers (MDS-HP) and the Moral Distress Thermometer (MDT) were used pre- and post-survey to measure long-term and "acute" or short-term moral distress.

Results: Based on a potential range of 0-336, the MDS-HP pre-intervention mean was 134.0 and the post-intervention mean was 131.8 (n=20 pre, n=19 post; p =.84). MDT scores decreased for 80% of participants and increased for 20%; the decrease was significant over time (p<.001). The frequency of experiencing moral distress did not change pre to post intervention (pre,

Mean = 42.55 and post, Mean = 42.53), but the level of moral distress increased following the intervention (pre, Mean 57.9 and post, Mean = 59.47). Five items related to perceptions of prolonging death and suffering were revealed to be root causes of most of the moral distress.

Discussion: Use of case review debriefing interventions implemented in this study were not effective for decreasing chronic moral distress. However, in the short-term, they proved beneficial in decreasing acute moral distress.

Conclusion: Moral Distress is a complex experience that ECMO nurses face due to repeated exposures to a myriad of ethically challenging patient situations. Developing strategies and providing opportunities to mitigate moral distress is crucial to a healthy future nursing workforce. Implications include the potential for improved patient care, decreased turnover rates and therefore costs, as well as improving nurse satisfaction rates.

Acknowledgements

As the 2020 Saha Award winner for Cardiovascular Research Outstanding Nursing Student, I was inspired to consider my fellow CV nurses and their current challenges, leading me to this research and project.

I would like to gratefully acknowledge my DNP advisor, Dr. Debra Hampton, for her constant encouragement and belief in my abilities. Her expertise and high standards elevated (and narrowed) this project into a foundation for what I believe will be my life's work going forward. Karen Stefaniak seemingly has all the time in world when you need an ear. She is a safe place to vent, discuss, and lay out what is on your heart and mind regarding our profession. Her wisdom and demeanor are second to none and I aspire to inspire future nurse leaders the way she has inspired me. Judith Daniels' refusal to give me any grace or clemency in grading my Research Methods papers was always followed up with kindness and inspiring lectures. These were also a turning point for setting my standards. I am forever grateful for her tough love. A big shout out to Stephanie Henderson who never failed to meet my desperate pleading emails for help with patient step-by-step instructions. I cringe when I look back on our first meeting when I barely knew anything. What an asset she is to the College of Nursing! Amanda Wiggins' patient teaching through my two Biostatistics classes and her data analysis of this project will never be forgotten. I am proud to call Dee Dee McCallie, who already showed the DNA of a compassionate, incredible leader when we were mere nursing care techs in the Emergency Department many years ago, a dear friend and mentor. She is a true "nurse's nurse". Lastly, Joey Burke, the first Nurse Ethicist at UK Healthcare. She has been an advisor, a confidante, and a friend throughout this project. Her thoughtful listening during the pandemic and her commitment to the well-being of all nurses is admirable and needed.

Dedication

This project is dedicated to the 2.4 million registered nurses in the United States of America. You were the last to comfort, hold the hands, and close the eyes of the 983,000 (and counting) US victims of COVID-19 in the past 25 months. 6,193 of you died from COVID-19. I stand in complete solidarity with you, your experiences, your grief, and acknowledge the moral distress that continues to manifest itself in too many ways. You have shown you are superhuman. I wish the world truly understood.

To the original and brilliant team of ECMO Specialists at UK Healthcare: Aaron, Ashlee, Ashley, Kristen, Lexi, and Thomas, we sure went through it, and you are my forever family. To Mom & Dad, the best examples of hard work, dedication, and commitment that I could have ever had. To Allison, Denise, Katherine, Kate, Kristin, Leigh Ann, and Molly- you saw me through, brought gifts and overlooked all the cancelled plans, listened lovingly about work and school even when you had no idea what I was talking about! To Julia Akhtarekhavari and Demond Jackson, you planted the seeds of leadership; then you listened, encouraged, and motivated me to persist and grow. I am incredibly grateful for you both.

I also dedicate this to my five wonderful children, Adam, Gregory, Olivia, Sophia, and Claire, who motivate everything that I do. You made great sacrifices with my time and attention to allow me this accomplishment. You are the first things I think of when I wake up and the last as I go to bed. I hope this milestone will show you what can be accomplished when you love what you do. May you dedicate your lives to bettering the world, for others; it is the most important thing you could do. Lastly, but first in my heart is my steadfast husband, Erritt. He lovingly redirected me when I was convinced that I couldn't finish this degree. His encouragement, pride, and belief in me are just what I needed.

Table of Contents

List of Tables

List of Figures

Background and Significance

Moral distress in nursing was an important phenomenon even before the COVID-19 pandemic. It is pervasive, persistent, and well-documented in nursing literature. Moral distress has been defined as knowing the morally correct course of action to take, yet being prevented from acting on that knowledge, due to institutional barriers, fear of conflict, fear of disrupting the "chain-of-command", and/or fear of retribution (Lamiani, 2017). Moral distress can be an emotional or psychological experience. Several authors suggest that of all healthcare workers, direct-care nurses experience moral distress at higher rates. This is perhaps due to the amount of time nurses spend in devoted conversation with their patients and their families, exploring patient symptoms or being present during intimate patient personal challenges and providing physical care (Dodek et al., 2016, Dodek et al., 2019, Johnson-Coyle et al., 2016). Preventing or managing suffering, preserving human dignity, and advocating specifically for the patient is the very foundation of nursing. If nurses are unable to practice this foundation, they experience moral distress.

Moral distress has serious implications for healthcare. It can affect quality, safety, and lead nurses to leave their jobs or even leave nursing altogether (AACN, 2016). Turnover is a financial burden to healthcare organizations and a drain on intellectual capital (Emple et al., 2021). Repeated, continued exposures to intense moral dilemmas compound moral distress and the far-reaching problems that it perpetuates (Morley et al., 2017). This is most pervasive in high-acuity settings where resources may seem to be allocated disproportionately and there can often be a lack of collaboration. It is also a place where aggressive medical care, such as extra-corporeal membrane oxygenation (ECMO), can seem futile. ECMO is often offered as a bridge support resource for the sickest of patients that need more time for treatments to be effective. The highly skilled nurses who care for these patients are often repeatedly exposed to intense moral distress.

The perception of patient suffering is the most troubling cause of moral distress. This occurs when nurses believe that insufficient or inaccurate data and false hope has been given to families (Bruce et al., 2015; Colosi, 2016). The long-term impact of moral distress includes burnout to the point of abandonment of the nursing profession, anxiety, an increase in substance or alcohol use, eventual lack of quality patient care and depression (Mealer et al., 2016; AACN, 2020). Reducing the risks and effects of moral distress is vital to the health of the nursing profession. Therefore, potential interventions to mitigate moral distress and reduce the effects of moral distress must be explored.

Purpose and Objectives

The purpose of the project was to evaluate the effectiveness of case-review debriefings for ECMO nurses about moral distress. Objectives and aims included determining the situations that contribute most to moral distress, providing an opportunity to adequately address moral distress, creating an opportunity to debrief, to minimize moral distress with one mechanism and possibly negate moral distress over time. Evaluating nurse perception on the value of case review debriefings was important to determine appropriate response. This proposed single solution of case-review debriefings to lessen the effects of Moral Distress was selected in this project due to quick implementation, minimal investment, and ease of accessibility. It is of critical importance to explore every option to mitigate the crippling effects of moral distress. Support for these at-risk caring individuals is a deserving response for this long-identified need.

Conceptual Framework

The conceptual framework identified to guide this project was the Analysis of Moral Distress Process (see Figure 1). This framework explains how nurses develop ethical-moral competencies. This framework addresses moral distress as a process that articulates various concepts such as uncertainty, moral sensitivity, and the moral deliberation process, and it synthesizes the development processes of moral competencies (Caram et al., 2021).

This framework was developed to support expanded analysis of moral distress to include consistent and updated theory on the changing needs in this field of study. The moral deliberation process often implies the relation of different stakeholders that aim for a shared solution. However, current nursing practice reports indicate singular, isolating experiences. Because it supports the ethical subject's reflection on his/her own knowledge and action, this framework guided the intervention in this study. It also directed the decision to employ the use of two moral distress measurement tools, which is unique compared to other studies.

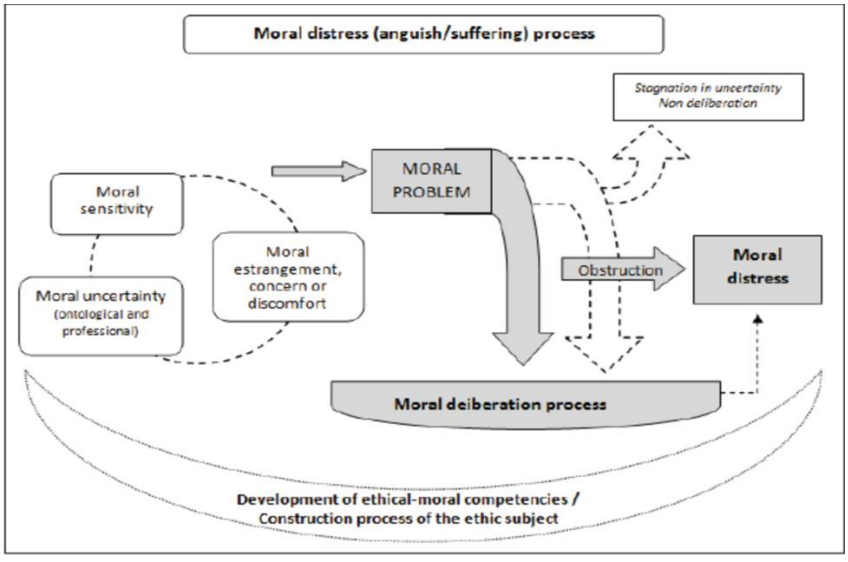

Figure 1: Conceptual Framework for the analysis of the moral distress process (Ramos et al., 2015) Used with permission.

Review of the Literature

A review of the literature was conducted using two databases: Cumulative Index of Nursing and Allied Health Literature (CINAHL) and PubMed. Subject headings used were "moral distress", "Extra-Corporeal Membrane Oxygenation", "ECMO", "critical care"," ECMO nurse" and/or "critical care nurse". The search was broadened to search for (case reviews OR debrief*) AND (distress OR "moral distress") AND (nurse OR health care professional). Twenty-four citations in PubMed and 10 in CINAHL were found. Inclusion criteria were English-language, peer-reviewed articles, published between 2001 and 2021. Initially, this search showed 1,124 articles. After adding, "debriefing", 121 articles remained. Adding "case reviews" decreased the search to 32 articles, but it was noticed that several of the articles used "debriefing" and "case-reviews" interchangeably and this project will do the same. Ultimately, after eliminating articles related to nursing care techs and cardiopulmonary resuscitation, 24 articles remained. Fourteen were descriptive studies and ten were qualitative studies. This was expected due to the essence of moral distress, which is best appraised in the settings in which they occur.

Summary and Strength of the Evidence

Case-review debriefing can be a valuable strategy and useful learning tool for discussing the decisions and actions involved in a patient care situation. It allows those involved a safe space to talk through what happened and how they were affected, and to possibly make changes in those decisions, protocols, or processes for similar, future cases. Debriefing is used in intensive care and emergency department situations to dissect and address moral distress.

All the articles explored contributors to moral distress and pointed to the prevalence of moral distress, along with the lack of tools to fully address this critical problem. Several of the

articles suggested that of all healthcare workers, direct-care nurses experience MD at higher rates (Browning et al., 2018; Emple et al., 2021; Mealer et al., 2017; Santiago et al., 2015; Tolbert & Dellasega, 2021; Williams & Dahnke, 2022). Nurse disempowerment was a prevalent theme in four studies (Santiago & Abdool, 2015, Sauerland et al., 2014; Tolbert et al., 2021, Zudzinski, 2016), which can stem from lack of perceived control over personal moral agency. The most-oft cited triggers for disempowerment were lack of education about ethical situations, vague institutional policies, unhealthy work environments and poor inter-professional collaboration. Also cited as compounding moral distress were dysfunctional work teams, mostly described as poor nurse-physician collaboration and lack of autonomy, which were discussed in five articles (Browning, 2015; Lamiani, 2016; Mealer, 2017; Musto, 2014; Santiago, 2015**.**

Gaps

In the face of the literature's strong evidence of the long-reaching impacts of moral distress, this search indicates there is a lack of studies about effective interventions to mitigate moral distress and its devastating effects on nurses. Multiple authors explored contributors to moral distress, pointed to the prevalence of moral distress and lamented the lack of tools to fully address this critical problem. Another significant gap is the absence of data definitively linking nurse's moral distress with decreased safety and poor patient outcomes. Most of this "evidence" is anecdotal because nurses who frequently experience moral distress are at risk for decreased coping (Gutierrez, 2005). This could lead to withdrawal from all but the most basic patient care.

Nurses reported that the most frequent scenarios causing moral distress were related to nonbeneficial care in the ICU and lack of collaboration (Gutierrez, 2005). Nurses also conveyed they benefitted most when they were empowered to constructively compel other staff members

about giving adequate, truthful information or not giving false hope (Emple et al., 2021; Lamiani et al., 2016)).

Current evidenced-based interventions and strategies targeting moral distress in high acuity, critical care settings are mainly focused on developing resilience, as the stressful environments and ethically challenging patient situations are unlikely to decrease (ANA, 2020; Lachman, 2016). Resiliency training is generally taught in "bundles" as it is difficult to find a one-size-fits-all solution and availability of multiple options for seems to be associated with a decrease in feelings of moral distress (Mealer et al., 2017; Whitehead et al., 2015). However, these findings pre-date the COVID-19 pandemic and a varied approach may meet the unique needs of all staff. This proposed study will contribute to addressing this problem and giving a voice to ECMO nurses who have spent much of the past two years caring for the sickest of victims during the COVID-19 pandemic.

Methods

Design

A quasi-experimental one-group time series pre/post survey design was utilized. The study was approved by the University Institutional Review Board and the healthcare organization Nursing Research Council.

Setting

The setting was a 945-bed academic medical, Level One trauma center with the largest ECMO center in this state, located in the southeast region of the United States. It has been designated a GOLD Center of Excellence by the worldwide Extracorporeal Life Support Organization (ELSO). ECMO volumes are between 119 and 149 patients per year compared to

other “high volume” ECMO centers which see less than 100 patients per year. This academic medical center serves as the major referral center for the area and received 737 referral calls from 9 different states in 2021.

Sample

Thirty-nine critical care registered nurses with specialty training in ECMO were invited to participate in this study. They represented 70% of the total number (57) of ECMO trained nurses at this facility. Inclusion criteria included: current registered nurses with greater than one year experience in the Cardiothoracic Vascular Intensive Care Unit (CV-ICU) who t had specialized training in and provided direct care to ECMO patients. There was no limitation on how many years they had been providing direct care to ECMO patients.

Exclusion criteria included: registered nurses with less than one year of experience, or those that had not received specialized training in ECMO. Names and email addresses were provided by the CV-ICU nurse manager.

Procedures

This study was approved by the University of Kentucky Institutional Review Board (IRB-69745). Once qualified candidates were identified, the researcher contacted the Chairperson of the CV-ICU Shared Governance Council who was asked to provide information about the study to the potential participants during their monthly meeting. Those interested emailed the researcher and the first debriefing was scheduled. The Informed Consent form was emailed a few days before the debriefing and then reviewed in detail and signed at the first debriefing.

Description of Evidenced-Based Intervention

Various measures have been implemented to reduce moral distress for healthcare providers. One of the processes that may help manage moral distress is case-review debriefings.

Debriefing is a deliberate practice of evaluating an event and discussing what happened, how it affected those involved, and what possible insights were gained. Evidence has shown that case-review debriefings can be a valuable and effective tool for discussing the decisions and actions involved in patient care situations (Browning & Cruz, 2018; Santiago & Abdool, 2015). Debriefing is also used in intensive care and the emergency department scenarios to dissect and address moral distress. Case-review debriefings allow those involved a safe space to talk through these situations, how they were affected, and to potentially make changes in those decisions, protocols, or processes for similar future cases. The approach to reflective group discussions can be key to successful and impactful debriefings (Chiafery et al., 2019; Browning & Cruz, 2021). Facilitating with a clinical ethicist, encouraging perspective-taking, and listening in a supportive manner have also been shown to be critical aspects of debriefing (Morley & Horsburgh, 2021; Musto et al., 2014).

The case-review debriefings were held once a week for one hour via Zoom, due to COVID restrictions on in-person gatherings. Debriefing sessions were continued until all study participants were able to attend two sessions, to include one that included a brief explanation about case-review debriefings. The Nurse Ethicist facilitated the meetings and began by asking, "How are you?", "What in your work environment is going well, could change or should be implemented?' and "Which cases would you like to discuss today?' Participants engaged readily and enthusiastically discussed specific patient cases, lessons learned, things that went well, areas of opportunity, personal feelings, and coping strategies during the pandemic.

Measures and Instruments

A pre-assessment survey, prior to case-review debriefings, was distributed through email using a REDCap survey that measured demographic variables and items from the Moral Distress

Scale for Health Care Professionals (MDS-HP). The MDS-HP included 21 items focused on possible situations that can cause moral distress. The items were repeated twice in the survey, once to have participants evaluate the rate of frequency those situations have been experienced and secondly the level of disturbance created by those situations. Sample situations included witnessing healthcare providers giving "false hope" to families, initiating extensive life-saving actions when the one believes they may only be prolonging death, and having to continue to participate in care for a hopelessly ill person who is being sustained on a ventilator or ECMO when no one will decide to withdraw support. Scores were multiplied to obtain a composite number for each of the 21 situations, then a summative score was created yielding a maximum potential score of 336 (Hamric et al., 2012; Allen & Butler, 2016).

Moral distress is associated with burnout and decreased rates of nurse retention; therefore, two questions were asked related to desire to leave the nursing profession. The final question was related to probability of abandonment of the nursing profession. The reliability and validity of this scale was documented in 2012 when the MDS was revised to include other questions that can be used in multiple healthcare settings and with a variety of care providers (Hamric et al., 2012; Ramos et al., 2016). Cronbach's alphas for this sample were 0.88 for the pre and 0.89 for the post-survey.

The Moral Distress Thermometer (MDT) was used to measure" acute" MD. It is a one question replica of a thermometer with increasing numbers that correlate with an increasing level of moral distress. Due to the length of the MDS-HP, Wocial & Weaver (2013) believed there could be a reliable, more simplistic scale of measurement that would not overwhelm users. Thus, the MDT was designed. Because of ease of use, "the MDT may be useful for rapid measurement of MD and tracking changes to MD over time" (Wocial & Weaver, 2013, p. 172). Permission was

obtained via email correspondence from the authors of both scales. A replica post-assessment was then administered after the attendance of two case review debriefings.

Data Analysis

Data included in the analysis was collected from surveys completed by participants who met all study requirements including pre-intervention surveys, attendance in two case-review debriefings and post-intervention surveys. Demographic survey data was analyzed using descriptive statistics, including means, standard deviations, and percentages. Outcome variables for both tools were analyzed using a paired sample t-test. SPSS version 28 was used to perform statistical analysis and statistical significance was considered a p-value less than or equal to .05.

Results

Sample Characteristics

Twenty participants completed the pre-survey. Of these participants, 90% were Caucasian and 65% were female. The mean age was 32.1 years (SD=6.1). The average years for nursing experience was 6.5 years (SD =3.7) years and average years of experience working with ECMO patients was 4.6 years (SD =2.4).

Findings

Based on a potential range of scores from 0-336, the MDS-HP pre-intervention mean was 134.0 (SD=44.8) and the post-intervention mean was 131.8 (SD=44.4). The overall MDS-HP score did not change significantly over time (p=.84, see Table 2). For the MDT thermometer scale (range of 1 to 10), there was a significant decrease in distress over time as indicated by an overall MDT score of 7.7 (SD=0.8) pre-intervention and 6.1 (SD=1.6) post-intervention (p-value = <.001). There was no change in the percent of nurse who said they had considered leaving their position

in the pre and post surveys. In both samples, almost half reported considering leaving (47.4% for both).

Dimensions of the MDS-HP included frequency with which participants experienced situations that may cause moral distress and the level of moral distress experienced. There was no change in the frequency of experiencing more distress between the pre- and post-intervention time periods, as indicated by a mean MDS-HP frequency dimension score of 42.55 pre-intervention and 42.53 post-intervention. The level of moral distress increased post-intervention from a mean of 57.95 prior to the intervention to a mean of 59.47 following the intervention (see Table 2).

The most common sources of moral distress reported by the participants in this study related to scenarios of continually caring for hopelessly ill patients, witnessing other healthcare providers giving "false hope" to a patient or family, following the family's wishes to continue life support even though I believe it is not in the patient's best interest, initiating life support when I think this prolongs death, and taking no action on perceived ethical issues (see Table 3). This was revealed in the discussions and confirmed by the pre and post surveys.

Discussion

The purpose of this study was to evaluate the effect of case-review debriefing on moral distress in ECMO nurses. The findings suggest that the two case-review debriefings did not mitigate moral distress in the long-term but helped to decrease distress about challenging patient care situations in the short-term. The case review debriefing did not lead to increased intentions to remain in one's job as indicated by the fact that the percent of nurses who had considered abandoning the profession did not change from pre- to post-intervention. All 19 participants verbalized during their last discussion that they would like to continue with debriefings, with most saying quarterly debriefing would be the best time frame.

Participants in this study had an average moral distress score of 134, pre-survey and 131.8 post-survey, which was somewhat different from what has been reported in the literature. In a study conducted by Hamric et al. (2012), moral distress was 91.5 (n=169). Allen et al. (2013) found that moral distress scores ranged from 0 to 214 for nurses (n=207), with nurse practitioners having the highest mean score. Other researchers have reported moral distress scores between 70 and 80 for registered nurses working in the intensive care unit (pre-pandemic) (Dodek et al., 2015; Whitehead et al., 2015). Moral Distress is damaging to nurses as it contributes to burnout, substance abuse, depression, frustration at work and abandonment of the profession. It can also be harmful to patients as nurses withdraw from optimal care to avoid attachment and advocacy of patient care situations, affecting quality and safety. Hamric et al. found that nurses who had higher moral distress scores were more likely to leave their position.

The case-review debriefings have the potential to be triggering events themselves as emotionally difficult topics are discussed (Imbulana, et al., 2021) Two participants indicated that they felt more distressed due to hearing their colleagues reveal the depth of distress they had been experiencing. The fact that these case review debriefings could have led to an increased level of moral distress was illustrated by the increase in level of moral distress post-intervention (57.95 pre to 59.47 post). Some studies have inferred that as participants increase their own self-awareness, and bear witness to their colleagues' suffering, this could increase *short-term* moral distress scores (Tolbert et al., 2021; Williams et al., 2022).

Alternately, by exploring one's own moral distress, acknowledging it, and then discussing it with colleagues, participants may become more self-aware. This awareness and acknowledgement can begin the processing of distressing events and ultimately decrease the effects of moral distress.

Participants revealed during the debriefing discussions that the scenarios in which they experienced the highest levels of moral distress were related to witnessing healthcare providers give "false hope" to patients and family, continuing life-saving treatments when they believed it was only prolonging death and suffering, and the lack of autonomy related to the continuation of such care because no one would make the decision to withdraw.

Implications for Practice, Education, Policy, and Research

This study has several implications. First, it is critically important that nursing leadership acknowledge the impact of high moral distress on nurses and implement measures to mitigate the level of distress. More study needs to be done to determine if case review debriefings is an effective mitigation factor. Next steps could include a longitudinal study on how debriefings influence new nurses during orientation and the impact on employee satisfaction scores. Leadership investment in this intervention could show staff they are valued; patient care outcomes could improve and turnover costs to organizations could be mitigated. The impact of moral distress on nurses nation-wide is important for policy considerations. The American Association of Critical Care Nurses (n. d.) has created multiple resources for assisting nurses in dealing with moral distress, and more work focused around mitigation of moral distress needs to continue to be done.

Limitations

This project had several limitations that could prohibit generalization of the results, primarily the small sample size. As the primary interest was to focus on nurses caring for ECMO patients, there was not a "control" population of critical care nurses who do not care for such patients. The timeframe could also have limited efficacy as several debriefings were scheduled over 12 weeks to give all participants options to attend. There is no evidence to indicate an ideal timeframe to temper moral distress. Despite overall decreasing COVID patient numbers, the

pandemic continues for ECMO nurses who have seen little decrease in the number of patients requiring ECMO. It is possible that a decrease in MDS-HP scores was not possible due to the continuing influx of referrals and difficult patient situations.

The possibility of the Hawthorne Effect on MDT scores must be considered in this small sample size. The Hawthorne Effect is the tendency of some individuals to alter their behavior in response to the awareness of being observed (Prera, A., 2021). Though the validity of the Hawthorne Effect has fluctuated throughout the years, it can be possible in smaller studies where the subjects are known to the researcher. Further research could focus on a longer study to gauge how moral distress scores could change over time. More research on the impact of moral distress mitigation strategies could also focus on the impact on nurse satisfaction and retention rates.

Conclusion

The purpose of this study was to evaluate the effect of case-review debriefings on moral distress in ECMO nurses. Moral Distress persists among nurses who regularly care for critically ill patients on Extra-Corporeal Membrane Oxygenation (Johnson-Coyle et al., 2016; Wordingham et al., 2019). Implementing interventions, such as debriefings, may increase awareness, create opportunities for peers to engage in increase communication among coworkers, and illuminate resources available for helping to mitigate moral distress. These debriefings led to a reduction in moral distress for short periods of time as indicated by the scores on the MDT, but it is undetermined how long this lasted due to the demonstrated increase in level of moral distress as measured by the MDS-HP post-intervention. More research needs to be done to better understand the impact of case review debriefings on moral distress. Developing strategies and providing opportunities to mitigate moral distress is crucial to a healthy future nursing workforce.

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Table 1. *Descriptive summary of nurse demographics (N = 20)*

	n (%) or mean (SD)
Age	32.1 (6.1)
Race	
Asian	1 (5.0%)
Black	1 (5.0%)
White	18 (90%)
Gender	
Female	13(65%)
Male	7(35%)
Years as a registered nurse	32.1 (6.1)
Years as an ECMO nurse	4.6 (2.4)

Table 2. *Comparison of moral distress pre- and post-intervention (n = 19)*

	Pre- intervention *Mean* (SD) or *n* (%)	Post- intervention *Mean* (SD) or *n* (%)	*p*
Moral distress (MD) score (Potential range 0-336)	134.0 (44.8)	131.8 (44.4)	.84
Frequency of experiencing MD (Potential range 21-84)	42.55 (SD 8.61)	42.53 (10.66)	
Level of MD (Potential range 21-84)	57.95 (15.18)	59.47 (14.15)	
Distress thermometer (Potential range 0-10)	7.7 (0.8)	6.1 (1.6)	<.001
Considered leaving profession			--*
Yes	9 (47.7%)	9 (47.4%)	
No	10 (52.6%)	10 (52.6%)	

**p* value not available due to identical responses at each timepoint

Table 3. *Most common sources of moral distress pre-intervention identified by ECMO nurses at baseline (N = 19)*

Source	*Mean* (SD)
Continue to participate in care for a hopelessly ill person who is being sustained on a ventilator or ECMO when no one will make the decision to withdraw	12.9 (3.4)
Witnessing other health care providers giving "false hope" to a patient or family	12.5 (2.7)
Follow the family's wishes to continue life support even though I believe it is not in the best interest of the patient.	11.9 (4.2)
Initiate extensive lifesaving actions when I think they only prolong death	11.0 (3.7)
Take no action about a perceived ethical issue because the involved staff member or someone in a position of authority requested that I do nothing	8.2 (3.7)

Table 4. *Current consideration of abandonment of profession (n=20)*

	Yes	No
Pre (n=20)	50%	50%
Post (n=19)	47.4%	52.6%

Table 5. *Frequency of consideration of abandonment of position (n=20*

	Pre-intervention	Post-intervention
I left a position	5%	5%
I considered quitting but did not leave	65%	65%
I've never considered quitting or leaving a position	25%	25%