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A survey of moral distress and end of life care in mechanical circulatory support nurses

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A R T I C L E   I N F O

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Background: Patients receiving left ventricular assisted device (LVAD) require the expertise of specialty trained nurses referred to as VAD coordinators. The long-term use of these devices has created morally distressing situations for VAD coordinators.

Objective: This pilot study sought to explore the association between ventricular assistance device (VAD) coordinators' unique roles and responsibilities and moral distress.

Methods: An online survey was distributed to VAD coordinators through a listserv. The non-probability sample consisted of 36 nurses across the United States.

Results: Bivariate analyses identified a number of areas of difference in respondent’s levels of moral distress based on specific responsibilities associated with their role as a VAD coordinator.

Conclusion: These findings indicate team communication, competence, and location of VAD discontinuation may be important factors related to VAD coordinators’ distress. Future research is needed with larger sample sizes and continued exploration of the impact of specialized training and curricula content.

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Introduction

Moral distress gained considerable attention in nursing literature in the early 2000s. Although there is no universal agreement regarding its conceptualization, the most widely referenced is Jameton’s definition of moral distress as the negative emotional reaction that occurs when nurses feel constrained in performing in a manner they feel is morally correct. Specifically, moral distress occurs when a nurse feels a sense of responsibility yet feels unable or constrained from acting in accordance with their core beliefs or values. Moral distress has been linked with a number of negative outcomes that effect both nurses and their patients.

Constraining factors that contribute to moral distress may be conceived as internal, such as psychological responses or moral sensitivity, and/or external, such as work environmental and/or cultural factors. In the presence of internal constraints nurses may blame themselves, often leading to a variety of negative psychological, biological, and/or stress reactions. When constraints are perceived as resulting from external factors, feelings of blame turn outward. Regardless of the catalyst, these experiences may contribute to burnout, impair work satisfaction, and increase workforce turnover. McAndrew and colleagues identified multiple studies that found moral distress can contribute to nurses becoming desensitized, avoiding contact with patients and family members, and leaving the profession. In fact, intention to leave a position or having left a position has been associated with higher scores on moral distress measures, including the Measure of Moral Distress — Health Professionals (MMD-HP). While a growing amount of evidence has supported the connection between moral distress and negative outcomes such as burnout, less is known about factors that might contribute to increases in feelings of moral distress.

Efforts to elucidate a better understanding of the construct have identified a number of situational factors that contribute to moral distress. Nurses who do not feel qualified to care for their patient, or are working with coworkers they consider to be incompetent, are more likely to experience moral distress. As might be expected, many situations around end-of-life (EOL) care contribute to moral distress as well. In one study focusing on end-of-life care issues experienced by intensive care unit (ICU) nurses and physicians, nurses reported higher moral distress than physicians and were more likely to encounter familial pressure to continue unwanted medical treatments. Notably, while education is often proposed as one solution for reducing moral distress, findings are mixed as to whether targeted education and/or training in palliative care is associated with lower moral distress.
Intensive care settings are the focus of many moral distress studies. The high mortality rate, prolonged medical therapies, and high degree of nursing responsibility demanded in these settings can result in moral distressing experiences. ICU nurses consistently report higher moral distress scores than other nurse specialties and other professions. A similarly demanding arena of care where moral distress has not been examined is in the area of Mechanical Circulatory Support (MCS). MCS encompasses advanced heart failure therapies, including left ventricular assisted devices (LVADs). LVADs are electrical/battery-operated pumps implanted in the left ventricle of the heart that reroute the blood supply when the left ventricle is failing. Registered nurses (RNs) and advanced practice nurses (APNs) who specialize in MCS for heart patients, commonly called Ventricular Assisted Device (VAD) coordinators, hold distinct roles in the health care industry. Despite the unique nature of the area of practice, there is no universal training required for nurses to become specialized in VAD care and, overall, our knowledge of the role responsibilities and demands associated with this specialty is limited.

As members of the VAD team, VAD coordinators manage highly technical medical equipment in addition to providing an array of nursing care in inpatient and outpatient settings. VAD nurses coordinate care for patients receiving VADs, provide VAD-related education to the patient and her/his family, and provide continuous monitoring of the patient’s health and the functioning of the device. For patients who are not candidates for a heart transplant, they may be considered for an LVAD or decline advanced therapies. Notably, there is no cure for heart failure other than a heart transplant and only 35% of patients with a LVAD as a destination therapy live five years post-implant. Because of their knowledge of the patient and equipment, VAD coordinators are often faced with the responsibility of having to turn off the device to allow natural death. How these roles and responsibilities relate to moral distress experienced by VAD coordinators is unknown.

The purpose of this pilot study is to explore moral distress among a sample of VAD coordinators. Specifically, the study examines the association between moral distress and some of VAD coordinators’ unique roles and responsibilities, including engaging in palliative and/or end-of-life care, discontinuing LVAD pump use in different patient care settings (e.g., home, hospital), and/or facilitating conversations concerning termination of LVAD use. Additionally, guided by past research, the relationship between moral distress and training and moral distress and employment-related factors associated with burnout are considered.

Given the lack of research involving VAD coordinators, this pilot study sought to generate support for future hypothesis testing. Thus, guided by extant literature, data from a non-probability sample of VAD coordinators was used to explore the following hypothesized relationships:

1. The relationship between providing end-of-life care and levels of moral distress. Past research suggests that those engaged in EOL care will experience higher levels of moral distress.
2. The relationship between taking action to turn off pumps in the home setting, by phone, or in the hospital and levels of moral distress. Given that the process of turning off the LVAD is the ultimate last step in EOL patient care, it is expected that VAD coordinators who engage in this action will have higher levels of moral distress.
3. The relationship between receiving “formal” VAD orientation and levels of moral distress.
4. The relationship between receiving palliative training and levels of moral distress.
5. The relationship between moral distress and employment-related outcomes provides some support for construct validity in this largely unstudied population. It is expected that those who report higher levels of moral distress will be more likely to have left or plan to leave a position due to that distress.

Methods

Study design and data collection

A cross-sectional self-report survey design was used. An anonymous, internet-based questionnaire was sent to VAD coordinators across the United States using Qualtrics, an electronic survey program. Recruitment began with the MCS Collaboration Group listserv administrator distributing an e-mail invitation to all listserv members. The MCS Collaboration Group is an online restricted group for VAD coordinators. Listserv members were encouraged to share the link with other VAD coordinators as well. The online link was available for six weeks (September 11, 2018 – October 17, 2018). This study was approved by the Institutional Review Board at the authors’ institution.

Sample

The non-probability sample for this study consisted of 36 VAD coordinators from across the United States. As of October 2018, there are 174 Centers for Medicare & Medicaid Services-approved (CMS-approved) VAD centers registered with cmsgov; however, the size of the VAD-coordinator population is unknown as there is no registrar or data source to document all VAD registered nurses (RNs) or advanced practice nurses (APNs).

Measures

The internet-based questionnaire consisted of closed-ended items addressing three core areas: participant characteristics; VAD coordinator roles, responsibilities and training (e.g., provide palliative care, turn off LVAD, received formal VAD training; and moral distress. Participant characteristics included age (in years), gender (female, male), race/ethnicity (African-American/Black, Hispanic Non-white, Asian, Caucasian/White, Hispanic/White, Native American or Alaskan Native, Native Hawaiian or other Pacific Islander, Other), professional license (Registered Nurse or Advanced Practice Nurse), and years of practice. Finally, given the body of research that consistently connects moral distress to burnout, participants were asked to indicate their history of or intention to leave their position based on moral distress (No, I have never considered leaving or left a position; Yes, I considered leaving, but did not leave; Yes, I left a position).

Moral distress

Moral distress, the dependent variable of interest, was measured using the Measure of Moral Distress for Healthcare Professionals (MMD-HP). The MMD-HP consists of 27 items identifying causes of moral distress. For each item, participants are asked to use a five-point Likert-type scale (0 – 4) to rank the frequency of experiencing the identified cause and the intensity of moral distress experienced as a result of that event. Coding of MMD-HP results in the creation of 4 scores: a distress score (0 – 108), and intensity score (0 – 108), an item-composite score based on multiplying frequency by intensity (0 – 16/Item), and an overall moral distress score based on the sum of the 27-item composite scores (0 – 432). Items that have never been experienced or not seen as distressing do not contribute to the total moral distress score. The MMD-HP was determined to have good internal consistency (α = 0.93) as well as concurrent validity (i.e.
intention to leave employment) in a sample of 653 healthcare professionals involved in direct patient care.\(^{11}\)

In addition to confirming the reliability of the total MMD-HP scale, Epstein et al. conducted an exploratory factor analysis that identified a four-factor structure: Factor 1 – system-level; Factor 2 – clinical/patient-level; Factor 3 – team-level, within-team compromises to integrity that might feel personally threatening; and Factor 4 – team-level, breakdown in communication.\(^{11}\) Although the small sample size precluded conducting a confirmatory factor analysis of the 27 items, based on Epstein et al.’s previous findings, Cronbach’s alphas were computed for each of the four factors. Cronbach’s alphas for the current sample were as follows: Factor 1 $\alpha = 0.889$, 8 items; Factor 2 $\alpha = 0.868$, 6 items; Factor 3 $\alpha = 0.841$, 7 items; and Factor 4 $\alpha = 0.906$, 6 items. All reliability coefficients were in a range considered to be very good (0.80–0.89). Factor scores were computed by summing items and divided by the number of items for each factor.

Statistical analysis

All analysis was performed using SPSS 26, with a p-value $<0.05$ considered to be statistically significant. Descriptive statistics (means and standard deviations for continuous measures and frequencies and percentages for categorical variables) were calculated for all respondent characteristics and study variables. One outlier (MMD-HP Total score $>300$) was removed from the analyses, thus all bivariate analyses are based on a sample of 35 VAD coordinators. Pearson’s $r$ correlation was computed the bivariate relationship between factor subscale scores. Moral distress is the dependent variable for all analyses involving VAD coordinator roles and responsibilities and training, with separate analyses conducted using Total MMD-HP and each of the four factor subscales. Separate t-tests examined responsibilities of VAD coordinators, training in palliative/EOL care and orientation to VAD care as predictor of moral distress. A minimum of 5 cases per group were required for all t-test. The Levene’s test was used to assess equality of variance for all t-tests. A one-way analysis of variance (ANOVA) was used to examine group differences in moral distress related to employment decisions (never considered leaving position; considered leaving position, but did not leave; left position due to moral distress).

Results

Sample characteristics

The study included a total of 36 participants who were either registered nurses ($n = 25, 69.4\%$) or advanced practice nurses ($n = 11, 30.6\%$) employed at least part time at a hospital that implants and manages ventricular assisted devices. The sample consisted of mostly Caucasian ($n = 33, 91.7\%$) females ($n = 28, 77.8\%$) in their mid-40s ($M = 46.88, SD, 10.34, N = 33$). On average, participants had been in nursing practice for 14.39 years ($SD = 5.66, min = 4$ years, max = 27 years). Study participants worked in hospitals which implanted on average 35 VADs in 2017 ($M = 35.39, SD = 33.13, min = 1, max = 150$).

Moral distress

Total moral distress scores ranged from 2 to 334 with an average score of 126 ($SD = 75.42$). An examination of individual items’ scores (range from 0 to 4) found average scores ranging from a low of 0.67 to a high of 2.28 for “following family’s insistence to continue aggressive treatment when not in patient’s best interest” ($M = 2.28, SD = 1.03$). Average factor frequency scores ranged from 0.91 (Factor 3) to 1.72 (Factor 2) and factor intensity scores ranged from 2.33 (Factor 3) to 2.91 (Factor 2). All bivariate correlations for the four factors were significant at $p < .001$, with Pearson’s $r$ ranging from 0.594 (Clinical-level * team-level/threat) to 0.753 (system-level * team-level/communication). Bivariate analyses examined the correlation (Pearson’s $r$) between moral distress (Total moral distress and all factor scores) for each of the following: participant’s age, years of nursing practice, and number of VAD implants at hospital. Although a consistent inverse data trend was identified for both age and years of practice, none of the relationships reached statistically significant at $p \leq .05$.

Table 1

| Responsibility                  | Total                     | Factor 1         | Factor 2         | Factor 3          | Factor 4          |
|---------------------------------|---------------------------|------------------|------------------|-------------------|-------------------|
| Palliative care                 | 119.6 (69.5)              | 1.43 (0.91)      | 1.59 (0.85)      | 0.90 (0.70)       | 1.66 (0.98)       |
| Yes 30.38%                      |                            |                  |                  |                   |                   |
| No 6 (16.7)                     | 152.2 (101.7)             | 1.69 (1.16)      | 2.36 (0.66)**    | 1.00 (1.03)       | 1.61 (1.21)       |
| EOL care                        | 121.7 (75.4)              | 1.46 (0.96)      | 1.72 (0.88)      | 0.89 (0.77)       | 1.58 (0.99)       |
| Yes 34.94%                      | 200.0 (0.00)              | 1.81 (0.27)      | 1.75 (0.35)      | 1.29 (0.20)       | 2.83 (0.00)**     |
| No 2 (5.6)                      |                            |                  |                  |                   |                   |
| Discuss turning VAD off         | 121.3 (71.7)              | 1.41 (0.84)      | 1.66 (0.75)      | 0.89 (0.72)       | 1.63 (0.91)       |
| Yes 27 (75.0)                   | 140.0 (88.8)              | 1.68 (1.22)      | 1.91 (1.16)      | 0.98 (0.89)       | 1.70 (1.32)       |
| No 9 (25.0)                     |                            |                  |                  |                   |                   |
| Turn VAD off by phone           | 135.0 (79.4)              | 1.63 (0.96)      | 1.82 (0.87)      | 1.07 (0.79)**     | 1.83 (1.02)       |
| Yes 23 (63.9)                   | 110.2 (68.0)              | 1.20 (0.87)      | 1.55 (0.85)      | 0.63 (0.61)       | 1.32 (0.93)       |
| No 13 (36.1)                    |                            |                  |                  |                   |                   |
| Turn VAD off in hospital        | 125.8 (77.2)              | 1.56 (0.96)      | 1.76 (0.90)      | 0.91 (0.78)       | 1.64 (1.01)       |
| Yes 29 (80.6)                   | 127.0 (73.2)              | 1.14 (0.85)      | 1.57 (0.72)      | 0.94 (0.67)       | 1.67 (1.05)       |
| No 7 (19.4)                     |                            |                  |                  |                   |                   |
| Turn VAD off at home            | 150.6 (74.4)              | 1.93 (0.78)**    | 1.85 (0.78)      | 1.11 (0.80)       | 2.10 (0.75)**     |
| Yes 13 (37.1)                   | 116.1 (73.1)              | 1.27 (0.93)      | 1.71 (0.86)      | 0.84 (0.71)       | 1.42 (1.07)       |
| No 22 (62.9)                    |                            |                  |                  |                   |                   |
| Formal VAD training             | 118.4 (71.0)              | 1.38 (0.88)      | 1.48 (0.83)      | 0.94 (0.81)       | 1.53 (0.92)       |
| Yes 18 (50.0)                   | 133.6 (80.9)              | 1.57 (1.01)      | 1.96 (0.84)      | 0.89 (0.71)       | 1.77 (1.10)       |
| Palliative/EOL training         | 141.1 (66.1)              | 1.63 (0.92)      | 1.87 (0.92)      | 1.03 (0.80)       | 1.98 (0.86)       |
| Yes 9 (25.0)                    | 121.0 (78.8)              | 1.43 (0.96)      | 1.67 (0.85)      | 0.87 (0.74)       | 1.54 (1.04)       |
| No 27 (75.0)                    |                            |                  |                  |                   |                   |

$M = \text{mean}; SD = \text{standard deviation}; \sigma = \text{No t-test analysis was conducted due to insufficient data.}$

\(** p < .05\)

\(* p < .10\)
Moral distress and VAD coordinator roles and responsibilities

The first two hypotheses focused on the relationship between VAD coordinator roles and responsibilities and moral distress. Table 1 provides a summary of VAD coordinators’ responsibilities addressed in these analyses. A series of t-tests found no significant group differences found in total moral distress scores based on end-of-life care responsibilities.

Separate t-tests examining the relationship between roles and responsibilities and each of the four moral distress frequency factors identified five significant relationships. Two items associated with turning off the LVAD identified significantly higher MMD-HP scores for VAD coordinators who engaged in these activities. Respondents who directed the turning off of an LVAD by phone had significantly higher Factor 3 (team-level) scores than those who did not engage in this action (1.07 vs. 0.63, respectively). For both Factor 1 (system-level) and Factor 4 (team-level/communication), nurses who had to turn off a LVAD in the patient’s home reported significantly higher levels of moral distress than those who did not take this action. No significant differences in intensity were identified for any of the four factors.

A t-test examining differences in MMD-HP factor scores for those who did/did not provide palliative care identified one significant difference. Compared to those who did provide palliative care, those who did not provide such care reported significantly higher Factor 2 scores (2.36 and 1.59, respectively). For Mean differences for those who did/did not provide EOL care were not assessed due to the small number of respondents (n = 2) who indicated that they did not provide EOL care.

Moral distress and training and orientation

Hypotheses 3 and 4 addressed the potential impact of training on moral distress. Separate t-tests comparing those who did/did not receive palliative care/EOL care training and those who did/did not receive special VAD coordinator-related orientation found no significant differences in the Total Moral Distress score for the two groups. Although not significant, data trends found higher moral distress scores among those who had received palliative/EOL care training and lower among those who had received VAD-coordinator orientation. No significant differences for palliative or EOL care training or formal VAD training were found. For formal VAD training, the difference average MMD-HP scores approached significance (p = .09) for Factor 2 (clinical/patient). See Table 1 for a summary of these analyses.

Moral distress and employment decisions

The final set of analyses focused on the relationship between moral distress and VAD coordinators decisions about employment. A one-way ANOVA analysis examining group differences (No, I did not leave; Yes, I thought about leaving, but did not; I left a position) for the total moral distress score revealed a statistically significant main effect, Brown-Forsythe (df = 2, 15.78) = 4.73, p ≤ .05. Post hoc comparisons, using the Tukey HSD post-hoc procedure indicated VAD coordinators who had never considered leaving or never left a position (M = 72.56, SD= 52.22) had a significantly (p ≤ .05) lower moral distress score than VAD coordinators who had considered leaving, but did not (M = 142.95, SD= 65.95). There were no significant differences between those who had considered leaving or never left with the group who had left a position due to moral distress (M = 109.40, SD= 58.96).

ANOVA analyses were conducted to better understand specific factors that might contribute to decisions about staying or leaving a position. Several significant factor-level differences were identified for both frequency and intensity (see Table 2). For Factor 1 frequency

| Factor | Frequency | No | Yes, but did not leave | p-value |
|--------|-----------|----|------------------------|---------|
| Factor 1 | 0.76 (0.76) | 1.75 (0.83) | 1.18 (0.59) | .011 |
| Factor 2 | 1.67 (0.92) | 1.71 (0.78) | 1.53 (1.01) | .912 |
| Factor 3 | 0.52 (0.59) | 1.07 (0.73) | 0.63 (0.58) | .081 |
| Factor 4 | 0.93 (1.01) | 1.83 (0.88) | 1.80 (0.84) | .051 |

(F = 5.64, p = .008), VAD coordinators who had considered leaving, but had not left, had significantly higher MMD-HP scores than those who had never considered leaving a position due to moral distress. The Factor 1 mean difference for intensity was not significant at the 0.05 level, however, its p-value of 0.066 is noted in Table 2. Factor 2 produced no significant differences for either frequency or intensity.

Factor 3 and Factor 4 represent two different team-level dimensions, feeling threatened (Factor 3) and breakdown in communications (Factor 4). For Factor 3 frequency, differences approached significance at the p = .10 level for respondents who said they thought about leaving, but had not versus those who had never left or thought about leaving a position due to moral distress (F = 2.80, p = .075). No Factor 3 differences in intensity were identified.

Factor 4 items represent a team-level issues with a breakdown in communication. For frequency, both communication and continuity resulted in significant differences. An examination of group differences found respondents who indicated that they had thought about leaving, but had not, had the highest mean scores for both items. Similarly, when asked if they planned to leave their current position due to moral distress, those who indicated ‘yes’ had significantly higher scores on the frequency of team communication problems (t = 2.24, p = .032).

Discussion

Anecdotally, the potential impact of working in high stress healthcare environments has never been more evident than what can be seen amidst the pandemic resulting from the global spread of COVID-19. While our understanding of that impact will unfold in the months and years ahead, the current pilot study may be prescient. Previously, moral distress has been identified as a consequence of barriers encountered by nurses working in high stress arenas of nursing care, including intensive care units, coronary care, units, and emergency rooms. Experiences of moral distress can lead to a variety of negative psychological, biological and stress reactions. With a growing number of nurses working with patients requiring intervention for end-stage heart disease, this study sought to examine moral distress among a previously unstudied group – ventricular assisted device (VAD) coordinators. VAD coordinators represent a unique subset of nursing professionals who regularly encounter the need to facilitate end-of-life decision-making and actions, while functioning within a healthcare hierarchy that often constrains their capacity to act in accordance with their personal assessment of best practice. Given their practice context, VAD coordinators not only represent an unstudied group, they also represent a group that is well-positioned to inform our understanding of factors that contribute to moral distress and its associated outcomes.

In general, LVAD recipients can be classified into two groups – those who received the device as a bridge to heart transplant and those who receive the device as a destination therapy. While the
mortality rate is high for both groups, those in the latter group are
likely to live less than five years (median).10,21 VAD coordinators
work within this reality every day. Our findings suggest that actions
associated with turning off an LVAD may be particularly impactful for
VAD coordinators. We found average MMD-HP scores were consist-
tently higher for VAD coordinators who were involved the process
of turning off the LVAD outside the hospital setting, with the highest
scores reported by those who turned off the device in a patient’s
home. It is possible that greater moral distress is associated with tak-
ing a direct action outside the institutional setting (turning the LVAD
off in the home) or directing a caregiver to turn the device off over
the phone. Further research is needed to better understand what
internal and/or external constraining factors may contribute to moral
distress in these different contexts and circumstances.

Specialized training and moral distress

In general, job-specific training is viewed as an important part of
preparing a healthcare professional for work in an area of specializa-
tion. Among our respondents, most said they provide palliative
and end-of-life care, yet the majority (75%) had not received any formal palliative
training. This deficit is considerably larger than that of Casida and Ilacqua’s 2010 study, where approximately 28% of RNs and 43%
of APNs indicated that they had not received any formal palliative and/
or end-of-life care training.15 Findings of past research that has
examined the relationship between training and moral distress have
been mixed.9,17 In the current study, while MMD-HP scores trended
higher among respondent’s who had received palliative/EOL training,
the impact of having received such training was not significant. Given
the relatively small number of respondents in the current study who
indicated they had received palliative care/EOL training (n = 9), these
findings should be viewed with caution. Data limitations of current
study notwithstanding, previous research does offer some insight
into this seemingly incongruous data trend. Based on data from a
sample of critical care nurses, Browning argued that in the face of
perceived barriers, training that serves to increase one’s knowledge
of appropriate actions to take in EOL care might contribute to create
greater moral distress due to nurses’ awareness of the most appropri-
ate actions needed in a given situation.18 Not dissimilar from our
findings on the number of VAD coordinators who had received pallia-
tive/EOL training, approximately half of the VAD coordinators in the
current study indicated that they had not received a formal orienta-
tion to this unique practice area. Notably, unlike the previously noted
trend related to training in palliative/EOL care, those who had not
received a formal VAD orientation reported consistently higher
MMD-HP scores compared to those who had received such an orien-
tation, yet these differences were not significant. Acknowledging the
potential for this lack of significance to be an artifact of small sample
size and unequal groups, a closer examination of the relationship
between specialized training and moral distress is warranted.

Burnout and moral distress

The most commonly studied outcomes associated with moral dis-
trress are associated with burnout, with higher levels of moral distress
being associated with increased likelihood of leaving or planning to
leave either one’s position or the profession as a whole. On average, moral distress scores in this sample of RNs and APNs were
higher than scores reported in previous studies using the MMD-HP to
measure moral distress.9,11,12 Consistent with past findings that moral
distress is associated with nursing turnover, we found signifi-
cantly higher levels of moral distress among VAD coordinators who
were considering leaving or had left a position due to moral distress.
Two patterns emerged that were consistent in the mean comparisons
for frequency and intensity scores across all four factors (system-
level, clinical/patient-level, team-level/threatened, and team-level/
communication). First, in line with the findings of Epstein et al., the
highest level of moral distress was reported by those who indicated
that they had considered leaving a position due to moral distress, but
ultimately had stayed.11 And second, where significant differences
were identified (and differences at p < .10 were noted), those differ-
ces were between those who had never thought about leaving a
position due to moral distress and those who had chosen to stay
despite experiencing circumstances related to moral distress. As pre-
viously noted, these decisions have important implications both for
the welfare of nurses (e.g., mental and physical health)9–9 and the
patients and families with whom they work (e.g., quality of patient
care, continuity of care).10

Implications for practice

These preliminary findings suggest a few areas that have import-
ant implications for practice. First, the greatest number of significant
findings were associated with Factor 4 – team-level communication.
This factor includes items that relate to inconsistencies in messaging
to patients, breakdowns in communication between team-members
and with patients/patients’ families (e.g., inadequate information for
informed consent), and concerns over co-worker’s competence.

Implications for future research

Despite our inability to confirm the four-factor structure of the
MMD-HP, some distinct differences in relationships between VAD
coordinator roles and responsibilities and different dimensions of the
measure were found. To further develop this instrument to increase
its utility for moral distress research, future studies need to seek
larger probability samples. For instance, our findings suggest that
taking action to discontinue use of the LVAD outside the institutional
setting is a significant source of moral distress for VAD coordinators.
It is possible that this is due in part to the more personal interaction
of being in a patient’s home or one-on-one with a family member
over the telephone, thus being less likely to feel a sense of shared
VAD-team responsibility for the action.21 The higher levels of moral
distress among this group of VAD coordinators suggests that the
sense of personal responsibility for this decision does not end with
taking the action. The implications of this finding warrant further
inquiry, both to better understand the relationship and to address
ways to mitigate the negative impact.

Research is also needed to explicate the relationship between spe-
cific EOL/palliative care training and/or VAD orientation and moral
distress. First, although sample size precluded any multivariate anal-
yses, our findings support the need to control for age and years of
nursing practice as a possible contributors to variance in moral dis-
tress. Further, given inconsistencies in research findings related to
the impact of training on moral distress, future research should con-
sider the impact of both the presence/absence of specialized training
as well as the specific content included in training curricula. For
instance, VAD-specific education/orientation generally encompasses
the basic knowledge and skills components necessary to be a VAD
coordinator. Casida and Ilacqua identified these components as
understanding the mechanics and technological aspects of an LVAD,
diagnosis and management, surgical technique, and role socialization
within the hospital.21 Finally, while we are unable to discern the spe-
cific content of any training a VAD coordinator may have received,
our findings suggest that greater attention may need to be given to
areas of communication, both in terms of communication with family
and between VAD team members.21

Central to our understanding of the experience of moral distress
among VAD coordinators is the acknowledgment that life sustaining
technology does not exist in a vacuum outside the course of other
nursing care. Research suggests that, while nurses may be distressed
by the implementation of treatment that they believed to be futile,
discontinuation of life sustaining treatment contributes to increased distress among intensive care and intensive care nurses. As more hospitals are using advanced, high technological and life sustaining treatments such as extracorporeal membrane oxygenation (ECMO), future research into the roles and well-being of these specialty trained nurses would be beneficial.

Limitations

As a pilot study, this project supports a number of areas of inquiry focused on improving our understanding of factors that contribute to moral distress among nurses and others in the healthcare arena. Our capacity to make more definitive statements about the relationships under exploration were limited by the use of non-probability sampling and the size of the final sample, however. This sample size also precluded affirming the factor structure previously identified by Epstein et al., yet the reliability scores for the computed total scale and subscales were well within a range that is considered very good.

Conclusion

Despite the aforementioned limitations, this pilot study supports future research efforts to better understand the experiences of VAD coordinators. Given VAD coordinators’ level of responsibility in withdrawing life sustaining treatments and lack of training in palliative and end-of-life care, future research examining the role of training and education at lowering moral distress scores is needed.

Declarations of Competing Interests

None.

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