

# **How Mobile Applications Can be an Effective Method of Moral Distress Intervention**

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On my honor as a University Student, I have neither given nor received  
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## **Introduction**

In the past decade, registered nurses and other healthcare professionals have repeatedly identified moral distress as a serious problem requiring urgent attention yet are still met with a lack of adequate solutions (Pauly et al., 2012). According to Hamric and Epstein, moral distress is when an individual believes that they are being involuntarily complicit in acting unethically and have little power to act differently or to change the situation. In morally distressing situations, the constraining factors preventing the individual from taking what they believe to be the ethical action are typically institutional (Hamric & Epstein, 2017). When considering the complex institutional and social problems at the root of all cases of moral distress, it is evident that there are many stakeholders and artifacts involved. Actor Network Theory (ANT) will be utilized to understand how these stakeholders interact with one another to better understand the problem and assess possible solutions.

Although the phenomenon of moral distress can be experienced by any individual, the research of this paper is focused on moral distress among nurses due to the high prevalence in the field and detrimental consequences (Perni, 2017). The consequences of untreated moral distress among nurses include greater negative perception of provided patient care, increased danger to patients, and, eventually, burnout (Henrich et al., 2017). In order to combat the institutional constraints at the root of moral distress, it is necessary to have a means to effectively report cases of moral distress to leaders within an organization who are capable of inciting institutional change. Moral distress intervention mobile applications are one method of quickly reporting moral distress, however little research has been conducted to determine the effectiveness of this method. In order to evaluate how mobile applications can incite the institutional change necessary for treatment of moral distress, the following research question

must be addressed: how is a mobile application an effective socio-technical solution for moral distress intervention for nurses?

### **Methods**

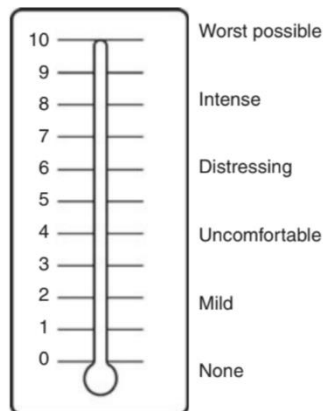
A combination of documentary research methods, interviews, and case studies was used to answer this research question by better understanding how the actors and networks interact. Documentary research was first conducted on the structure of health systems to better understand the institutions that are the workplace of nurses with moral distress and how they intervene when cases of moral distress arise. Next, the MDCS at UVA was used as a case study to more thoroughly understand exactly how intervention strategies can be implemented within health systems. This analysis was necessary because the definition of moral distress asserts that the root of the issue is typically institutional, so the policies and structure of the institution must be fully understood in order to go beyond a technological fix and address the societal and institutional factors at play. Next, the following key phrases were used to find scholarly articles addressing the topic: “moral distress,” “moral distress thermometer,” “moral distress intervention,” “mental health mobile applications,” and “moral distress in nurses.” There are no current moral distress resolution applications, therefore researching mobile applications created to address other mental health issues provided useful insight as to how a similar application for moral distress can be successful or unsuccessful. Vanessa Amos, nurse at UVA Hospital and UVA Nursing PhD student studying moral distress, was interviewed to better understand how nurses view moral distress. As a member of the UVA nursing staff, Amos can discuss the practicality of a moral distress intervention application, and how the current UVA moral distress intervention strategies are failing.

### **Background of Moral Distress**

The term ‘moral distress’ entered the mental health conversation in 1984, when it was defined in the world of nursing by Andrew Jameton to be when a nurse “knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action.” (Fourie, 2017). The definition of moral distress has evolved through ethical debate in clinical settings, and in 2008 the distinction between moral and emotional distress was made evident. Nurses can experience both moral and emotional distress, however those in morally distressing situations often feel unheard and devalued due to a moral or ethical element that is not present in emotional distress (Epstein & Delgado, 2010). Although moral distress is becoming a well-recognized phenomenon among all the healthcare professions, few evidence-based strategies have been published to address it (Hamric & Epstein, 2017). Developments for detecting moral distress include the moral distress thermometer (MDT), seen in Figure 1.

**Figure 1**

*Moral Distress Thermometer*



*Note.* The Moral Distress Thermometer, developed and psychometrically tested by Lucia Wocial and Michael Weaver is a tool proven to accurately assess levels of moral distress in nurses (Wocial, 2013).

The MDT is a screening tool to measure moral distress in nurses who practice in the hospital setting (Wocial & Weaver, 2013). The validity and effectiveness of this tool was proven

through psychometric testing and a cross-sectional survey design to compare the thermometer to the outdated Adult and Pediatric Moral Distress Scales (Wocial & Weaver, 2013). Ongoing efforts to address moral distress include the development and evaluation of Moral Distress Consultation Services (MDCSS) in hospitals including the University of Virginia Health System. The MDCS is an interprofessional unit/system-oriented approach to addressing and ameliorating moral distress that consists of a team of ethics consultants (Hamric & Epstein, 2017). Although the MDCS has seen success in treating reported cases of moral distress, its reliance upon self-reporting has kept the service from being the most effective solution for the fast-paced nursing environment.

Technological advancements over the past few decades have created new opportunities for mental health support. Mobile devices provide the public, doctors, and researchers with new methods of accessing help, monitoring progress, and increasing understanding of mental wellbeing (*Technology and the Future of Mental Health Treatment*, n.d.). Public excitement over these new opportunities have resulted in a significant increase in mental health application development. Thousands of mental health related applications have been made available on the App Store, and this number is steadily growing each year (*Technology and the Future of Mental Health Treatment*, n.d.). The COVID-19 pandemic further increased the public demand for mental health resources yet limited the availability for face-to-face support. As a result, there has been an increase in usage of alternative digital mental health options such as mobile applications and other internet-enabled assistance (Marshall et al., 2020).

## **Actor Network Theory**

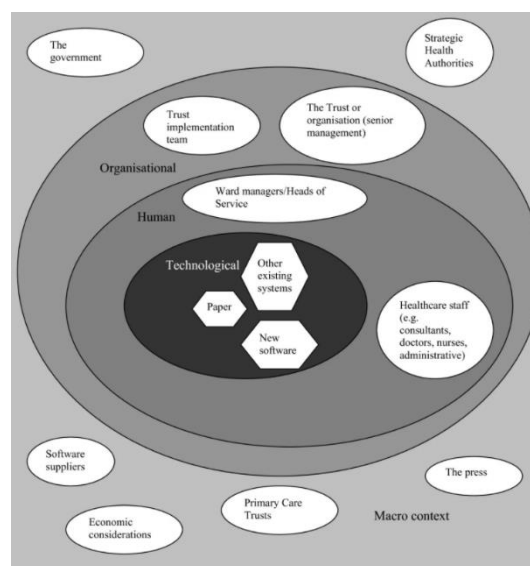
The field of Science Technology and Society (STS) explores the complex relationships between scientific knowledge, technological systems, and society (Bybee, 1987). The healthcare industry is an important part of the STS field because although scientific discovery due to technological systems have progressed the healthcare industry, society is ultimately the cause and beneficiary of all medical advancements. More specifically, this research question fits into the field of STS because it considers how the introduction of a technology can solve a problem caused by institutions of society. To determine how a mobile application is an effective socio-technical solution for moral distress intervention for nurses, the STS framework of Actor Network Theory (ANT) will be utilized. ANT is a framework for understanding and analyzing the complex relationships between the human and non-human actors in a system. The ANT framework is useful for understanding how social effects are generated as a result of these relationships and interactions (Bybee, 1987).

Since their conception of ANT in the 1980s, STS scholars Bruno Latour, Michel Callon and John Law have remained the most influential thinkers in the field of ANT (Cresswell et al., 2010). Within this framework, an actor is defined as a “source of an action regardless of its status as a human or nonhuman.” (Cresswell et al., 2010). This definition of actor is considered a radical notion that has been discussed and challenged by STS scholars who utilize this framework. Authors who use ANT have disagreed on whether or not human and non-human factors should be considered with equal weight and ability to influence the network (McLean & Hassard, 2004).

ANT is a useful tool for understanding systematic issues within the healthcare industry because it provides a picture of the dynamic relationships between actors without rejecting their inter-relatedness (Cresswell et al., 2010). ANT is important for understanding the fast-moving and constantly changing area of healthcare. The most common cause of moral distress is an institutional or technological issue, and therefore it is necessary to consider the humans, technologies, and institutions' involvement with equal weight, rather than prioritizing the human actors. ANT has been used to understand the implementation of information technology (IT) in healthcare in a report by Kathrin Cresswell et. al. The authors of this study were successfully able to categorize the actants and determine which actants make up the macro and organizational components of the network. These include the government, software suppliers, trust implementation teams, and others depicted in Figure 2 (Cresswell et al., 2010).

**Figure 2**

*Actor Network Theory applied to IT implementation in Healthcare Industry*



*Note.* Illustration of the breakdown of the human and nonhuman actors involved when using Actor Network Theory to understand the implementation of information technology (IT) in healthcare in the work of Cresswell et al. (Cresswell et al., 2010).

Although the topic of Cresswell et al.'s study aligns well with the research question of this paper, the utilization of ANT will differ in this paper. For example, for the context of this research, it is crucial that different roles among healthcare staff be separated and considered as separate actants that can influence the network. This is crucial because the relationships between nurses and their coworkers have a significant influence on a nurse's level of moral distress (Pauly et al., 2012). Additionally, Cresswell et al.'s paper specifically considers the replacement of one actor with another: paper records to electronic records, while this research is focusing on how the introduction of a new actor, a mobile application, can influence the system.

## **Results and Discussion**

A mobile application can only be an effective socio-technical solution for moral distress intervention in nurses if usage of the application incorporates experts in the field who can incite institutional change in a health system. The MDCS consists of healthcare professionals trained in moral distress and ethics consultation, who have access to the decision makers within their organization. The research in this paper finds that an MDCS service is successful at decreasing levels of moral distress when a case is brought to their attention. It is also found that nurses often do not submit cases of moral distress due to time constraints and lack of anonymity. Due to these findings, the MDCS is the most promising option of intervention strategy that can be utilized with a mobile application. Additionally, the research finds that mobile applications are appealing to the public because of their ease of use, lack of time commitment, and ability for anonymity. It is concluded that the strengths and weaknesses of these two intervention strategies, MDCS and a mobile application, complement one another in such a way that the most effective means of



moral distress intervention is to utilize both together. An application would be most effective at intervention if it streamlined the process of submission to the MDCS and allowed for nurse and patient anonymity.

### *Overview of Current Moral Distress Intervention Strategies*

Moral distress is a well-recognized phenomenon among all healthcare professionals and has received an increasing amount of research attention over the past decades (Morley et al., 2021). A review of literature finds that the current methods of moral distress intervention can be categorized into three groups: direct, indirect, and general intervention (Hamric & Epstein, 2017). Direct intervention refers to an intervention strategy that is designed specifically to address moral distress. Examples of direct intervention include the MDCS, moral distress mapping, and the American Association of Critical Care Nurses (AACN) “4a’s” approach (Dudzinski, 2016; Rushton, 2006). The MDCS is a consultation service mentioned previously, where trained consultants meet with morally distressed units and create a plan for treatment (Amos, 2022). The MDCS and its limitations will be thoroughly analyzed in subsequent sections. The moral distress map is a tool to assist clinicians identify the precise moral sources of distress in order to differentiate between distress and moral distress (Dudzinski, 2016). This tool allows healthcare professionals to better understand the underlying issue with each case of moral distress. However, when considering the map through the ANT framework, the map alone is not successful at treating the moral distress. The tool focuses on the individual or unit experiencing the moral distress yet fails to incorporate the other actors that are involved in both creating and treating cases of moral distress. The AACN developed *The 4A’s Model to Rise Above Moral Distress*, a framework for support for critical care nurses experiencing moral distress. The 4 A’s of this model are *ask, affirm, assess, and act* and represent steps of a process where healthcare

workers can recognize and address the situations, systems, policies, and practices that create moral distress (Rushton, 2006). Through the lens of ANT, the 4A's model is more useful than the moral distress map because it encourages the individual to consider the other actors involved in the system in order to solve the problem. However, this model has many limitations because it requires the user to fully understand how to correctly complete each step without external support. Although direct methods are not without limitations, these strategies have seen the most success in improving moral distress among nurses (Hamric & Epstein, 2017). Therefore, a mobile application for moral distress intervention will be most successful when utilizing direct intervention strategies.

Indirect interventions are those that focus on a separate problem but also have an impact on levels of moral distress (Hamric & Epstein, 2017). Examples of this include Unit-Based Ethics Conversations (UBECs) and the Clinical Ethics Residency program for Nurses (CERN) (Grace et al., 2014; Wocial et al., 2010). Both strategies were created by researchers to facilitate conversations and understanding of various ethical issues, not including moral distress. However, both strategies saw a decrease in moral distress levels within the organization they were implemented (Grace et al., 2014; Wocial et al., 2010). General intervention strategies target the sections of healthcare that contribute to the institutional constraints that can give rise to moral distress (Hamric & Epstein, 2017). Examples of general interventions include promoting physician-nurse interprofessional relationships through rounds and meetings, educating nurse leaders, facilitating changes in the work environment, and encouraging advocacy on behalf of patients (Hamric & Epstein, 2017). Indirect and general intervention strategies highlight the importance of using ANT to answer the research question. Successful uses of these strategies

prove that action among other actors such as doctors, researchers, and hospital policy makers can affect levels of moral distress experienced by nurses.

### *Analysis of the MDCS*

The MDCS and similar consultation services have seen success in the organizations at which they have been implemented. The MDCS at UVA will be considered as a case study for this research. The UVA MDCS is a team of consultants trained in moral distress intervention. The MDCS branched off of the Ethics Consult Service (ECS), a similar service available to patients, their loved ones, and hospital staff facing ethical issues regarding treatment (*Long-Term Care Team / UVA Health*, n.d.). The MDCS and ECS are similar in that they are both staffed by volunteer healthcare professionals with training in ethics and moral distress, consult requests are often in response to a patient event, and can include information for follow up if necessary (Hamric & Epstein, 2017). However, it is important to make the distinction between the two consult services to understand how moral distress intervention differs from general ethical intervention or support. The MDCS differs from the ECS because the goal of the MDCS is to help staff identify and address problems at a unit or system level, whereas the ECS aims to provide support resolving patient-focused ethical problems (Hamric & Epstein, 2017). The MDCS considers the other actors present in the network, while the ECS focuses specifically on the patient and/or nurse.

The MDCS was found to reduce levels of moral distress by a statistically significant amount in a study conducted by Epstein et al. (Epstein et al., 2021). Furthermore, moral distress scores for ICU and non-ICU clinicians were compared, revealing that ICU participants had a larger overall decrease in moral distress than non-ICU participants (Epstein et al., 2021). This finding is extremely relevant to determining effective moral distress intervention tools because

critical care healthcare professionals in the ICU experience higher levels of moral distress, with up to 80% of all ICU nurses experiencing the phenomenon (Mealer & Moss, 2016). Due to the high prevalence of moral distress in the ICU, it is crucial for a mobile application to facilitate improvement in nurses in this unit in order to be effective. Qualitative findings of this same study suggest that consultations with the MDCS contribute to a healthy work environment and demonstrate to the nurses that the organization is willing to invest time and effort into solving problems related to moral distress (Epstein et al., 2021). This positive perception of the MDCS proves that even in situations where the MDCS cannot resolve an issue, the presence of the service has positive effects on the well-being of the unit, demonstrating how incorporating the MDCS in a moral distress intervention application can result in a variety of valuable effects.

Although the MDCS has seen success in the UVA Health System, there are many limitations to this method of moral distress intervention. Consults with the ECS occasionally result in requests for the MDCS, however MDCS consult requests are most often initiated by a unit manager or advanced practice nurse (APN) who recognizes staff distress (Hamric & Epstein, 2017). This method of requesting consultation relies on supervisors within an organization to have a complete understanding of the well-being of their staff, demonstrating a limitation of this method. The MDCS was shown to be effective in decreasing the moral distress scores before and after consultation, however the success of the MDCS is dependent upon the effectiveness of the staff's ability to report cases of moral distress and request consultation. Therefore, the effectiveness of the MDCS could be greatly improved by introducing a more effective means of reporting cases of distress, such as a mobile application accessible to all nurses. Furthermore, the MDCS is limited in its funding and available consultants, as all consultants are volunteers without pay (Hamric & Epstein, 2017). Developing and maintaining a service such as the MDCS

requires significant time commitment to train consultants, advertise the service, receive support from administrators, and carry out the service (Epstein et al., 2021). According to ANT, the entire network is impacted by the addition of new actors, meaning that the creation of a MDCS requires the ongoing support from institutional leadership in order to successfully integrate a MDCS into a health system. Lastly, another limitation of the MDCS is that it does not have a system for collecting names of the individual, providing benefits in terms of privacy and security, however this can make follow up intervention impossible, potentially rendering the service useless in such a case. Digitizing the records in the MDCS via use of a mobile application presents one method of maintaining user privacy and anonymity while still providing a means to reach out to the individual post consultation. The ability of digital recordkeeping to provide both privacy and post consultation demonstrates that utilizing the MDCS alongside a mobile application would be more effective than the MDCS alone.

#### *Review of Mental Health and Wellness Mobile Applications*

Although there has been a steady rise in the amount of available mobile applications for psychosocial self-care and stress management, very few have evidence of their effectiveness. More specifically, only 2.08% of publicly available mental health, wellness, and stress management mobile applications have peer reviewed evidence of feasibility and efficacy (Lau et al., 2020). Further research of mental health and wellness mobile applications for this paper focuses on the 2.08% of publicly available applications that have valid evidence as to their effectiveness and feasibility. The review of applications shows that of the five most common treatments features and components for all applications, the only evidence-based treatment feature was mindfulness-meditation (Lau et al., 2020). There is growing evidence for the positive impact of mindfulness-meditation on general wellbeing, and studies demonstrate that

mindfulness exercises reduce perceived levels of moral distress in real time (Mani et al., 2015; Vaclavik et al., 2018). Considering the framework of ANT, mindfulness meditation is not an effective intervention strategy because it does not incorporate all actors, but rather focuses on the perception of distress by one single actor, the individual experiencing moral distress. However, much success has been seen in implementing mindfulness meditation exercises into mobile applications, suggesting that mindfulness could successfully be implemented into a mobile application and contribute to the overall decrease in moral distress (van Emmerik et al., 2018). Specifically, studies on the efficacy of mindfulness-based mobile applications show that introduction of the application resulted in significant and substantial increases of mindfulness for the user, as well as improvements of general psychological, social, and environmental quality of life (van Emmerik et al., 2018). These findings demonstrate how mindfulness meditation through a mobile application can provide real time resources for improving levels of moral distress.

Further success in the field of mental health mobile applications is seen in the literature review conducted by researchers Lal and Adair, where respondents claim that they were more likely to initiate mental health support online due to the convenience, privacy, and anonymity of mobile devices (Lal & Adair, 2014). Due to the reliance of the MDCS upon self-reporting, the previous finding suggests that the introduction of a mobile application could increase the effectiveness of the MDCS by increasing the likelihood of the users to request a consultation via an online platform. In terms of limitations, the most common concern for using mobile applications as a method of treatment for mental health and wellness related issues is that the applications will replace conventional services or divert attention and funding away from conventional services (Christensen et al., 2002). Additionally, according to a study conducted by Cohen et al., most participants were willing to use nontraditional mental health services,

including mobile applications, however traditional mental health services are preferred as a first-choice treatment (Cohen et al., 2021). The public's preference for traditional intervention further supports the combination of a mobile application alongside a service such as the MDCS to treat moral distress because it refrains from replacing the conventional services like the MDCS, but rather works alongside the traditional services.

#### *Utilization of a Mobile Application Alongside the MDCS*

The above research provides the information necessary to answer the research question of how a mobile application can be an effective method of moral distress intervention. Through the study of successful and unsuccessful moral distress intervention strategies, it is clear that because moral distress is an interprofessional issue, a mobile application alone acts as a technological fix that does not incite the necessary change to actually solve the problem. Therefore, the most effective means of utilizing a mobile application as a method of moral distress intervention is by having an application that incorporates direct intervention strategies to address the problem at the unit, system, and organizational levels. Incorporating a service such as the MDCS that has the resources to incite institutional change acknowledges the notion that all actors within the moral distress and healthcare network impact one another, and the entire system needs to be considered to combat moral distress. However, a mobile application still contributes to the overall effectiveness of the moral distress intervention because it can increase the likelihood of submission, and therefore streamline the process of accessing the MDCS. A mobile application will be most effective if it acts as a platform for nurses to record moral distress scores and MDCS consultants or other individuals with authority within the organization to monitor these scores. Streamlining the process of reporting morally distressing situations to authorities is extremely important when considering the fast-paced work environment nurses experience, as

they have very limited time to submit requests to the MDCS on their own. Therefore, it is necessary for the mobile application to require very little time to submit moral distress scores in order to be effective. Lastly, it is crucial that the application be up to security standards, so that it does not violate HIPPA and/or compromise the privacy of involved parties. In this way, a moral distress application acts to better connect the actors in the network so that necessary institutional change can be made.

### *Limitations and Future Research*

The findings of this study must be seen in light of some limitations. Firstly, the subjectivity of moral distress causes many of the studies regarding moral distress intervention strategies to lack scientific rigor (Morley et al., 2021). Designing research studies that assess the effectiveness of an intervention strategy relies on the subjects to accurately portray their levels of moral distress, which is impossible to verify. The subjectivity of this ethical phenomenon requires interventions that are flexible to an individual's needs, meaning generalizations about effectiveness of treatment in one study may not reflect the views of the entire nursing population. This inability to generalize highlights the next limitation of the study, the case study on UVA's MDCS. While this study provides useful information as to how a consult service can be successful, the research is focused on the UVA Health System and does not guarantee that the same service will be successful in all hospitals and health systems. Lastly, there is limited available research on the effectiveness of mental health related mobile applications. As previously stated, the review of mobile applications focuses on the 2% of applications that had peer reviewed evidence of efficacy or feasibility. The commercial benefits and demand for mental health mobile applications has resulted in a large increase of available applications, however the number of reviewed and evidence-based applications has not increased to the same



degree (Lau et al., 2020). Therefore, there may be effective and feasible applications worth studying that have been excluded from this research due to the lack of formal research conducted on the applications success.

Each of the mentioned limitations present opportunities for future research in this field. Conducting a study that introduces and compares MDCSs implemented in various health systems across the country will provide a better understanding of what makes a consultation service effective, and how such a service can be best used alongside a mobile application. Creating a model of what aspects of a MDCS are successful in all studied cases would have the potential to serve as a blueprint for implementation of the service in all health systems. Furthermore, the development of a moral distress mobile application should be completed in order to explicitly study its effectiveness within health systems. This would provide the opportunity for iterative testing, where nurses can provide feedback to adapt the application to best serve each individual organization. Completing this research would provide the mental health related mobile application field with another scientifically backed application for further analysis of this growing field.

### **Conclusion**

In conclusion, a mobile application can be most effective as a socio-technical solution for moral distress intervention when it can access all relevant actors and incite institutional change, provide anonymity, and is easy and time efficient for nurses to use. This can be done by using an application as a means of submitting reports and consulting requests to a MDCS. This is the most effective solution when considered through the ANT framework because the MDCS has the ability to access all actors that contribute to or are affected by moral distress in nurses. Employing this solution can result in the successful resolution of moral distress cases before they

escalate to the point of concern. Improved moral distress intervention can lead to reduced levels of burnout and employee turnover within an organization and improved patient care. In a time where the United States is experiencing a detrimental nursing shortage, reducing employee turnout through improved moral distress intervention has extremely significant implications on the health and wellbeing of this nation.

## Work Cited

- Amos, Vanessa. "Moral Distress within University of Virginia Health System." 23 Feb. 2022.
- Bybee, R. W. (1987). Science Education and the Science-Technology-Society (S-T-S) Theme. *Science Education*, 71(5), 667–683.
- Christensen, H., Griffiths, K., & Evans, K. (2002). E-mental health in Australia: Implications of the internet and related technologies for policy: (677122010-001). *Undefined*.  
<https://www.semanticscholar.org/paper/E-mental-health-in-Australia%3A-Implications-of-the-Christensen-Griffiths/891b2e4683f4ffa4c45e5025a4f566d9d9860f6bhttps://doi.org/10.1097/NHL.0b013e3181de18a2>
- Cohen, K. A., Stiles-Shields, C., Winkvist, N., & Lattie, E. G. (2021). Traditional and Nontraditional Mental Healthcare Services: Usage and Preferences Among Adolescents and Younger Adults. *The Journal of Behavioral Health Services & Research*, 48(4), 537–553. <https://doi.org/10.1007/s11414-020-09746-w>
- Cresswell, K. M., Worth, A., & Sheikh, A. (2010). Actor-Network Theory and its role in understanding the implementation of information technology developments in healthcare. *BMC Medical Informatics and Decision Making*, 10(1), 67. <https://doi.org/10.1186/1472-6947-10-67>
- Dudzinski, D. M. (2016). Navigating moral distress using the moral distress map. *Journal of Medical Ethics*, 42(5), 321–324. <https://doi.org/10.1136/medethics-2015-103156>

- Epstein, E. G., & Delgado, S. (2010). Understanding and addressing moral distress. *The Online Journal of Issues in Nursing*, 15. <https://doi.org/10.3912/OJIN.Vol15No03Man01>
- Epstein, E. G., Shah, R., & Marshall, M. F. (2021). Effect of a Moral Distress Consultation Service on Moral Distress, Empowerment, and a Healthy Work Environment. *HEC Forum: An Interdisciplinary Journal on Hospitals' Ethical and Legal Issues*. <https://doi.org/10.1007/s10730-021-09449-5>
- Fourie, C. (2017). Who Is Experiencing What Kind of Moral Distress? Distinctions for Moving from a Narrow to a Broad Definition of Moral Distress. *AMA Journal of Ethics*, 19(6), 578–584. <https://doi.org/10.1001/journalofethics.2017.19.6.nlit1-1706>
- Grace, P. J., Robinson, E. M., Jurchak, M., Zollfrank, A. A., & Lee, S. M. (2014). Clinical ethics residency for nurses: An education model to decrease moral distress and strengthen nurse retention in acute care. *The Journal of Nursing Administration*, 44(12), 640–646. <https://doi.org/10.1097/NNA.0000000000000141>
- Hamric, A. B., & Epstein, E. G. (2017). A Health System-wide Moral Distress Consultation Service: Development and Evaluation. *HEC Forum: An Interdisciplinary Journal on Hospitals' Ethical and Legal Issues*, 29(2), 127–143. <https://doi.org/10.1007/s10730-016-9315-y>
- Harvard STS Program » About » What is STS?* (n.d.). Retrieved February 3, 2022, from <https://sts.hks.harvard.edu/about/whatissts.html>
- Henrich, N. J., Dodek, P. M., Gladstone, E., Alden, L., Keenan, S. P., Reynolds, S., & Rodney, P. (2017). Consequences of Moral Distress in the Intensive Care Unit: A Qualitative Study. *American Journal of Critical Care*, 26(4), e48–e57. <https://doi.org/10.4037/ajcc2017786>

- Johnston, S. (2018). Alvin Weinberg and the Promotion of the Technological Fix. *Technology and Culture*, 59, 520–561. <https://doi.org/10.1353/tech.2018.0061>
- Lal, S., & Adair, C. E. (2014). E-Mental Health: A Rapid Review of the Literature. *Psychiatric Services*, 65(1), 24–32. <https://doi.org/10.1176/appi.ps.201300009>
- Lau, N., O’Daffer, A., Colt, S., Yi-Frazier, J., Palermo, T., McCauley, E., & Rosenberg, A. (2020). *Android and iPhone Mobile Apps for Psychosocial Wellness and Stress Management: Systematic Search in App Stores and Literature Review (Preprint)*. <https://www.semanticscholar.org/paper/Android-and-iPhone-Mobile-Apps-for-Psychosocial-and-Lau-O%27Daffer/5c723ba97eb650d4414f7b021b1879f427c6a199>
- Long-term Care Team | UVA Health. (n.d.). Retrieved February 21, 2022, from <https://uvahealth.com/services/long-term-care/team>
- Mani, M., Kavanagh, D. J., Hides, L., & Stoyanov, S. R. (2015). Review and Evaluation of Mindfulness-Based iPhone Apps. *JMIR MHealth and UHealth*, 3(3), e82. <https://doi.org/10.2196/mhealth.4328>
- Marshall, J. M., Dunstan, D. A., & Bartik, W. (2020). The role of digital mental health resources to treat trauma symptoms in Australia during COVID-19. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1), S269–S271. <https://doi.org/10.1037/tra0000627>
- McLean, C., & Hassard, J. (2004). Symmetrical Absence/Symmetrical Absurdity: Critical Notes on the Production of Actor-Network Accounts. *Journal of Management Studies*, 41(3), 493–519. <https://doi.org/10.1111/j.1467-6486.2004.00442.x>
- Mealer, M., & Moss, M. (2016). Moral distress in ICU nurses. *Intensive Care Medicine*, 42(10), 1615–1617. <https://doi.org/10.1007/s00134-016-4441-1>

- Morley, G., Field, R., Horsburgh, C. C., & Burchill, C. (2021). Interventions to mitigate moral distress: A systematic review of the literature. *International Journal of Nursing Studies*, *121*, 103984. <https://doi.org/10.1016/j.ijnurstu.2021.103984>
- Pauly, B. M., Varcoe, C., & Storch, J. (2012). Framing the Issues: Moral Distress in Health Care. *Hec Forum*, *24*(1), 1–11. <https://doi.org/10.1007/s10730-012-9176-y>
- Perni, S. (2017). Moral Distress: A Call to Action. *AMA Journal of Ethics*, *19*(6), 533–536. <https://doi.org/10.1001/journalofethics.2017.19.6.fred1-1706>
- Rushton, C. H. (2006). Defining and addressing moral distress: Tools for critical care nursing leaders. *AACN Advanced Critical Care*, *17*(2), 161–168.
- Technology and the Future of Mental Health Treatment*. (n.d.). National Institute of Mental Health (NIMH). Retrieved February 3, 2022, from <https://www.nimh.nih.gov/health/topics/technology-and-the-future-of-mental-health-treatment>
- Vaclavik, E., Staffileno, B., & Carlson, E. (2018). Moral Distress: Using Mindfulness-Based Stress Reduction Interventions to Decrease Nurse Perceptions of Distress. *Clinical Journal of Oncology Nursing*, *22*(3), 326–332. <https://doi.org/10.1188/18.CJON.326-332>
- van Emmerik, A. A. P., Berings, F., & Lancee, J. (2018). Efficacy of a Mindfulness-Based Mobile Application: A Randomized Waiting-List Controlled Trial. *Mindfulness*, *9*(1), 187–198. <https://doi.org/10.1007/s12671-017-0761-7>
- Wocial, L. D., Hancock, M., Bledsoe, P. D., Chamness, A. R., & Helft, P. R. (2010). An evaluation of unit-based ethics conversations. *JONA'S Healthcare Law, Ethics and Regulation*, *12*(2), 48–54; quiz 55–56. <https://doi.org/10.1097/NHL.0b013e3181de18a2>

Wocial, L. D., & Weaver, M. T. (2013). Development and psychometric testing of a new tool for detecting moral distress: The Moral Distress Thermometer. *Journal of Advanced Nursing*, 69(1), 167–174. <https://doi.org/10.1111/j.1365-2648.2012.06036.x>