

BUILDING RESILIENCE TO COMBAT SYMPTOMS OF MORAL DISTRESS AND  
BURNOUT IN NURSES: IS IT EFFECTIVE? AN INTEGRATIVE REVIEW

A Scholarly Project

Presented to the

Faculty of Liberty University

In Partial Fulfillment of the Requirements for the Degree of

Doctor of Nursing Practice

By

Julia M. McAuley-Gonzalez

October 2018

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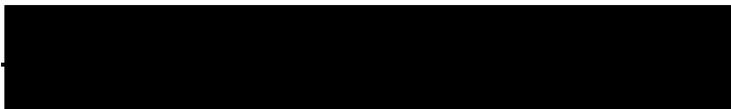
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October 2018

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*Chair, Doctoral Studies, Professor, Nursing*



## ABSTRACT

**Background:** Moral Distress (MD) is an experience of painful feelings and/or psychological imbalance that occurs when a person's moral integrity is seriously compromised, either because one feels unable to act in accordance with core values and obligations, or attempted actions fail to achieve the desired outcome (Hamric, 2014). The consequences of repeated episodes of moral distress have been linked to nurses reporting symptoms of low job satisfaction, caregiver burnout, compassion fatigue, emotional exhaustion, poor work engagement, and nurses leaving their positions.

**Problem:** There is evidence that makes the connection between an existing high level of resilience and a low level of MD and symptoms of burnout. There are fewer studies that evaluate what effect, if any, efforts may have on building resilience or reducing existing symptoms of moral distress and its correlate of burnout within nurses.

**Aim:** To evaluate the available literature and explore the question of whether the use of resilience-building strategies influences moral distress, burnout, and levels of resilience in nurses.

**Results:** Twenty studies with pre-post intervention measures were critically reviewed. Despite variation between study components and small sizes of individual studies, the general results suggest that traits of resilience may be increased, and traits of moral distress and burnout may be decreased through resilience interventions. This review also provides direction for further efforts to address this issue within healthcare professionals.

*Keywords:* moral distress, burnout, nurse, nurse practitioner, healthcare professional, moral resilience, mindfulness, resilience, intervention, strategy, program

## ACKNOWLEDGEMENTS

It seems impossible that the journey which I embarked upon three years ago has come to a conclusion. My mantra has been that since God has brought me to this point with a plan in mind, He will see me through. I only needed to be willing to put in the work. Many times, it did not seem physically possible to complete the tasks in front of me on so little sleep, yet He always brought clarity of mind and extra energy when it was needed. This project and degree are a testament to His faithfulness.

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## **Building Resilience to Combat Symptoms of Moral Distress in Nurses: Is it effective?**

### **An Integrative Review**

#### **Introduction**

Moral Distress is not a new concept in nursing or healthcare. As early as 1984, clinical dilemmas were identified which contain moral dimensions that extend beyond ethical considerations and lead to an experience of moral distress (Jameton, 1984). Moral distress can be defined as painful feelings and/or a psychological imbalance that occurs when a person's "moral integrity is seriously compromised, either because one feels unable to act in accordance with core values and obligations, or attempted actions fail to achieve the desired outcome" (Hamric, 2014). The consequences of repeated episodes of moral distress have been clearly linked to low job satisfaction levels, caregiver burnout, compassion fatigue, emotional exhaustion, poor work engagement, and nurses leaving their positions all across the globe (Burston & Tuckett, 2012; Dalmolin, Lunardi, Lunardi, Barlem, & Da Silveira, 2014; Dyo, Kalowes, & Devries, 2016; Fumis, Amarante, Nascimento, & Viera, 2017; Henrich et al., 2017; Lamiani, Borghi, & Argentero, 2017; Lawrence, 2011; Rushton, Batcheller, Schroeder, & Donohue, 2017). The cost of turnover for each nurse leaving the profession has been estimated to be 1.2 to 1.3 times their annual salary with a cost range between \$82,000 - \$88,000 per Registered Nurse (RN) (Jones, 2008). The U.S. Department of Labor has projected that by the year 2022, over a million new RN's will be needed to fill nursing positions created by new demand and retiring baby boomer nurses (American Association of Colleges of Nursing [AACN], 2017). Addressing moral distress is a proposed means of preserving the nursing workforce through protecting nurses from its damaging effects.

The concepts of building work environments and programs that foster personal resiliency have been repeatedly proffered as the most promising solutions to address moral distress (MD).

There are studies that make the connection between an existing high level of resilience and a low level of moral distress and/or fewer symptoms of burnout amongst nurses (Arrogante & Aparicio-Zaldivar, 2017; Garcia-Izquierdo, Meseguer de Pedro, Rios-Risquez, & Soler Sanchez, 2018; Silver, Caleshu, Casson-Parkin, & Ormond, 2018). While these studies seem to promote the obvious, that individuals with more resilience experience less burnout; they do not mention how the subjects acquired their resilience. It may have been simply secondary to general personality traits, or fewer years in the industry. A question that remains is whether interventions to actively build resilience within nurses have an effect on moral distress and its related side effect of burnout. This scholarly project seeks to address that question through an integrated review of the literature.

### **Background**

Moral distress is not typically a solitary event. Each episode that is experienced leaves a residue of distress, which builds in a crescendo fashion. The effects of this moral residue include sadness, anger, reluctance to come to work, frustration, emotional and physical withdrawal, requests to not care for certain patients, decreased interactions with families and care performed in a less personalized manner (Burston & Tuckett, 2012; DeVillers & DeVon, 2012; Epstein & Hamric, 2009). In one study, moral distress was the causative factor for 25% of nurses in high-intensity work environments to leave their positions (Corley, Minick, Elswick, & Jacobs, 2005). In other studies, this number was smaller, yet still significant (Dyo et al., 2016; Henrich et al., 2017; Papathanassoglou et al., 2012). Moral distress and its damaging effects have been noted around the globe. It is documented in Turkey (Ozden, Karagozoglu, & Yildirim, 2013), South America and the Netherlands (Dalmolin et al., 2014), Malaysia (Lan, Subramanian, Rahmat, &

Kar, 2014), Europe and Canada (Kompanje, Piers, & Benoit, 2013), New Zealand (Woods, Rogers, Towers, & LaGrow, 2014), as well as in the United States (Mason et al., 2014).

In a systematic review of compassion fatigue and burnout, VanMol, et al (2015) identify several triggers of burnout that mirror the sources of moral distress identified by Corley (2001) in her work on creating a moral distress scale and those identified by Epstein and Hamric (2009) in their development of the Moral Distress Crescendo Theory (Corley, Eslwick, Gorman, & Clor, 2001; Epstein & Hamric, 2009; VanMol, Kompanje, Benoit, Bakker, & Nijkamp, 2015). These themes include continuing life support even when it is not in the best interest of the patient, initiating care that only prolongs death, following a family's wishes for the patient's care due to fear of litigation, and providing false hope to patients and families. In partnership with the perceived compromising of personal values, moral distress is caused when the healthcare worker is constrained in some fashion from acting upon his or her moral values. The list of identified constraints includes a lack of assertiveness, a lack of understanding of the full situation, being socialized to follow orders in an unquestioning manner, inadequate staffing, lack of collegial relationships, lack of administrative support, policies and charting responsibilities that conflict with care needs, and fear of litigation (Epstein & Hamric, 2009).

As moral distress and burnout have been identified in the literature, they are often accompanied by recommendations for building resilience (Rushton, Schoonover-Shoffner, & Kennedy, 2017; DeVillers & DeVon, 2012; Mason et al., 2014). As an example, Wilson et al (2013) performed their study using an exploratory descriptive questionnaire to gather information on how to address MD. A convenience sample of 105 Registered Nurses (RN's) working in a medical-surgical intensive care unit (MSICU) and a transitional care unit (TCU) completed a moral distress survey with additional open-ended and forced-answer exploratory

questions asking about staff member usage of different resources for moral distress and for suggestions on other resources and solutions. The most frequent open-ended responses called for ethics committees, debriefings, educational forums and workshops, and assistance with addressing futile care through additional staffing. Other solutions included counseling and on-line education. In a similar study by Mason, et al (2014) responses included exercise, yoga, improved relations with other professionals, and staffing components. While these studies identified possible solutions, they did not test the solutions to see if there was an actual impact created by these solutions.

The American Medical Association (AMA) and the American Nurses Association (ANA), as well as the Press Ganey Organization have all acknowledged the presence of moral distress (MD) within nurses and healthcare professionals and have formally placed calls to action (Perni, 2017; American Nurses Association Professional Issues Panel on Moral Resilience [ANA-PIP], 2017; Press Ganey, 2017). Each of the organizations have asked their members to begin to tackle the issue of moral distress and burnout through research and evidence-based practice initiatives. Each of the organizations acknowledge that there are certainly institutional and societal issues that contribute to the problem of MD and require attention. In similar fashion, each of the calls to action have referenced building resilience as a vital tool and starting point for addressing moral distress.

### **Problem Statement**

Building resilience has been highlighted as a proposed answer to the issue of Moral Distress as experienced within nursing (ANA-PIP, 2017; Corley et al., 2005; Press Ganey, 2017; Rushton et al., 2017), yet the question remains as to whether it is an effective strategy. Correlations have been made between the presence of high resilience skills and the presence of

low moral distress and burnout levels within nursing and healthcare professionals (Arrogante & Aparicio-Zaldivar, 2017; Garcia-Izquierdo et al., 2018; Silver et al., 2018). What is not clear is whether resilience can be created through outside efforts and whether these efforts affect moral distress and burnout by raising resiliency and/or lowering levels of symptoms of moral distress or burnout.

### **Purpose**

The purpose of this project is to evaluate the literature related to moral distress within inpatient nurses and the role that resilience may have in modifying its effects. Specifically, this project seeks to explore the role that efforts to build resilience have when addressing moral distress and its symptoms of burnout within nurses and nurse practitioners. The principle aim is to provide a synthesis of the evidence and to guide further efforts to address this issue within nursing. It aligns with the goals of national medical and nursing organizations to improve the health of the nation through building the health of the nursing work force (American Association of Colleges of Nursing [AACN], 2006; ANA-PIP, 2017; Perni, 2017).

### **Clinical Questions**

1. Primary Question: Regarding nurses and nurse practitioners, what effect does exposure to strategies to build resiliency have on levels of moral distress and burnout?
2. Secondary Question: What interventions, if any, have an effect on building resilience and/or reducing symptoms of moral distress and burnout?

### **Methods**

#### **Frameworks**

**Whittemore and Knafl methodology.** The Whittemore and Knafl (2005) updated methodology for integrative review is the framework utilized for this integrative review. It

provides the flexibility needed for combining differing existing research methodologies and studies that relate to the aim of the current study into a single review. Their methodology further supports drawing conclusions while maintaining rigor and freedom from bias. The basic structure of the framework sets up stages for problem identification, data collection, literature search, data evaluation, data analysis, and drawing of conclusions, as well as verification and presentation of results. By working through this framework, an attempt was made to synthesize and articulate a more complete and informed understanding of the effect that attempts to build resilience may have on addressing moral distress.

**PRISMA workflow.** Literature selection and reduction workflow was performed using the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) process. The PRISMA process is a revision of the previous Quality of Reporting of Meta-analysis (QUOROM) and is geared towards review of health care interventions (Liberati et al., 2009). It is a 27-item checklist with an accompanying four-phase flow diagram. The checklist includes items that are considered essential to ensuring transparency and reproduction of results. The flow diagram maps the number of records/studies reviewed, both those included and those excluded (see Figure 1 for PRISMA flow diagram as utilized for this study.)

**Holly, Salmond, and Saimbert guidelines.** Holly, Salmond, and Saimbert (2017) provide guidelines for critiquing and synthesizing the evidence. At the baseline, they recommend a reliance on primary sources to the greatest extent possible. They propose that the aim of the synthesis is to aggregate and interpret findings from topically-related studies that may have varying qualitative methods (Holly, Salmond, & Saimbert, 2017). The project leader is to seek answers to the questions of “what” and “how” in a non-biased, systematic manner while describing the themes and key features found. Findings of individual studies are then combined

and transformed into a focused translation of the whole. At the same time, within the Holly, Salmond, and Saimbert (2017) guidelines are questions and means of identifying gaps and inconsistencies in the literature. These guidelines and questions will be utilized in the aggregation and synthesis of the studies that meet inclusion criteria.

### **Problem Formulation**

This initial stage of the review set the foundation for the work to be done. It created a clear picture of the problem to be addressed. Variables of interest as well as study boundaries were defined (Whittemore & Knafl, 2005). The presence of moral distress and its symptom of burnout within nursing and healthcare professionals have been well defined within literature (DeVeer, Francke, Struijs, & Williems, 2013; Hamric, Borchers, & Epstein, 2012; Huffman & Rittenmeyer, 2012; Morley, Ives, Bradbyer-Jones, & Irvine, 2017). The correlation between high levels of resilience and low levels of burnout have also been established (Arrogante & Aparicio-Zaldivar, 2017; Garcia-Izquierdo et al., 2018; Silver et al., 2018). There is less clarity on the issue of whether resilience can be created through planned interventions, and if these interventions have an effect on moral distress and burnout levels within nursing professionals. The aim of this review is to clarify this issue.

The intended target population studied was nurses and nurse practitioners working within in-patient environments. Moral distress and burnout have been identified throughout many levels of healthcare personnel (Hamric et al., 2012; Whitehead, Herbertson, Hamric, Epstein, & Fisher, 2015). However, there are differing individual contributing factors between levels and roles of healthcare workers (Houston et al., 2013). Certainly, there are overlaps, but for the purposes of clarity and generalizability of results, only studies involving nurses were evaluated in this review.

### **Literature Search Strategy**

The second step of the Whitemore & Knafl (2009) framework is the literature search. Well-defined search strategies are necessary to allow transparency and to ensure a complete and unbiased search. One goal of a comprehensive search is to attain the maximum number of eligible sources using two or more strategies (Whitemore & Knafl, 2009). Information sources and eligibility criteria were chosen to reflect this goal.

**Information sources.** Two primary research strategies were used for the gathering of evidence sources. Computerized bibliography databases were searched, and a hand-search review performed of bibliographies contained within eligible journal articles. The computerized databases included the Cumulative Index of Nursing and Allied Health Literature (CINAHL), EBSCOhost, Cochrane Library, and ProQuest Allied Health bibliographies.

**Date of search parameters.** January 2012 through July 2018. This time frame was chosen to match the time after the Moral Distress Scale (MDS) was developed (Hamric, Borchers, & Epstein, 2012). This is a widely-used scale which quantifies levels of moral distress and has been used frequently in studies addressing moral distress in all variety of healthcare professionals.

**Keywords:** Moral distress, burnout, nurse, nurse practitioner, healthcare professional, moral resilience, mindfulness, resilience, intervention, strategy, program

**Eligibility criteria.** Data collection for the review included a well-defined set of inclusion and exclusion criteria and a specific target study population. These criteria are delineated in Table 1. They include 1) identification of a target population of nurses and nurse practitioners within in-patient environments, 2) studies that have some form of pre- & post-

intervention measuring tool, 3) aspects that address components of resilience or moral distress/burnout, and 4) documents that are available in full-text, printed in the English language.

Table 1

*Inclusion and exclusion criteria*

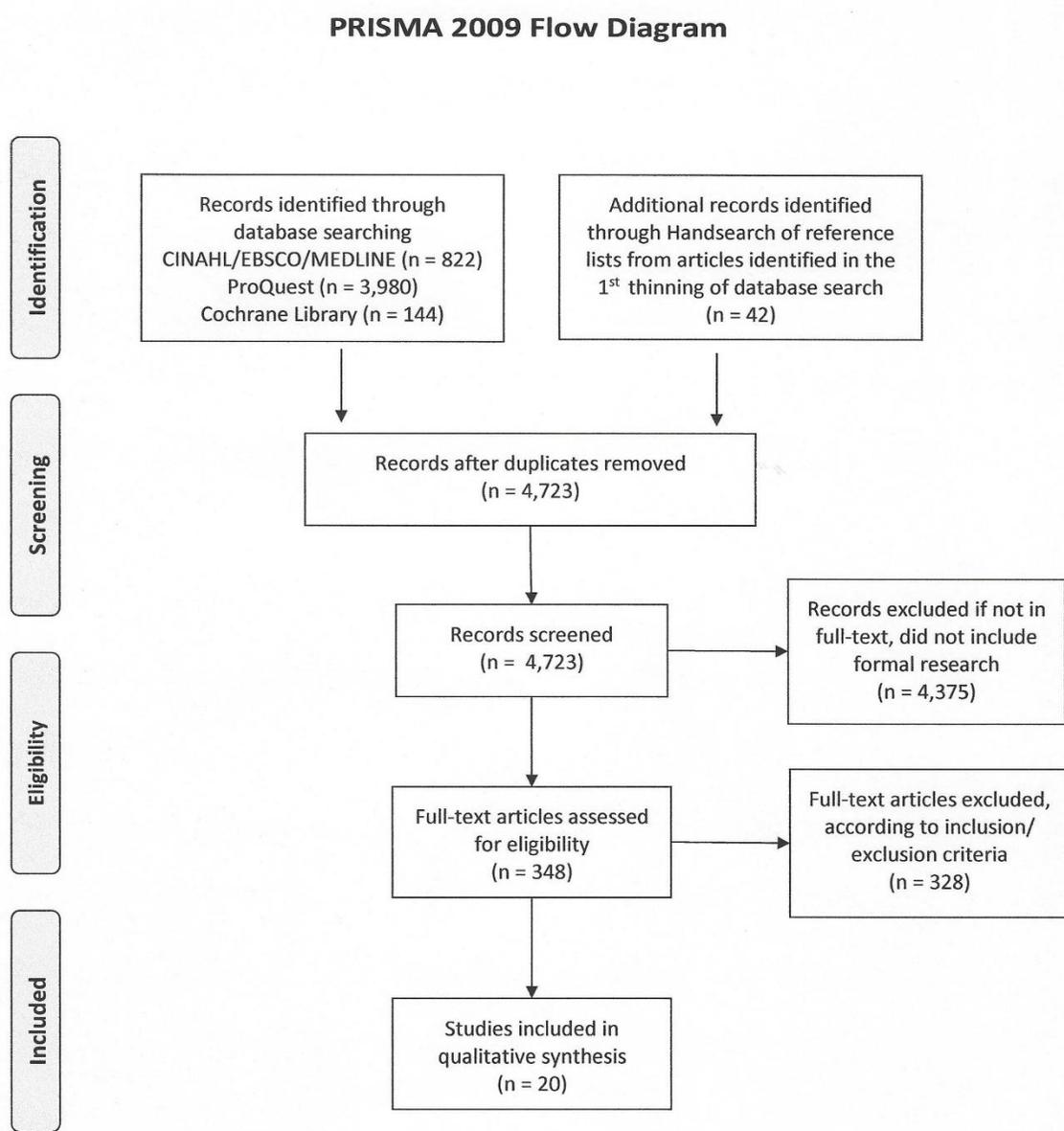
Inclusion Criteria	Exclusion Criteria
Publication between 2012 – 2018	Publications prior to 2012
Studies that include only nurses or nurse practitioners	Studies that include non-nursing healthcare professionals
Studies performed within in-patient populations	Studies performed in outpatient, homecare or other non-inpatient populations
Research sources from peer-reviewed journals	Non-research articles (i.e. editorials, briefings, commentaries, fact sheets).
Studies that address components of symptoms of moral distress, burnout, and a resilience-building intervention	Studies that do not address components of moral distress, burnout, or a resilience-building intervention
Studies that utilize a pre- & post-test methodology	Studies that do not utilize a pre- & post-test methodology
Limited to English language	Publications written in language other than English or written with poor English translation
Full text articles only	Articles that do not contain full-text

### Literature Search Results

A literature search was performed using the specified key words. Initially, 4,946 articles were identified. After working through the PRISMA process, a total of 20 articles met the criteria to be included in this review. (See Figure 1). These studies encompass nurses from seven different countries practicing within both major medical centers and suburban hospitals. Just over one-half of the studies involve oncology and critical care nurses. Other areas represented include emergency room, transplant unit, pediatric/neonatal unit, complex geriatric, and other unspecified inpatient units. See Table 3 for more specific breakdown of the studies demographics.

Figure 1

Prisma Flow Diagram \*



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit [www.prisma-statement.org](http://www.prisma-statement.org).

**Data Evaluation Stage**

Studies that met full inclusion criteria underwent evaluation for overall quality and type of research. Further investigation was performed to identify methods utilized within primary studies in systematic reviews. Melnyk's (2015) hierarchy of evidence was used to classify the strength and type of evidence on a 1 through 7 scale (Melnyk & Fineout-Overholt, 2015, p. 11). The lower the number, the higher quality of evidence. Of the 20 articles within this review, six of the articles are considered as Melnyk Level 2, and fourteen may be considered as Level 3 on the Melnyk hierarchy. Level 2 consists of randomized controlled trials, and Level 3 are quasi-experimental or controlled trials with no randomization (Melnyk & Fineout-Overholt, 2015).

**Data Analysis and Reduction Stage**

Once studies were evaluated and determined to have met all inclusion criteria, data analysis was performed. This process organized the evidence in an unbiased manner and provided the initial structure for data reduction, synthesis, and drawing of conclusions per the Whitemore & Knafl (2005) process. The data in the research was categorized and summarized into an integrated conclusion to address the research questions. Studies were broken down into source, subjects and settings, study design, types of interventions utilized, time involvement for interventions, components of moral distress and burnout measured, measurement tools utilized, study outcomes, and level of evidence.

**Data Display and Comparison Stage**

Both Whitemore & Knahl (2005) and Holly, Salmond & Saimbert (2017) propose creating a matrix for each of the project variables. The studies in this review were initially organized within a basic literature matrix format. See (Appendix A). Further comparisons of

data components were then created and placed in table form. These will be discussed in narrative form in the results section.

### **Ethical Considerations**

This is an integrative literature review of existing, published literature that has been made available to the public. All studies have previously been scrubbed of any personal data. No human subjects are involved in the process of the review. A proposal for this study was submitted to Liberty University Internal Review Board (IRB). It was determined by the IRB that their oversight was not required for this type of research since it does not involve the review of medical records or use of human subjects (see Appendix C for IRB letter). In preparation for the DNP project process, the DNP project team (student and project Chair) completed research ethics training through the Collaborative Institutional Training Initiative (CITI) program (see Appendix D for certificate of completion). Research was focused on the effect of efforts to build resilience on levels of moral distress, burnout, and existing resilience.

### **Dissemination Plan**

Study results will be disseminated through submission to the Scholars Crossing publication system. Additional opportunities to disseminate results may include poster presentations at appropriate professional meetings or conferences.

### **Theoretical Framework: Rushton et al. Expanded Empathy Model**

A theoretical framework has been adopted in support of understanding the concept of moral distress (MD). It will be helpful in defining the variables that contribute to the presence of MD and in providing insight into what may decrease its impact on clinicians. Cynthia Rushton (2013b) and her colleagues created an adaptation of Batson's & Eisenberg's Empathy Model (Batson, Fultz, & Schoenrade, 1987; Eisenberg, 2002; Rushton, Kaszniak, & Halifax, 2013b).

Rushton et al. (2013b) took the Empathy Model and extended it. Her expanded model includes ethical dimensions involved within situations of conflicting moral values and perspectives in healthcare clinicians (Rushton, Kaszniak, & Halifax, 2013).

The framework has four interrelated processes that are pre-conditions for how the clinician may respond to a triggering ethical conflict. There are two possible pathways of response. One leads to moral distress and the other leads to a principled compassion. The four processes are emotional attunement (empathy), cognitive attunement (perspective taking), memory of previous triggers (personal experience), and ethical attunement (moral sensitivity). These four processes are interrelated and iterative where each triggering event may initiate another chain of responses (Rushton, Kaszniak, & Halifax, 2013).

Empathy is an emotion which occurs when witnessing the suffering of another individual. It conveys a sense of genuine concern for the other and a recognition or understanding of the circumstances of the other. This trait can lead to an expression of concern, compassion, and tenderness focused on the other individual. Alternately, it may produce a sense of personal distress focused on the self and prompt behaviors motivated by the need to relieve one's own uncomfortable feelings (Batson et al., 1987).

Related to this is the concept of cognitive attunement, or the choice of perspective that the clinician may take. This is the ability to both understand and appreciate the perspectives and viewpoints of others as well as one's own. Where there is a dissonance between parties (patient-family-clinician-institution) there is an opportunity for moral distress. The trigger of, or arousal caused by, a difficult patient situation may cause one of two responses. One response is the outward compassion focused on the patient experience/family goals. The opposite response is an

inward, personal distress caused by the desire to protect oneself from the negative emotions experienced while watching another's distress (Batson et al., 1987).

Interwoven with empathy and perspective is the concept of memory. Each individual has his or her own personal, professional, cultural, familial, and social set of experiences. These experiences are imbued with emotional responses. They are also affected by one's core values. When memories are positive and have created a sense of self-efficacy, a similar situational trigger will bring about an initial positive response. Conversely, when the memory has an associated negative emotional response, it will bring about an initial sense of discomfort. The memories may be consciously or unconsciously experienced. This process is considered an empathic arousal (Eisenberg, 2002). Clinicians who are able to maintain a state of neutral or positive emotional response experience lower levels of moral distress. Clinicians who have repeated negative experiences or experiences of high negative emotional arousal may develop unconscious responses of secondary stress or personal distress (Eisenberg, 2002). This is a possible place for intervention to occur with a goal of affecting the impact of a memory response.

Rushton et al. (2013) take this further by proposing that the intertwining of empathy, perspective, and memory are just the preconditions for how one responds to an ethical or moral dilemma. In expanding the Empathy Model, Rushton et al. (2013) add the concepts of moral sensitivity and emotion regulation. Moral sensitivity is the ability to recognize a moral issue within any particular real-world situation. It is related to the idea of one's conscience. When one's norms/values/beliefs are in alignment with a situation, then feelings of contentment, self-respect, and an eased conscience are present. When a situation presents conflicting norms/values/beliefs and there is no clear resolution to be found, then a person feels his or her

conscience or core is compromised. This leads to guilt, self-disgust, regret, self-focused protective behaviors such as depersonalization, and moral distress (Rushton et al., 2013).

Clinicians many times struggle with the dissonance between their perception of what they are asked to do and what their personal values and professional roles require them to do. Where there is a perceived violation or injustice noted in conflict with a personal, professional, or societal ethic, then a conflict of conscience occurs. Moral outrage emotions, and feelings of discomfort, anxiety, uncertainty or anger may be incited. This is where the damage of moral distress and its symptom of burnout may begin to foster.

As pointed out by Batson et al (1987) when clinicians are emotionally aroused by a distressing situation, they may experience positive emotions of empathy and compassion, or negative emotions of sadness, guilt, remorse, frustration, or anger. Resilience is the ability to feel the emotion in a healthy manner and return to a neutral emotional state without a residue being left behind (Epstein & Hamric, 2009).

### **Evaluation Methods**

This integrative review was undertaken using standardized evaluation methods as described in the Holly, Salmond and Saimbert text on Comprehensive Systematic Reviews (2017). This author and chair evaluated this review to ensure that the document upholds the exactitude and requirements of the Doctor of Nursing Practice program at Liberty University. A coding system of identifying each study through an alphabetized, numbered list is utilized throughout the evaluation for brevity and clarification. (See Table 2).

Table 2

*Abbreviated numbered list of studies*

Study #	Reference	Study #	Reference
1.	Alexander, G. K., et al. (2015, October)	11.	Lan, H. K., et al. (2014, Mar-May)
2.	Anderson, L. W., & Gustavson, C. U. (2016)	12.	Mackenzie, C.S., et al. (2006)
3.	Darban, F., et al. (2016, April)	13.	Magtibay, D. L., & Chesak, S. S. (2017, July/August)
4.	Edmonds, C., et al. (2012)	14.	Mealer, M., et al. (2014, November)
5.	Foureur, M., et al. (2013, August)	15.	Molazem, Z., et al. (2013)
6.	Gauthier, T., et al. (2015)	16.	Motaghedi, H., et al. (2016)
7.	Habibian, Z., et al. (2018)	17.	Onan, N., et al. (2013)
8.	Hersch, R. K., et al. (2016)	18.	Orly, S., et al. (2012)
9.	Hevezi, J. A. (2016, December)	19.	Vaclavik, E. A., et al. (2018, June)
10.	Jakel, P., et al (2016, December)	20.	Wei, R., et al. (2017, March)

**Search Strategy**

An initial search of the CINAHL, EBSCO, ProQuest, and Cochrane Library electronic data bases was performed using the pre-determined key words and time parameters. Upon completion of the search, 4,946 articles were identified. These went through two stages of evaluation to remove duplicates, sources not in full text, and sources that discussed the topic but did not include any type of formal research. This led to 189 articles which included some type of research regarding the topic, with nurses alone or in combination with multiple types of other healthcare professionals. A hand search of the reference lists of these articles resulted in an additional 42 studies culled for further review. These 231 articles were then screened for pre- & post- test methodology. Of these, 55 studies met this requirement. A thorough read of these 55 occurred to assess for final eligibility. Studies that were literature reviews were evaluated for their individual sources. Those reviews that included studies with non-nursing personnel were excluded unless results of individual studies were reported separately. In those cases, only the

nursing results would be considered for final review. The final evaluation removed articles that contained non-nursing healthcare professionals, students, and studies poorly translated into English. There were 20 studies remaining that fulfilled all inclusion/exclusion criteria to be considered for critical review and evaluation for the purposes of this study. See Addendum A for a summary matrix of these studies.

### **Population**

There was a fair amount of diversity amongst the populations of nurses studied. Within the final 20 articles, 12 of the studies were conducted in what would be considered Western cultures; United States (11 studies) and Canada (1 study). Four of the studies were conducted in Iran, and 1 study was conducted in each of the following countries: Malaysia, Turkey, Israel, and China. (See Table 3). Just over half of the studies (11 studies) were performed in major medical center/teaching hospital environments. Three were in suburban hospitals. The remainder did not specify the type of hospital where the studies were conducted. Oncology nurses were represented in seven of the studies and critical care nurses in five studies. Other specialties were represented as follows: pediatric/neonatal (3 studies), Non-critical Cardiac Care (2 studies), and 1 study each in ER, Geriatric Complex Care, and Transplant units. The remaining seven studies each had nurses from diverse units and did not provide breakdowns of their home units. (See Table 3).

Table 3

*Study population characteristics \**

Population in Study	Studies Involved
Major medical center/teaching hospital	11 studies (1, 2, 4, 5, 6, 9, 11, 12, 13, 14, 19)
Suburban hospital	3 Studies (8, 10, 17)
Oncology unit	7 studies (2, 4, 7, 9, 10, 17, 19)
Critical Care unit	5 studies (11, 13, 14, 15, 16)
Unspecified units within hospital	7 studies (1, 3, 6, 8, 12, 16, 18)
Pediatric/neonatal unit	3 studies (4, 5, 6)
Cardiac Care Unit	2 studies (15, 16)
Emergency Department	1 study (20)
Geriatric Complex Care Unit	1 study (12)
Transplant Unit	1 study (13)
Countries: Western Cultures: 12 Studies Non-Western Cultures: 8 studies USA Iran Canada Malaysia Turkey Israel China	11 Studies (1, 2, 5, 6, 8, 9, 10, 12, 13, 14, 19) 4 studies (3, 7, 15, 16) 1 study (4) 1 study (11) 1 study (17) 1 study (18) 1 study (20)
Involved advanced practice nurses **results not indicated separately	4 Studies: (5, 8, 13, 18)

\*Study #'s relate to numbering on summarized list of included studies & abbreviated numbered list

**Study Designs Included**

In compliance with the inclusion criteria, each of the studies had a pre-post test design. There were 14 Melnyk Level 3 quasi-experimental studies included; ten of these did not have a control group, and the remaining four had non-randomized control groups. There were six Melnyk level 2 studies with random controlled groups. Study sizes varied from 16 to 90 total participants that completed both pre- and post-intervention measurements.

Each of the studies contained a pre- and post-intervention measurement with many of the studies utilizing multiple measurement tools. In total, there were 31 different scales utilized. Each of the scales was considered valid and had been tested for reliability prior to its use in the current study. These tools measured a large variety of items that pertained to symptoms of moral

distress and burnout as well as levels of resilience and coping. See Addendum B for a description of each of the scales and the components they measure.

### **Interventions Utilized**

Within the studies, there were 12 types of interventions offered to the participants. Eight of the studies utilized more than one intervention as part of a multi-modal program. Eleven of the studies had a single type of intervention. None of the interventions occurred in a single frame. The strategies included: 1) mindfulness-based cognitive therapy (MBCT), 2) mindfulness-based stress reduction (MBSR), 3) educational courses on the topics of moral distress, burnout, compassion fatigue, and resilience, 4) communication and conflict management skills training, 5) grief work, 6) yoga, 7) structured exercise, 8) formal event debriefing, 9) loving kindness meditation (LKM), 10) knitting, 11) therapeutic writing, and 12) work skills training. See Tables 4 & 5 for an itemized breakdown of the studies utilizing each intervention alone or in a multi-modal program.

Table 4

#### *Types of interventions utilized*

Intervention	Total # of studies utilizing the intervention	Total # of studies utilizing it as singular intervention
MBCT	8	6
MBSR	7	2
Targeted educational courses regarding moral distress, burnout, compassion fatigue, and resilience	6	1
Communication/Conflict Management Skills Training	4	1
Grief Work	3	0
Yoga	2	1
Physical Exercise	2	0
Formal Event Debriefing	2	0
Loving Kindness Meditation	1	0
Knitting in co-worker groups	1	1
Therapeutic writing	1	0
Work Skills Training	1	0

MBCT: Mindfulness Based Cognitive Therapy MBSR: Mindfulness Based Stress Reduction

Table 5

*Type of intervention studies with associated results\**

Study # (# exposed to intervention)	Intervention used alone	Traits demonstrating desired responses	Traits demonstrating neutral response
5 (n-28)	MBCT- 1 day workshop with homework over 8 wks	Stress, Sense of Coherence, Sleep quality, Depression, Anxiety, Social activities	
11 (n-37)	MBCT- 2hrs, 1x/wk x 5wks w/ homework	Stress, Mindfulness, Happiness, Anxiety	
13 (n-33)	MBCT- 12 module course self-paced	Stress, Burnout, Mindfulness, Depression, Anxiety	
16 (n-15)	MBCT – 2hrs, 2x/wk x 4 wks	Distress tolerance	
18 (n-20)	MBCT – 4hrs, 1x/wk x 16 wks	Stress, Sense of Coherence, Vigor, Fatigue	
6 (n-38)	MBSR – 5min BID at shift change x 30 days	Stress	Burnout, Emotional exhaustion, Depersonalization, Mindfulness, Self- Compassion
12 (n-16)	MBSR – 30min 1x/wk x 4 wks with homework	Burnout, Emotional Exhaustion, Depersonalization, Mindfulness, Sense of Coherence, Personal Accomplishment, Level of Control. Life Satisfaction, Well- Being	Depersonalization
15 (n-30)	Targeted Education 4hrs, 1x/wk x 2wks	Moral distress	
3 (n-30)	Communication/Confl ict Mgmt Skills training 4hr 2x/wk x 2 wks	Burnout, Emotional Exhaustion, Depersonalization, Personal Accomplishment	
1 (n-20)	Yoga 30min, 1x/wk x 8 wks	Emotional Exhaustion, Depersonalization, Mindfulness, Self-Care	
2 (n-39)	Knitting – 20min daily at work x 6 wk	Burnout	

\*Study #'s relate to numbering on summarized list of included studies &amp; abbreviated numbered list

Study # (# exposed to intervention)	Intervention used in combination	Traits demonstrating desired responses	Traits demonstrating neutral response
7 (n-30)	MBCT- In addition to primary education centered around communication skills. 30min, 2x/wk x 2 wks	Stress	Burnout, Emotional exhaustion, Depersonalization
8 (n-90)	MBCT along with stress & anxiety education, communication skills & grief work in web-based app. Available over 3 months	Stress, Coping	
4 (n-79)	MBSR along with stress, burnout & self-care education. 1 full day-long session w/ 1 month booster class	Burnout Emotional Exhaustion Depersonalization Anxiety Sleep Quality Depression	Personal Achievement
9 (n-16)	MBSR along with LKM and single 30mi education session. 1 education session, with MBSR homework x 4 weeks	Burnout, Compassion satisfaction, Secondary trauma	
10 (n-16)	MBSR along with stress scale, and self-care reminders in mobile app self-directed over 6 wks		Secondary Traumatic Stress Compassion satisfaction Burnout Quality of Life
14 (n-14)	MBSR along with therapeutic writing, exercise & formal event debriefing – 2 day workshop and homework	PTSD, Resilience, Depression	
17 (n-30)	MBSR in single 15-min session, along with education on “coping with stress” 90min 1x/wk x 8 wks	Burnout Emotional Exhaustion Depersonalization Personal Accomplishment Stress Assessment	*Compassion Satisfaction *Coping  *Improved but not to point of significance
19 (n-18)	MBSR sessions along with formal event debriefing, Code Lavender bags, Tree of life memorial, work-life balance sessions, Yoga	Moral Distress	
20 (n-51)	Communication & conflict management and work skills training over 6 months	Burnout Emotional Exhaustion Depersonalization	Personal Achievement

\*Study #'s relate to numbering on summarized list of included studies & abbreviated numbered list

Table 6

*Time involvement of interventions utilized\**

<p>5 minute courses: 5 studies</p> <ul style="list-style-type: none"> <li>• Unlimited opportunity over 12 weeks (#8-web based app)</li> <li>• Unlimited opportunity over 6 weeks (#10- web based app)</li> <li>• 5x/week over 4 weeks (#9-CD based MBST &amp; meditation) (#12-MBSR CD based)</li> <li>• BID opportunities over 4 weeks (#6-mindful meditation)</li> </ul>
<p>30 minute courses: 7 studies</p> <ul style="list-style-type: none"> <li>• Over 24 weeks (#19-bundle of interventions) (#20-conflict &amp; communication)</li> <li>• Over 8 weeks (#1-yoga sessions)</li> <li>• Over 6 weeks (#2-knitting classes) (#10-web based app)</li> <li>• Over 4 weeks (#12-MBSR)     With additional homework (#12-MBSR CD based)</li> <li>• Over 2 weeks (#7-MBCT courses)</li> </ul>
<p>90 minute courses: 1 study</p> <ul style="list-style-type: none"> <li>• Over 8 weeks (#17-education)</li> </ul>
<p>2 hour courses: 2 studies</p> <ul style="list-style-type: none"> <li>• Over 5 weeks (#11-MBCT CD based)</li> <li>• Over 4 weeks (#16-MBCT)</li> </ul>
<p>4 hour courses: 2 studies</p> <ul style="list-style-type: none"> <li>• Over 16 weeks (#18-MBCT)</li> <li>• Over 2 weeks (#3-communication skills) (#15-4A's course)</li> </ul>
<p>1 Day course: 2 studies</p> <ul style="list-style-type: none"> <li>• Single day (#4-mixed modality) (#5-MBCT)     8 week Additional "homework" (#5-MBCT)</li> <li>• Two days (#14-multimodal)     12 weeks additional "homework" (#14-multimodal)</li> </ul>
<p>Booster Courses offered: 2 studies</p> <ul style="list-style-type: none"> <li>• 6 months later (#4-mixed modality)</li> <li>• 3 months later (#7-MBCT)</li> </ul>
<p>Unspecified time</p> <ul style="list-style-type: none"> <li>• Over 8 weeks (#13-self-directed SMART courses)</li> </ul>

\*Study #'s relate to numbering on summarized list of included studies & abbreviated numbered list

Each of the interventions involved either scheduled sessions over time, self-directed involvement over time, or a combination of scheduled and self-directed opportunities over time. Individual-session time commitments varied from five-minute, self-directed interactions with a web-based app, to full-day classes with additional daily homework. The length of time the intervention was offered varied from thirty days to twenty-four weeks. See Table 6 for a more complete, itemized breakdown of time-commitments.

### **Results and Summary**

As mentioned previously, there were thirty-one different measurement tools utilized throughout the study, and most measured more than one trait. There was an overlap of measured traits amongst the scales. Accounting for overlap, there were twenty-nine traits separately measured. Each of these traits may be identified as either a negative trait exhibited as a product of moral distress or burnout, or as a positive trait exhibited in resilient individuals. The responses captured by the measurement tools did point to identifiable answers to the research questions.

1. **Primary Research Question:** Within nurses and nurse practitioners, what effect does exposure to strategies to build resiliency have on symptoms of moral distress and burnout?

The answer to this question can best be summarized through the Table 7 below. The study numbers listed within the table correlate to the study numbers listed in the Literature Matrix in Addendum A and on the list of studies in Table 2.

Table 7

*Overall list of results by measured trait*

TRAITS IMPROVED	TRAITS DECREASED	NO CHANGE IN TRAIT
<p><b>Mindfulness</b> (Study# 1,11,12,13,17)</p> <p><b>Sense of Coherence</b> (Study# 5,12,18)</p> <p><b>Personal Accomplishment</b> (Study# 3,12,17)</p> <p><b>Resilience</b> (Study# 14)</p> <p><b>Sleep quality</b> (Study# 4,5)</p> <p><b>Self-Care</b> (Study# 1)</p> <p><b>Social activities</b> (Study# 5)</p> <p><b>Coping</b> (Study# 8)</p> <p><b>Compassion satisfaction</b> (Study# 9)</p> <p><b>Happiness</b> (Study# 11)</p> <p><b>Level of Control</b> (Study# 12)</p> <p><b>Life Satisfaction</b> (Study# 12)</p> <p><b>Well-Being</b> (Study# 12)</p> <p><b>Distress Tolerance</b> (Study# 16)</p> <p><b>Vigor</b> (Study# 18)</p>	<p><b>Stress symptoms</b> (Study# 5,6,8,11,13,17,18)</p> <p><b>Burnout</b> (Study# 2,3,4,9,12,13,17,20)</p> <p><b>Emotional exhaustion</b> (Study# 1,3,4,12, 17,20)</p> <p><b>Depersonalization</b> (Study# 1,3,4,12,17,20)</p> <p><b>Depression</b> (Study# 4,5,13,14)</p> <p><b>Anxiety</b> (Study# 4,5,11,13)</p> <p><b>Moral Distress</b> (Study# 15,19)</p> <p><b>Job stress</b> (Study# 7)</p> <p><b>Secondary trauma</b> (Study# 9)</p> <p><b>PTSD scores</b> (Study# 14)</p> <p><b>Fatigue</b> (Study# 18)</p>	<p><b>Burnout</b> (Study# 6, 7, 10,)</p> <p><b>Depersonalization</b> (Study# 6, 7,12)</p> <p><b>Compassion satisfaction</b> (Study# 10, 17)</p> <p><b>Personal Accomplishment</b> (Study# 4, 20)</p> <p><b>Emotional Exhaustion</b> (Study# 6,7)</p> <p><b>Mindfulness</b> (Study# 6)</p> <p><b>Self-Compassion</b> (Study# 6)</p> <p><b>Quality of Life</b> (Study# 10)</p> <p><b>Secondary Traumatic Stress</b> (Study# 10)</p> <p><b>Effective Coping</b> (Study# 17 improved but not significantly)</p> <p><b>Ineffective Coping</b> (Study# 17 improved but not significantly)</p>

*Individual neutral trait results compared to desired trait results within same study*

<p>Study #12 Demonstrated 7 desired trait responses, neutral on 1</p> <p>Study # 4 Demonstrated 6 desired trait responses, neutral on 1</p> <p>Study #17 Demonstrated 5 desired trait responses, with 2 other traits improved, but not significantly</p> <p>Study #20 Demonstrated 3 desired trait responses, neutral on 1</p> <p>Study # 6 Demonstrated 1 desired trait response, neutral on 5</p> <p>Study # 7 Demonstrated 1 desired trait response, neutral on 3</p> <p>Study #10 Demonstrated 0 desired trait responses, neutral on 4</p>
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\*Study #'s relate to numbering on summarized list of included studies & abbreviated numbered list

There is an overwhelming amount of desired trait responses to the interventions as a whole. Looking at those instances where there is no change within any single measured trait, it is notable that there were desired changes within other measured traits for that study. The one exception to this is study #10, which was performed by Jakel et al. (2016) with a total of sixteen in the intervention group. This is the only study that did not appreciate any significant change in any of its desired results. For this study, the participants were asked to use a mobile app in a self-directed manner. The app had been developed by the Department of Defense to aid in alleviating compassion fatigue amongst social workers, nurses, and physicians who treat military service members. It provides education on compassion fatigue, stress, and burnout, a method to score the users' current level of distress, and a reminder system to prompt the user to participate in self-care activities to increase resilience (Jakel, 2016). The lack of positive responses within the Jakel (2016) study may be due to the short study period, the self-directed nature of the intervention, the size of the participant group, or the design of the app.

Some interesting side findings relate to co-worker relationships. In two of the studies, there were improvements noted in both the participant group and control groups (Mackenzie, Poulin, & Seidman-Carlson, 2006; Mealer et al., 2014). This was attributed to inter-mingling between the groups since the study and control groups worked within the same units. Further notable responses relate to answers given to non-standardized, open-ended questions that were included within a few of the studies. These revealed a side-benefit of interactions with co-workers. Anderson & Gustavson, (2016) study participants, reported an appreciation of opportunities to bond with co-workers. In another study, the comments indicated the value of realizing that co-workers were struggling with similar issues and they were not alone in their distress (Edmonds, Lockwood, Bezjak, & Nyhof-Young, 2012). Vaclavik, Staffileno, and

Carlson (2018) reported that six months after the initiation of their bundle of interventions, staff had taken ownership of the interventions and had added some of their own devising. They reported an improved 'sense of team' where they were supporting and gaining strength from one another as well as a strengthened sense of resilience.

The interventions with the co-worker support observations listed above, consisted of knitting in groups (Anderson & Gustavson, 2016), a one-day, mixed modality training session with a booster session six months later, (Edmonds, Lockwood, & Nyhof-Young, 2012) and a bundle of six differing interventions offered to a group of nurses over a six month period (Vaclavik, Staffileno, & Carlson, 2016). The only commonality between these studies was the opportunity to interact in a supportive manner with co-workers. Casual supportive group interaction was not studied as a separate intervention but appears to be a potential positive side-effect of resilience efforts.

While a state of resiliency may stem from one's basic personality, study results also suggest that it is a state which may be learned and fostered through active intervention, and thus impact symptoms of moral distress and burnout. There is evidence presented through these studies which suggests that efforts to build resilience may also impact existing symptoms of moral distress and burnout. Larger studies with wider time lapses between the end of a formal intervention and follow-up post-intervention measurements are suggested to add strength to the evidence and to see if these results are sustained over time.

**2. Secondary Research Question:** What interventions, if any, have an effect on building resilience and/or reducing symptoms of moral distress and burnout?

There were 12 different interventions utilized within the studies in this review. These 12 interventions were utilized singularly or in combination with one or more modalities in a multi-

modal approach. The majority of studies, (15 out of 20 studies in the review) included some version of mindfulness-based practice. Seven used Mindfulness-Based Stress Reduction (MBSR). Eight utilized Mindfulness-Based Cognitive Therapy (MBCT). The remainder of the interventions were: targeted education (6 studies), communication/conflict management skills (4 studies), grief work (3 studies), yoga (2 studies), physical exercise (2 studies), formal event debriefing (2 studies), knitting in groups (1 study), therapeutic writing (1 study), and work skills training (1 study). (See Tables 4 & 5). Without exception, each of the types of interventions demonstrated desired results that reached levels of significance within the post-test results. However, each of the studies did not fully demonstrated desired results.

For the sake of clarity, interventions that were utilized as a single intervention were looked at first. Those include MBCT, MBSR, targeted education, communication/conflict management skills training, yoga, and knitting. Secondly, the interventions that were offered as bundled interventions were reviewed.

### **Discussion by Intervention Type**

**Mindfulness.** Mindfulness-based Stress Reduction (MBSR) was introduced as the only intervention in two studies (Gauthier, Meyer, Grefe, & Gold, 2015; Mackenzie et al., 2006), and Mindfulness-based cognitive therapy (MBCT) was introduced as the only intervention within five studies (Foureur, Besley, Burton, Yu, & Crisp, 2013; Lan et al., 2014; Magtibay & Chesak, 2017; Motaghedi, Donyavi, & Mirzaian, 2016; Orly, Rivka, Rivka, & Dorit, 2012). In each of these studies the MBCT concepts and practice sessions were performed by certified instructors, and each was based directly on the original work of Dr. Jon Kabat-Zinn, the founder of the Center for Mindfulness in Medicine, Health Care and Society at University of Massachusetts

Medical School (Kabat-Zinn, 2003; "Kabat-Zinn Profile," 2017). However, the time involvement and level of self-direction varied between interventions. (See Table 5).

In six out of the seven studies utilizing singular mindfulness-based interventions, there was prolonged education about, and interaction with, the intervention. In these six studies, each of the measured traits demonstrated strong desired results. The time involvement ranged from a total of two hours plus homework over four weeks, to 64 hours over 16 weeks. Each study also included a version of group learning sessions (Foureur et al., 2013; Lan et al., 2014; Mackenzie et al., 2006; Magtibay & Chesak, 2017; Motaghedi et al., 2016; Orly et al., 2012).

In the seventh study by Gauthier et al (2015), there was no education involved, and the interaction with the intervention occurred for five minutes before or after a worked shift for a period of 30 days. Average participant interaction was limited with 89% attending a single session and only 42% attending two sessions per week, which constitutes a total of 40 minutes of contact with the intervention. Results for this study did show improvement in stress levels, but did not affect burnout, mindfulness, or self-compassion scores. The authors speculated this may have been due to the fact that moral distress builds over time and would require extended time and work to diminish (Gauthier et al., 2015). This may also represent participator bias, whereby the participants in this study took a more passive approach to the interaction due to the minimal effort and disruption of personal schedule.

Individually, the MBSR- and MBCT-only studies had small numbers of participants. They ranged from 15 to 38 nurses per study that were exposed to the intervention. Collectively the studies contained 133 participants exposed to MBCT and additional 54 exposed to MBSR programs as the solitary intervention. This represents a total of 187 participants exposed singularly to a mindfulness-based intervention. Within six of the seven mindfulness-based

studies, each trait studied trended in the desired manner. (See Table 5), meaning that stress, depression, anxiety, burnout, and emotional exhaustion decreased, while mindfulness, sleep quality, vigor, happiness, and sense of coherence increased. In the seventh study, (Gauthier et al., 2015) which was discussed above, only stress decreased while symptoms of burnout, mindfulness, and self-compassion remained neutral.

**Targeted education.** This approach was employed as a single intervention in the study by Molazem, et al. (2013). The education utilized the format within the American Association of Critical-Care Nurses (AACN) booklet entitled *The 4A's to Rise Above Moral Distress* (American Association of Critical-Care Nurses [AACN], 2004). This was covered in two, four-hour group sessions over two weeks which allowed for prolonged time interaction and group participation for the intervention group. The premise of the program is based on teaching the concept of moral distress, and its causes, symptoms, outcomes, and means of resolution. It uses a structure of 4A's: 1) Ask if you are feeling distressed and how you are responding, 2) Affirm the feeling/perception and one's personal obligations, 3) Assess the source and severity of the distress, and then 4) Act to preserve your integrity (AACN, 2004). Within the program there are tools and suggested resources for achieving each step successfully.

There were 30 cardiac care nurses in both the control and intervention groups. At completion of the study, Moral Distress (MD) levels decreased in the study group while MD levels increased in the control group over the same period of time. This trend continued at two months after the intervention.

**Communication and conflict management skills training.** The researchers in this study took the approach that emotional exhaustion, personal accomplishment, depersonalization, and burnout can be impacted through improving communication skills and providing conflict

management skills. These are necessary skills when addressing ethical and moral issues. They covered active listening, non-verbal communication, channeling assertiveness, emotional management, and addressing conflict in an emotionally-stable manner (Darban, Balouchi, Narouipour, Safarzaei, & Shahdadi, 2016). The training occurred in four-hour sessions distributed two times per week over two weeks for a total of 16 hours. Courses included lectures, group discussions, film screening, and other practical tasks. Interestingly, this was the only study of the twenty in this review that was made up mainly of male subjects. There were 50% males in the study group and 73% males in the control group with a total of 30 individuals each in the study and control groups. The subjects were recruited from a variety of patient care units. It is worth pointing out that there was a prolonged interaction with the intervention, and it was performed within a group setting. Pre-post test scores demonstrated a significant decrease in job burnout frequency and intensity, as well as decreases in each of the sub-groups of emotional exhaustion, personal achievement, and depersonalization (Darban et al, 2016).

**Yoga.** This modality was utilized as a singular intervention in the study by Alexander et al (2015). The course was presented in 30-minute weekly yoga sessions facilitated by a certified instructor over an eight-week period of time. Additionally, participants were encouraged to practice yoga exercises at home with booklets and mats provided for this purpose. The study and control groups each held 20 individuals. There was no reporting on the number of group yoga sessions that each participant attended or individual home sessions that were performed by the study group. Nurses in the study were recruited from multiple in-patient units within a large teaching hospital. Both the control and interventions groups demonstrated an increase in mindfulness and self-care. The control group did not reach significance; the study group had higher levels that reached statistical significance. This increase in both groups was attributed to

interaction between the groups and a possible anticipatory reaction of the control group as they would have access to the same intervention upon completion of the study (Alexander et al, 2015). Only the study group demonstrated significant decreases in emotional exhaustion and depersonalization scores, indicative of less burnout.

**Knitting in groups.** In this study by Anderson et al (2016), knitting was taught in small groups during breaktimes and after stressful situations on the nursing unit. It was facilitated by skilled volunteers from a community-based program (Project Knitwell, n.d.) with sessions lasting 20 minutes daily over a six-week period. 39 oncology nurses participated between one and five times per week. Each nurse made a knitted square which was then co-joined with the others, framed, and displayed on the unit at the end of the project. Significant results demonstrated an increase in compassion satisfaction, and decreased levels of burnout and secondary traumatic stress amongst the nurses (Anderson, et al, 2016). As mentioned earlier, this study also collected responses to open-ended questions where the participants voiced an appreciation for the opportunity to bond with fellow nurses. They further appreciated the opportunity to free their minds from the stress of work and to show compassion for each other. The question must be asked if the results were due to the knitting, or due to the group interaction and opportunity to informally debrief during a workday.

**Combination interventions.** The remaining nine studies utilized a multi-modal combination of the above interventions with additional interventions added in. (See Table 5). Eight of the studies included some form of mindfulness intervention (Edmonds et al., 2012; Habibian, Sadri, & Nazmiyeh, 2018; Hersch et al., 2016; Hevezi, 2016; Jakel et al., 2016; Mealer et al., 2014; Onan, Isil, & Barlas, 2013; Vaclavik, Staffileno, & Carlson, 2018). Six studies delivered education centered around moral distress, burnout, coping and self-care (Edmonds et

al., 2012; Habibian et al., 2018; Hersch et al., 2016; Hevezi, 2016; Mealer et al., 2014; Onan et al., 2013). Three included communication skills and conflict management training (Habibian et al., 2018; Hersch et al., 2016; Wei, Ji, Li, & Zhang, 2017). One included yoga, (Vaclavik et al., 2018) and none included knitting. The additional interventions include skills training (Wei, Ji, Li, & Zhang, 2017), therapeutic writing, formal event debriefing (Mealer et al., 2014), patient memorials, and “Code Lavender” stress relief packages (Vaclavik, Staffileno, & Carlson, 2018). Each of these additional interventions had been previously studied amongst diverse healthcare professional groups in earlier studies.

Within the multi-modal approaches, there was no ability to objectively separate out the individual effect that each portion of the intervention may have had on the post-intervention measurement scores. Each of the combination studies contained at least one of the elements studied individually. All the studies, except for the self-directed web-based app study performed by Jekel et al. (2016), had desired responses within the measured traits. Only two studies demonstrated limited significant results (Gauthier, et al, 2015; Habibian et al., 2018). These two had the least amount of participant interaction time.

All the interventions demonstrated desired results. However, not all of the studies fully demonstrated desired results. One of the differences in the effectiveness of the individual studies appears to be the manner in which the participants interacted with the intervention. Specifically, this involved the amount of time exposure to the intervention and the amount of group interaction the participants experienced. Two studies demonstrate this observation. In the study by Gauthier et al (2015), the participants exposed to MBSR techniques at shift change averaged 40 minutes total of passive intervention time. In the study by Habibian et al (2018), the participants, exposed to education centered around communication skills and MBCT techniques,

averaged two hours of total intervention time split between the two topics. This was hypothesized to not be enough time for capture of either topic.

The remainder of the studies had participants experiencing anywhere between four to 64 hours of intervention exposure. The majority experienced four to 16 hours of direct intervention time with encouraged extra “homework” time. Within these remaining studies, all the measured traits demonstrated desired results. The singular exception was two instances of personal achievement not being fully realized, likely due to not enough time allowed for this trait to materialize before post-testing occurred. Based on this observation, it may be possible that the amount of time spent in building resilience has an effect on whether the effort is successful. Much further study would be required to make this statement with any certainty.

As stated previously, there was variation in the types of hospitals, types of patient-care units, number of participants, cultures of study groups, measurement scales used, and levels of evidence demonstrated in the studies. The commonality between the studies was that a pre- and post-intervention measurement was administered. There were themes within the interventions and overlaps of interventions amongst the studies. One means of overcoming the differences, addressing the research question, and adding strength to an interpretation of results, is to pool the total number of individuals throughout all the studies that are exposed to each type of intervention (Holly, Salmond, & Saimbert, 2017).

Study sizes were individually small. Combining numbers within studies utilizing similar interventions adds some weight. However, due to the overall variation between studies, this does not carry much significance, but it is interesting to review. There were 187 individuals exposed to mindfulness-based strategies as a single intervention, and 292 individuals exposed to mindfulness-based interventions within multi-modal strategies. Communication skills/Conflict

management training was offered to 30 individuals as a single intervention and to 171 individuals within multimodal interventions. Targeted education involved 30 individuals in singular intervention and 259 individuals in combination interventions. Yoga by itself had 20 participants. In combination with a package of interventions there were an additional 18 participants.

In answer to the secondary research question of which interventions, if any, have an effect on building resilience and/or reducing the symptoms of moral distress; there are several that show promise, particularly if sufficient time is given to participation. They are: 1) mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT) strategies based on Kabat-Zinn principles, 2) targeted education centered on moral distress and its causes, symptoms, and outcomes, and means of resolution, 3) communication skills with conflict management training, and 4) Yoga. While other strategies were introduced within packages of interventions that demonstrated desired results, it is not possible to identify those as individually building resilience or reducing symptoms of moral distress. Conversely, it does not appear that they hindered the effect of the other strategies.

### **Discussion of Significant Results**

#### **Mindfulness**

Mindfulness-based efforts appear to be effective strategies in increasing traits related to resilience and decreasing traits related to moral distress and burnout. Within this review, 15 of the 20 studies contained a mindfulness-based strategy, and all demonstrated desirable effects on the measured traits. In light of this, a deeper look at what, exactly, constitutes mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT) programs is necessary.

Mindfulness-based practices have been around for centuries within various contemplative religions. However, they are not necessarily a religious practice. They have been studied and elevated into science and into the disciplines of education, psychology and medicine (Crane et al., 2017). Jon Kabat-Zinn is considered the modern founder of the use mindfulness-based strategies to affect health and well-being. He has a PhD in molecular biology and has spent his career studying mind/body interactions and developed a mindfulness meditation process. He, and others, have studied the effect of mindfulness meditation on the brain, on the immune system, and on healthy emotional expressions under stress ("Kabat-Zinn Profile," 2017). Through his research, Kabat-Zinn (2017) developed an education and training model for assisting individuals with chronic health issues, and psychological/emotional stress to learn to relate in new ways to the challenges and stresses they face. This is now based at the University of Massachusetts Centre for Mindfulness in Medicine Health Care and Society.

The main principle of mindfulness is the realization that individuals can have habitual reactive patterns to fear, stress and distress, and are capable of learning new ways of training the mind to relate to distressing experiences. The idea is that understanding and changing how individuals respond to distress, rather than changing the distress itself, is the key to relieving the physical, emotional and psychological consequences of the distress (Crane et al, 2017). Through training, individuals can recognize how they are reacting to a stressor, and then shift their relationship to their reaction. This process is known as decentering. Once the emotion is identified and isolated, the individual can challenge it and choose how he or she responds emotionally (MBSR) and may also challenge the thought processes behind the emotion (MBCT). This is re-centering. An example is given by Crane et al (2017), whereby a person is late and anxiously rushing to a meeting. Taking a moment to stop and acknowledge the anxiety caused

by rushing provides an opportunity to slow the body response and increase awareness of surroundings which can lead to a safer commute. This is MBSR. Taking this a step further, the individual may also identify an unexpressed thought that if they are late, then everyone in the room will think negatively of them. Challenging this thought for truthfulness, or seriousness is the cognitive portion of MBCT. There are elements of problem solving that may be employed here as well. The act of being late does not change. The body's physical, emotional, and cognitive response to being late is what changes.

This is a brief skeletal explanation of the process. There are well-established, well-studied learning modules and exercises within mindfulness-based curriculum that must be adhered to in order to be considered a MBSR or MBCT program (Crane et al., 2017; Kabat-Zinn, 2003). It is not merely a process of looking at a situation through "rose-colored glasses" or with an unrealistic, skewed view of reality. It is consciously following a process to self-regulate one's response to a stressful reality. Having an instructor that is certified and skilled in mindfulness is key to successful results (Crane et al., 2017; Kabat-Zinn, 2003). The trained individual may help tailor the recognition processes to specific populations and triggers such as those experienced in healthcare caregiver populations. Within each of the studies in this review, the mindfulness-based interventions were based on the Kabat-Zinn (2017) principles and presented through certified instructors.

Mindfulness meditation processes have been shown to have an effect beyond the psychological response. Physical health and immune systems may also be impacted in a positive manner. This has been demonstrated within several studies through decreased inflammatory markers and increased natural killer cell activity (Fang et al., 2010), increased DC4 counts and

immune-related cytokines (SyedAlinaghi et al., 2012) and enhanced IgG and IgM responses (Davidson et al., 2003). Examples of this can be seen through the following two studies.

In one randomized, controlled study, employees in a high-stress tech company completed a full-scale eight-week MBCT training program facilitated and taught by Dr. Kabat-Zinn (Davidson et al., 2003). In the study, pre- and post-intervention anxiety scores were measured. Additionally, electroencephalogram (EEG) testing pre- and post-intervention occurred to monitor left-sided anterior brain activity. This is the portion of the brain previously identified with positive adaptive responses to stressful events and immune function (Davidson, Ekman, Saron, Senulis, & Friesen, 1990; Kang et al., 1991). Influenza vaccines were also administered to the control and intervention groups at the end of the eight-week course in order to measure antibody titer responses. These methods had previously been shown to be negatively affected by stressful life events (Kiecolt-Glaser, Glaser, Gravenstein, Malarkey, & Sheridan, 1996).

The results of the study demonstrated a reduction in perceived anxiety scores in the mindful meditation group. Left-side anterior brain activity increased, indicative of an increase in positive adaptive responses to stress. Influenza vaccine antibody titers rose significantly higher in the mindful meditation group than in the control group, indicating an improved immune function (Davidson et al., 2003). All of these lead to a strengthened emotional, psychological, and physical well-being of the mindful practitioner.

A more recent example of the potential wellbeing effect of mindfulness-based practice is a prospective cohort trial study amongst healthcare professionals which included medical residents, physicians, and nurses. Here, the effect of mindfulness on burnout, emotional wellness, and telomere length was studied (Thimmapuram et al., 2017). Telomeres are the protective ends of chromosomes. Longer length is associated with fewer illnesses and longer cell life. The

intervention group received 30 minutes of mindful meditation weekly for 12 weeks with a certified instructor and were asked to complete daily exercises at home on their own. At the end of the 12 weeks, the mindful meditators had significant improvement in all measures of burnout and emotional wellness. More interesting, were the telomere results. Individuals in the 24-33-year-old age range within the mindful meditation group had a statistically significant increase in telomere length that was not seen in their age-matched control cohorts (Thimmapuram et al., 2017). Since telomerase declines with age, there was an expected higher level of response within the younger subset. The results of this study indicate that mindful meditation using Kabat-Zinn (2017) principles can ameliorate subjective feelings of burnout while also supporting psychological wellness and cellular health.

The principles of Kabat-Zinn (2017) mindfulness fit well in addressing the concepts of moral distress and burnout described within Rushton et al. (2013b) expanded empathy model. One post of the empathy model is the concept of emotional memory that one carries in response to past experiences, either negative or positive (Batson et al, 1987). Within mindfulness, there is a similar acknowledgement that individuals may have habitual patterned responses to fear, stress and distress (Crane et al 2017). A second post of the empathy model is the concept of cognitive attunement, or the choice of perspective that a clinician may take when faced with dissonance between viewpoints. It may be that one turns outwards in compassion for others or turns inwards in a depersonalized manner to protect oneself from distress. These decisions are powered by our values and previous emotional responses (Rushton, et al, 2013). Within mindfulness one learns to become conscious of the dissonance and make a cognitive choice to change or neutralize negative emotional responses (Crane, 2017). Resilience, as defined by Epstein & Hamric

(2009) is the ability to feel the emotion of moral distress in a healthy manner and return to a neutral emotional state without residue being left behind.

Mindfulness practice can assist with the emotional return to neutral. This blending of theories may explain why mindfulness-based interventions were chosen with such frequency for study within nursing populations, and why they appear to have a positive effect on building resilience and decreasing symptoms of moral distress and burnout.

### **Communication and Conflict Management Skills**

Dissonance between what one is asked to do and one's personal values is another component of cognitive attunement within the Rushton et al. (2013) expanded empathy model. This meshes with the triggers of moral distress and burnout commonly identified in MD research. They include continuing life support when it is not in the best interest of the patient, initiating care that only prolongs death, following a family's wishes over a patient's due to fear of litigation, lack of assertiveness, and lack of collegial relationships (Corley et al., 2001; Epstein & Hamric, 2009; VanMol et al., 2015). Mindfulness may help therapeutically center and frame personal thoughts and emotions internally related to morally-distressing situations. Having a means of addressing MD situations in a more overt, external fashion may also help avoid or diminish levels of dissonance between parties.

Communication and conflict management skills could carry high value in navigating these situations in a manner that keeps the patient at the forefront and one's moral integrity intact. This idea is supported by results from a survey given to 290 nurses in a Level I trauma hospital (Rathert, May, & Chung, 2016). They were asked to respond to survey questions centered on moral distress, ethics communication, and self-efficacy in navigating these situations. Survey responses highlighted the importance of speaking up. This was coupled with

responses indicating that this required courage and communication skills. In a national survey of nurses in New Zealand, 48% of nurses reported considering leaving their positions due to moral distress (Woods et al., 2014). Poor team communication was one of the cited causes of that distress.

It is interesting to note that only three of the studies specifically provided communication skills and conflict management training to the nurses. One as a the only intervention (Darban et al., 2016), one in conjunction with a brief MBCT introduction (Habibian et al., 2018), and one as part of a comprehensive management program that also included work skills and emotional intelligence courses (Wei et al, 2017). Two of the three were random controlled studies with prolonged contact with the intervention. These studies showed similar results to those utilizing straight mindfulness-based interventions. Burnout and stress levels decreased, especially in the two studies with prolonged interaction with the training. Unfortunately, components of resilience were not measured in these three studies.

As with each of the studies within this review, the intervention sample sizes were small, the participant characteristics differed, and the manner in which the skills were taught varied. It would be beneficial for future studies to offer communication and conflict management skills as a single intervention, to a larger sample size, while measuring both burnout and levels of resilience traits. Additionally, there may be value to combining mindfulness training and communication/conflict management skills into a single intervention with prolonged interaction time. This would give the nurse skills to address both internal and external contributing components of moral distress.

As stated previously, an incidental observation noted within three of the studies was gained through responses to post-intervention open-ended questions (Anderson & Gustavson,

2016; Edmonds et al., 2012; Vaclavik et al., 2018). Participants voiced appreciation for opportunities to bond with co-workers and to realize that others were struggling with similar issues. They reported an improved sense of team and a sense of gaining support and strength from one another. This sense of support has value and has been studied previously. It has been offered as moral distress consultation services (Hamric & Epstein, 2017), as critical-incident debriefing sessions (Wocial, Hancock, Bledsoe, Cahmness, & Helft, 2010) and through simple peer-to-peer sharing of lavender & chocolates bags (Davidson, Graham, Montross-Thomas, Norcross, & Zerbi, 2017).

## **Analysis**

### **Summary of Evidence**

Participants represented nurses from Western, Middle-Eastern, and Eastern cultures, practicing within large urban teaching facilities and smaller suburban hospitals, on at least eight different types of inpatient care units. 12 different types of interventions were studied alone and in combinations and each with a different method of participant interaction. Even though the studies reached a Melnyk's (2015) level of evidence 2 or 3 for design, the studies were generally small in number of participants. Attempts to pool numbers from studies with similar intervention types did not add significance due to the variations in how the interventions were administered. Each study did have a pre-post intervention measurement design. However, there was not consistency amongst the traits being measured nor amongst the measurement tools utilized.

Participants within the studies were self-selected. This may represent a bias where those individuals who are more generally motivated towards self-care volunteered and those experiencing the most distress and burnout opted out. There may possibly be a type of placebo

effect where any attempt made to address moral distress and burnout would have a positive effect since nurses overall are experiencing such high rates of distress (Whitehead et al., 2015).

Despite this list of inconsistencies and weaknesses amongst the studies, there were some consistent results demonstrated throughout the studies. The primary research question asked: what effect does exposure to strategies for building resiliency have on levels of resilience and on levels of moral distress symptoms and burnout? There were statistically significant levels of desired changes in measured traits within 19 of the 20 studies. Overall traits of resilience increased, and traits of moral distress and burnout decreased which was the desired result. In the six studies where there was no change in a particular trait, there was a minimum of 1, up to a maximum of 7, desired changes in other traits within the same study.

The second research question asks which interventions have an effect on building resilience and/or reducing symptoms of moral distress and burnout. The most general answer would be one that gives sufficient time for the participant to absorb and fully utilize skills offered within the intervention. All the interventions utilized within these 20 studies demonstrated desired results. The delivery of each of the interventions made a difference in how successful the result. Web-based apps had the weakest effect which may be, in part, due to the self-directed method and lack of collegial interaction in the learning process. Passive 5-minute interactions at shift-change had some effect, but this may have been stronger if participants were offered a more in-depth means of utilizing the process.

Mindfulness-based interventions based on Kabat-Zinn (2017) principles were most frequently utilized within these 20 studies. Regardless of the individual method of presentation, there were positive results demonstrated. This may be due, in part, to how nicely the components highlighted in the empathy model find complementary solutions within the principles of

mindfulness. Practicing mindfulness appears to neutralize distress and stop a build-up of residual negative emotions. Based on results of studies outside of this review, there is also the possibility of improved immune functions.

Communication and conflict management skills training were used in a smaller number of studies yet appear to yield similar results to mindfulness-based interventions. It was surprising that there were not more studies utilizing this approach since several of the identified causes of moral distress are rooted in conflicts, lack of personal assertiveness, lack of collegial relationships, and need for addressing difficult situations with a certain finesse. Each of these may be addressed through skillful communication and conflict management techniques. Certainly, there is justification for enhancing these skills. Future studies with larger numbers may give strength to the argument for investing in teaching these skills to nurses beyond what they may have received in nursing school.

None of the studies within this review actively addressed external environmental factors that have been identified as impacting moral distress. These would be inadequate staffing, lack of administrative support, policies, and charting responsibilities that conflict with care needs (Epstein & Hamric, 2009). It would be difficult to address these factors in a systematic and measurable way due to the nuances of each individual health system, of ever-changing healthcare reimbursement, and of shifting insurance and regulatory requirements. Tackling these issues would require concerted, collaborative, and multi-disciplinary efforts. This is outside the scope of this study. However, it does remain an important area for research. Perhaps through building stronger and more resilient nurses with good communication and conflict management skills there will be more nurses available to carry on that important aspect of research.

### **Implications for Practice**

There is a phenomenon of nurses around the globe experiencing moral distress and exhibiting symptoms related to this experience. The consequences of moral distress led to caregiver burnout, poor work engagement, avoidance of patient interactions, and nurses leaving their positions (Burston & Tuckett, 2012). Higher levels of personal resilience within caregivers has been correlated with lower levels of moral distress and burnout (Arrogante & Aparicio-Zaldivar, 2017; Garcia-Izquierdo et al., 2018; Silver et al., 2018). It has been less clear if this correlation is simply due to general personality traits of the individual, or if resilience was something that could be achieved through active intervention. The collection of studies within this review appear to suggest that levels of resilience and symptoms of moral distress and burnout may be impacted through active intervention.

While the studies in this review were small, the results consistently demonstrated desired trait changes within nurses of differing cultures, patient care populations, and sizes of health systems. There was no dominant singular format for offering interventions that appeared to be more successful. The commonalities appear to be offering mindfulness-based strategies, communication, and conflict management training, along with supportive group interaction, and for this to occur over extended time periods. Nurses leaders are encouraged to initiate and/or participate in efforts to address resilience and moral distress within their institutions.

### **Implications for Research**

Clearly there is need for larger studies to add strength to the argument that resilience may be taught and that moral distress symptoms may be alleviated through these efforts. This sentiment is echoed by the American Nurses Association, the American Medical Association, the Association of Critical Care Nurses, and Press-Ganey (AACN, 2016; ANA-PIP, 2017; Perni,

2017; Press Ganey, 2017). Nursing would benefit from continued research directed on the topic of building resilience within nurses as a means of protecting the health of the nation through preserving the health of our nurses.

Further recommendations for research would include exploring how resilience may be built into academic nursing curriculum to begin protective training of nurses before moral distress residual can begin to form. It was noted within this review that post-intervention measures occurred in close time proximities to the conclusion of the interventions. These studies did not demonstrate if results withstand the test of time. While there are practical constraints in performing measurements over extended time frames, this may be worth attempting. There may be value in evaluating a program of repeat training in resiliency behaviors and communication skills as part of annual competency activities just as other vital skills are reviewed.

A final recommendation for further research is to explore time involvement. The studies in this review demonstrated successes within a wide variety of time involvements with stronger results noted with longer time commitments, but no indication as to what was considered sufficient. Further efforts with mindfulness-based interventions may focus on standardizing courses times. Since there is a potential link between the length of time spent interacting with resilience efforts, and there is a limited amount of healthcare dollars available, it would be valuable to find the optimum amount of training that maintains results for the minimum amount of expense.

### **DNP Essentials**

The DNP essentials delineate the eight foundational competencies of the Doctor of Nursing Practice degree (AACN, 2006). This DNP project relates to Essentials I, III, and VII.

**Essential I:** *Scientific Underpinnings for Practice.* The scientific discipline of nursing focuses on the wholeness of human beings as they are in continuous interaction with their environments. This encompasses integrating knowledge from psychosocial, analytical, and organizational sources as a means of describing actions which may alleviate health issues and enhance health care delivery (AACN, 2006). This review included theories from nursing and practices from related health fields to understand the phenomena of moral distress. It sought to evaluate available evidence to determine the nature and effectiveness of efforts to address resilience, moral distress, and burnout within nurses as they practice in their environments.

**Essential III:** *Clinical Scholarship and Analytical Methods for Evidence-Based Practice.* The DNP graduate applies knowledge to solve problems through analytical processes. This extends beyond the discovery of new knowledge. It also involves the critical appraisal of existing literature and translation of findings into evidence-based practice (AACN, 2006). Whitemore & Knafle's (2005) framework, and PRISMA processes (Liberati et al., 2009) were used to search, process, and critique available research related to resilience, moral distress and burnout. An attempt was made to synthesize the research and form a more complete and informed understanding of the role that efforts to build resilience may have on moral distress and burnout within nurses.

**Essential VII:** *Clinical Prevention and Population Health for Improving the Nation's Health.* DNP graduates are challenged to engage in leadership and activities which promote health and reduce risk of illness within communities, cultures, and occupations. There have been national calls to action to address moral distress within nursing as a means of preserving the workforce and thus secondarily, the health of the nation that depends on nurses providing care. This review sought to analyze and synthesize the available evidence that relates

to attempts to reduce moral distress within nurses and its by-products of burnout and nurses leaving the profession.

### **Conclusion**

Moral distress is a growing phenomenon in healthcare that has been documented within all levels of healthcare personnel (Allen et al., 2013; Whitehead et al., 2015). In review, MD is not being able to act in accordance with one's values due to a perceived or actual internal or external constraint. Its presence within nurses leads to emotional exhaustion, less personal interactions with patients, compassion fatigue, and a desire to leave the profession among other things (Hamric & Epstein, 2009). National healthcare organizations and countless articles have hailed resiliency as the answer to combat the damage caused by the presence of MD. Previous research has demonstrated a negative correlation between levels of resistance and the presence of moral distress and burnout. However, it was not clear if resilience is a trait that can be created through outside intervention and if these efforts could also impact moral distress and its resulting burnout.

This study sought to add to the discussion through a scholarly review of the available evidence related to building resilience as a means of addressing moral distress and burnout. At the start of the process there was skepticism that resilience could be fostered and whether it would have much of an impact upon moral distress or burnout especially since there are so many potential constraints and sources of moral dilemma. There was careful attention to methodology in order to ensure a thorough review with an objective analysis that adhered to the scholarship and evidenced-based standards of the DNP Essentials. At the conclusion of the review process, it

does appear that resilience can be fostered and moral distress halted or diminished. Further research is needed to make these statements with certainty. Through this review, possibly other nurses with similar skepticism will begin to see value in building resilience as a means of professional self-preservation and use this as an impetus for furthering the study within this field.

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APPENDIX A

Table of Evidence / Literature Matrix

Source	Subjects & Setting	Study Design	Intervention Utilized	Components Studied / Method of Measurement	Summary of Outcome / Feasibility	Melnik Level of Evidence
1. Alexander, G. K., Rollins, K., Walker, D., Wong, L., & Pennings, J. (2015, October)	Urban teaching hospital	Randomized Control trial with pre-post test design	8-week yoga intervention consisting of 8 weekly classes with extra homework exercises given.	Professional Quality of Life (ProQOL)	<u>Yoga group:</u> Decreased Emotional Exhaustion & Depersonalization scores	Level 3
	Unspecified units 40 Nurses	Randomized groups: 20 in control 20 in intervention	AIM: To examine the efficacy of yoga to improve self-care and reduce burnout among nurses	Health-Promoting Lifestyle Profile II (HPLP II)  Freilburg Mindfulness Inventory (FMI)  Data collected at 8 weeks	Increased Self-care & Mindfulness scores  <u>Control group</u> Improved Mindfulness & Self-care scores that did not reach significance. Attributed to group interaction.	
2. Anderson, L. W., & Gustavson, C. U. (2016)	Academic hospital cancer center	Quasi-experimental	Therapeutic knitting sessions (Project Knitwell) performed on hospital unit over a 6-week period.	Professional Quality of Life (ProQOL)	Decreased Burnout scores	Level 3
	In-patient oncology units  39 nurses	Non-randomized Pre-post test design	Nurses taught to knit, sometimes in groups to allow time for debrief over	Additional open-ended questions to evaluate the	Decreased Secondary Traumatic Stress (STS) scores	

		No control group	stressful situations while knitting	project and its benefits	Open-ended responses were positive and mentioned soothing rhythm of knitting and opportunity to bond with co-workers	
			AIM: To explore the impact of a knitting education program and its effect on the related incidence of compassion fatigue	Data collection at end of 6 weeks		
<b>3. Darban, F., Balouchi, A., Narouipour, A., Safarzaei, E., &amp; Shadadi, H. (2016, April)</b>	Hospital in Iran Nurses in unspecified Units 60 nurses total	Randomized controlled trial with pre-post test design  Convenience sample of 60 nurse volunteers randomly assigned  30 in control 30 in study	Communication skills workshop presented in two 4-hour courses over two weeks.  Format contained lectures, Q&A, group discussion, film screening and practical tasks. Covered topics of active listening, non-verbal communication, emotional management and assertiveness	Maslach Burnout Inventory (MBI)  Data collection at end of session and at 1 month after intervention	Study group: Decreased Burnout and Emotional Exhaustion frequency and intensity  No change in Personal Accomplishment  Control group: No significant changes  Interesting – this is the only study within this review where majority of intervention group is male. 22 male, 8 female  This may present as a limitation within this particular culture	Level 2

<p><b>4. Edmonds, C., Lockwood, G. M., Bezjak, A., &amp; Nyhof-Young, J. (2012)</b></p>	<p>Four major hospital centers in Ontario, Canada</p> <p>150 Oncology staff broken into 4 groups:</p> <p>70 Pediatric oncology</p> <p>32 Surgical Oncology</p> <p>*22 Nurse Managers</p> <p>*26 General oncology staff (11 nurses, 22 social workers and Physical therapists)</p> <p>*Only results from Pediatric &amp; surgical Oncology staff are reported here. Nurse Managers and General oncology staff results were excluded.</p>	<p>Quasi-experimental With pre-post test design.</p> <p>Convenience sample of oncology staff, separated by type of unit and job description</p> <p>Complete study responses:</p> <p>150 completed initial intervention &amp; surveys</p> <p>41 completed 6-month booster intervention</p> <p>79 completed 7-month follow up survey</p> <p>*Responses included in this review:</p> <p>102 completed initial intervention &amp; surveys</p>	<p>1 day-long mixed-modality training session then followed up at 6 months with booster session</p> <p>Wellspring community support center <i>Care for the Professional Caregiver Program</i> (<a href="http://www.wellspring.ca">http://www.wellspring.ca</a>)</p> <p>Includes education, breakout discussion groups, experiential sampling of guided imagery, relaxation, mindful breathing adapted to the workplace</p> <p>AIM: to assess effect of Wellspring program on changes in the central components of burnout, emotional exhaustion, depersonalization and personal accomplishment</p>	<p>Maslach Burnout Inventory (MBI)</p> <p>General Health Questionnaire (GHQ-12)</p> <p>Marlowe-Crowne Social Desirability Scale (M-C)</p> <p>Wellspring Evaluation re: satisfaction with program</p> <p>2 Follow-up evaluations: 1 month post initial and 1-month post booster sessions</p>	<p><u>1-month f/u:</u> Decreased Emotional exhaustion, Depersonalization, Burnout, Depression &amp; Anxiety</p> <p>Increased confidence and ability to sleep</p> <p>No change in personal accomplishment</p> <p>Comments indicated value of realizing colleagues struggling with similar issues.</p> <p>6-month booster session-only 41 participants. 100% stating desire to attend similar program on regular basis.</p> <p><u>7-month f/u of all participants:</u> Continued significant decrease in Emotional exhaustion, Burnout, Depression, and Anxiety scores.</p>	<p>Level 3</p>
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		64 completed 7month follow-up survey.			Continued increased confidence and sleep scores	
					No significant change in depersonalization or personal accomplishment	
<b>5. Foureur, M., Besley, K., Burton, G., Yu, N., &amp; Crisp, J. (2013, August)</b>	Two metropolitan teaching hospitals  25 Registered Nurses 6 Midwives 1 Educator 8 Nurse Managers	Quantitative & Qualitative pilot study utilizing pre- post test design  40 participants completed pre-test & initial intervention  28 participants completed post-intervention surveys  *results not separated by job title	1-day workshop teaching the concepts of resilience and involving mindfulness-based stress reduction (MBSR) sessions taught by experienced psychologist. Based on Kabat-Zinn principles  MBSR was a combined program of Kabat-Zinn and Acceptance and Commitment Therapy (ACT) principles  Follow-up intervention of daily mindfulness sessions of 20 minutes for an 8-week period.  AIM: To pilot the effectiveness of an adapted mindfulness-based stress reduction intervention on	General Health Questionnaire-12 (GHQ-12)  Sense Of Coherence Orientation to Life Questionnaire (SOC-Orientation to Life)  Depression, Anxiety, Stress Scale (DASS)  Focus Group & individual interview follow-up interviews	Statistically significant changes in scores in a positive/healthier direction on GHQ-12, SOC-Orientation to Life and the stress subscale of the DASS.  Limitation of small sample size but found to be feasible.  Interview responses: Challenges noted of incorporating mindfulness practice. You need it most when it is hardest to find time. It would be helpful if staff were able to take 10 minutes at work to do it when stressed.	Level 3

			the psychological wellbeing of nurses and midwives		Recommend live experience of workshop for learning MBSR. Self-teaching through listening to a CD or web-site would not be useful.	
<b>6. Gauthier, T., Meyer, R. M., Grefe, D., &amp; Gold, J. I. (2015)</b>	Urban pediatric academic hospital  Unspecified units  38 nurses completed study	Quasi-experimental pre-post test design  No control group	5-minute mindful meditation sessions performed twice daily at shift change for 30 days. Based loosely on Kabat-Zinn principles. Led by experienced personnel  AIM: 1) Assess feasibility of intervention 2) investigate changes in nursing stress, burnout, self-compassion, mindfulness & job satisfaction 3) examine if trait and state mindfulness group differences in stress and burnout over time	Maslach Burnout Inventory – Human Services version (MBI-HS)  Nursing Stress Scale (NSS)  Mindfulness Attention Awareness Scale (MAAS)  Self-Compassion Scale (SCS)  Job satisfaction on single-item Likert scale  Data collection at end of study	Study is deemed feasible  Significant decrease in stress scores regardless of initial levels of mindfulness or total minutes meditated during intervention  No significant changes in emotional exhaustion, depersonalization, mindfulness or self-compassion.  Extra finding: Mindfulness correlated negatively with job satisfaction  Non-significant increase in mindfulness & self-	Level 3

				and 1 month after study	compassion Possibly participants need more adequate weekly instruction and more practice on own during non-working hours	
<b>7. Habibian, Z., Sadri, Z., &amp; Nazmiyeh, H. (2018)</b>	Hospital in Iran Special disease and oncology wards  60 nurses	Quasi-experimental study with pre-post test design  Randomized groups: 30 nurses in control 30 nurses in study	Four, half-hour long group training sessions centered around communication skills with Acceptance and Commitment Therapy (ACT) skills. Initially and then two follow-up/review sessions performed 3 months later.  Control group received standard communication skills training.  AIM: To investigate effects of ACT on job stress and burnout among pediatric oncology and special diseases nurses	Osipow Occupational Stress Inventory (OOSI)  Maslach & Jackson Job Burnout Inventory (MJJBI) (original Maslach burnout inventory)  Data collected at end of initial training and end of follow-up sessions	<u>Study group:</u> Decreased total job stress and diminished levels of 5 out of 6 individual components of Job stress.  No significant effect on job burnout scores of emotional exhaustion, depersonalization or overall burnout. It was proposed to be due to burnout occurring over longer time so requires longer period of reduction.  <u>Control group:</u> no changes	Level 2
<b>8. Hersch, R. K., Cook, R.</b>	5 hospitals in suburban Virginia &	Randomized controlled trial	Web-based BREATHE: Stress Management for Nurses	Nursing Stress Scale (NSS)	The average number of logins was 2.5.	Level 3

<p><b>F., Deitz, D., K., Kaplan, S., Hughes, D., Friesen, M., &amp; Vezina, M. (2016)</b></p>	<p>1 hospital in New York City  Variety of inpatient units  90 nurses</p>	<p>Pre-post test design  Total of 104 nurses self-enrolled into the study  90 completed the study</p>	<p>program. Program available for use over a 3-month period. Program use monitored for use.  AIM: To evaluate the effectiveness of web-based BREATHE: Stress Management for Nurses program.</p>	<p>Symptoms of distress Scale (SOD)  Coping with Stress Scale (CWSS)  Work Limitations Questionnaire (WLQ)  Nurses Job Satisfaction Scale  13 Additional Items developed by study team to assess use of alcohol &amp; drug substances for stress relief and understanding of depression &amp; anxiety.  Data collected 3 months after end of</p>	<p>Average amount of time spent in the BREATHE program was 43 minutes.  <u>Experimental group:</u> Decreased scores on 6 of 7 subscales of nurse’s stress related to: death &amp; dying, conflict with physicians, inadequate preparation, conflict with other nurses, work load, and uncertainty concerning treatment.  <u>No significance between groups</u> on the Lack of Support subscale, coping, use of substances to relieve stress, or understanding of depression &amp; anxiety.  No effect of demographics on outcomes with exception of years in nursing. Program had</p>
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				program access	greater effect on reducing stress for nurses with more experience.	
<b>9. Hevezi, J. A. (2016, December)</b>	Academic medical center  16 Registered nurses	Pilot study using Pre-post test design  Convenience sample, no control group	Brief one-on-one PowerPoint education with participants then receiving CD-directed meditation exercises to use 5-days a week at home over 4-week period.  CD contained 1) a 4-minute breathing technique, 2) an 8-min breathing meditation, 3) a 4-min Loving Kindness Meditation (LKM)  AIM: To evaluate whether short structured meditations decrease compassion fatigue and improve compassion satisfaction in oncology nurses	Professional Quality of Life (ProQOL)  Additional open-ended questions  Data collected at end of 4 weeks	Increase in Compassion Satisfaction  Decrease in Burnout and Secondary Trauma  Reported large effect despite small sample size ( $d > 0.5$ )  Open-ended questions: increased feelings of relaxation, sense of self-compassion, as well as positive physical, emotional & mental reactions to stress. Reports of incorporating brief breathing & meditation exercises during bedside care	Level 3
<b>10. Jakel, P., Kenney, J., Ludan, N., Miller, P. S., McNair, N., &amp;</b>	Unspecified type of hospital  In-patient oncology unit	Quasi-experimental  Non-randomized	Intervention group used Provider Resilience Mobile Application (PRMA) x 6 weeks	Professional Quality of Life (ProQOL)	No statistically significant differences noted on STS, Compassion Satisfaction or	Level 3

<b>Matesic, E. (2016, December)</b>	25 Registered Nurses	pre-post test design  2 groups: 9 in control 16 in intervention	Initial Education in-service given to all participants to define and raise awareness of compassion fatigue.  AIM: To examine if use of PRMA will improve oncology nurses ProQOL	Data collected at end of 6 weeks	Burnout levels between intervention and control groups.	
<b>11. Lan, H. K., Rahmat, N., Subramanian, P., &amp; Kar, P. C. (2014, Mar-May)</b>	Tertiary referral center in Malaysia  Critical care units  37 nurses	Quasi-experimental, pre- post study design  No control group  Voluntary sample of 37 nurses	A group-based, 5-week program of 2-hours per week with CD-guided practice sessions in between. Program consisted of a brief version of Mindfulness-based Cognitive Therapy (B-MBCT).  AIM: To evaluate the effectiveness of a brief mindfulness-based training program in reducing stress and promoting well-being among critical care nurses	Perceived Stress Scale (PSS)  Depression Anxiety Stress Scale (DASS)  Mindfulness Attention and Awareness Scale (MAAS)  Subjective Happiness Scale (SHS)  Data collected at 1 week after program	Significant decrease in participant perceived stress levels (44% to 18%), decreased depression levels (40% to 19%) and decreased anxiety levels 82% to 51%).  Increased Mindfulness and Happiness	Level 3
<b>12. Mackenzie, C.S., Poulin, P.A., &amp;</b>	Large urban geriatric teaching hospital  Complex Care Units	Quasi-experimental pre-post test design	Brief mindfulness-based stress reduction (MBSR) program consisting of one 30-min MBSR session per	Maslach Burnout Inventory (BMI)	<u>Study Group:</u> Decreased Emotional Exhaustion	Level 2

<p><b>Seidman-Carlson, R. (2006*)</b></p> <p><b>* Not within inclusion dates. Considered classic reference. Was referenced in 6 of included studies and heavily within excluded studies that utilized mindfulness-based interventions</b></p>	<p>30 participants 23 nurses 7 aides</p>	<p>Participants recruited and randomly assigned</p>	<p>week at work x 4 weeks with encouraged homework of 10-min, CD- guided MBSR to be performed 5 days per week. Based on Kabat-Zinn methods.</p>	<p>Smith Relaxation States Inventory (SRSI13)</p>	<p>Increased Personal Accomplishment, Well-being &amp; Life Satisfaction, Relaxation</p>
		<p>Control group: 10 nurses 4 aides</p>	<p>AIM: To describe and evaluate the efficacy of a brief version of the traditional MBSR program on burnout and stress levels for nurses and nurse-aides.</p>	<p>Intrinsic Job Satisfaction subscale of the Job Satisfaction Scale (JSS)</p>	<p>No change in Depersonalization  Sense of Coherence &amp; Job Satisfaction scores raised more than control but just under level of significance</p>
		<p>Study group: 13 nurses 3 aides</p>		<p>Satisfaction with Life Scale (SWLS)</p>	<p><u>Control Group:</u> Increased Emotional Exhaustion, Depersonalization</p>
				<p>Sense of Coherence Orientation to Life (SOL-Orientation to Life)</p>	<p>No change in Personal Accomplishment, Well-being &amp; Life-Satisfaction, Relaxation</p>
				<p>Data collection at end of 4 weeks</p>	<p>Limitation: small sample size however large effect sizes for 5 of 7 outcomes.</p>
					<p>Study group had higher emotional</p>

					exhaustion and Personal Accomplishment scores than control at beginning of study	
<b>13. Magtibay, D. L., &amp; Chesak, S. S. (2017, July/August)</b>	<p>Large academic medical center</p> <p>Transplant unit</p> <p>50 nursing participants starting program:</p> <p>28 direct care nurses 18 leadership role nurses 4 "other" nurses</p> <p>33 completed final assessments (no data on make-up of final 33).</p>	<p>Quasi-experimental pre-post test design</p> <p>No control group Participants self-selected</p> <p>Final results based on 24-week assessments completed by 33 participants. (although an additional 16 completed entire program)</p>	<p>12-module Stress Management and Resiliency Training (SMART)</p> <p>Participants chose between web-based format, independent reading, facilitated discussions or a combination of methods.</p> <p>AIM: To assess efficacy of blended learning to decrease stress and burnout among nurses through use of Stress Management and Resiliency Training (SMART) program</p>	<p>Subjective Happiness Scale (SHS)</p> <p>Perceived Stress Scale (PSS-14)</p> <p>Generalized Anxiety Disorder Scale (GADS)</p> <p>Mindful Attention Awareness Scale (MASS)</p> <p>Connor-Davidson Resilience Scale (CD-RISC)</p> <p>Copenhagen Burnout Inventory (CBI)</p>	<p>Final surveys showed statistically significant improvement in all measured categories. Improvement initially seen at 8 weeks and continued through 24 weeks.</p> <p>Largest decreases: Anxiety reduction of 45.2% Stress reduction of 29.8% Personal burnout reduction of 33.6% Work-related burnout reduction of 32.6% Client-related burnout reduction of 38.5%</p> <p>Largest increases: Happiness and mindful attention.</p> <p>Limitations: small group size, no control</p>	Level 3

				Data collected at 8, 12, & 24 weeks	group, potential self-selection bias	
<b>14. Mealer, M., Conrad, D., Evans, J., Jooste, K., Solyntjes, J., Rothbaum, B., &amp; Moss, M. (2014, November)</b>	Academic medical center	Randomized, controlled trial with pre-post test design  14 in control 13 in intervention	12-week multimodal resilience training program	Connor-Davidson Resilience Scale (CD-RISC)	<u>Intervention group</u> had significant reduction in all symptoms of depression and increased resilience  <u>Both groups</u> demonstrated reduction in PTSD scores Control group had increased resilience scores but at rate of intervention group. May indicate intervention contamination due to members of both groups working together.  Pre-study questionnaires demonstrated 100% of nurses were (+) for anxiety, depression, burnout, emotional exhaustion, depersonalization and	Level 3
	Intensive Care Units		2-day educational workshop to introduce concepts, then teach & demonstrate the remaining interventions:	Post-traumatic Diagnostic Scale (PDS)		
	27 Registered Nurses		a) Written Exposure Therapy (WET)	Hospital Anxiety and Depression Scale (HADS)		
			b) Mindfulness-based Stress Reduction (MBSR) techniques guided by CD audio guide	Maslach Burnout Inventory (MBI)		
			c) Protocolized aerobic exercise regimen 3-days per week	Data collected within 1 week of completion of program		
	d) Event-triggered Counseling Sessions	AIM: To determine if a multimodal resilience training program for ICU nurses was feasible and if it influenced resilience, anxiety, depression, PTSD and burnout				

					decreased personal accomplishment	
					Limitation of small sample size, no means of measuring effect of individual interventions	
<b>15. Molazem, Z., Tavakol, N., Sharif, F., Keshavarzi, S., &amp; Ghadakpour, S. (2013)</b>	Hospital in Iran (Shiraz)  Cardiac Care units  60 nurses	Randomized controlled trial with pre-post test design  Convenience sample of 60 CCU nurse volunteers randomly assigned 30 in control 30 in study	AACN Program “4 A’s to Rise Above Moral Distress” program presented in two 4-hour workshops over two weeks  Consists of education and role play  AIM: To investigate the effect of education based on the “4A’s model” on the rate of moral distress among the nurses working in Cardiac Care Units (CCU)	Corley’s Moral Distress Scale (MDS) – Iranian version  Data collected at 1 and 2 months post-intervention	<u>Study group:</u> Decrease Moral Distress level  <u>Control group:</u> Increase in Moral Distress level  Strongest results matching the above trend noted in the domains of ignorance of the patient, patient’s decision making power and practical professional competency.	Level 2
<b>16. Motaghedi, H., Donyavi, R., &amp; Mirzaian, B. (2016)</b>	Hospital in Iran (Sari)  In-patient heart center units  30 nurses	Quasi-experimental study using pre-post test design with control group	Eight sessions of Mindfulness-Based Cognitive Therapy (MBCT) consisting of two, 2-hour sessions per week x 4 weeks.	Maslach Burnout Inventory (MBI) -Iranian version	<u>Study group:</u> Increased distress tolerance overall and, in particular, on assessment and regulation of stress.	Level 2

		30 nurses random sampled from 70 nurses with high burnout scores then Match assigned to 2 groups	AIM: To investigate the effects of MBCT on the distress tolerance of nurses with job burnout.	Distress Tolerance Scale (DTS) – Iranian version  Data collected at end of 4 weeks	Control group: no changes  Limitation: Post-test only looked at the tolerance levels. There was not a follow-up MBI score.	
		15 in control 15 in study				
<b>17. Onan, N., Isil, O., &amp; Barlas, G. U. (2013)</b>	Two hospitals in Turkey  Oncology units  71 nurses participated but only 30 attended 80% or more of sessions and completed follow-up surveys	Quasi-experimental design with pre-post test design.  30 nurses completed study  No control group	“Coping with Stress” training program held in 90min sessions once weekly x 8 weeks. Sessions included time for education, group discussion and role-play and a singular brief exercise in mindful breathing exercises  AIM: To evaluate the effect coping-with-stress training on oncology nurses stress symptoms and methods of coping with stress and burnout situations	Maslach Burnout Inventory (MBI)  Stress Self-Assessment Checklist (SAC)  Ways of Coping Inventory (WCI)  Data collected at the final class and 1 month after	On the MBI, only the sub-category of emotional exhaustion had significant improvement.  On SAC, there was decrease in the total score for stress symptoms. The sub-categories of cognitive-affective and physiologic symptoms in particular  On WCI there was an increased score in effective coping and a decreased score in ineffective coping, however it did not reach significance.	Level 3

					No change in the test scores between end of course and 1-month follow up.	
<b>18. Orly, S., Rivka, B., Rivka, E., &amp; Dorit, S. (2012)</b>	Major regional hospital in Israel  Multiple unspecified units  Nurses recruited required to have both clinical and administrative nursing roles  36 nurses total	Quasi experimental pre-post test design  16 in control group 20 in study group  More than 75% of nurses had an academic degree in nursing	16 weekly, 4-hour meetings covering a complete Cognitive-Behavioral Therapy curriculum.  Nurses in both control and study group participated in an additional five, 3-hour long seminars covering job-related issues of responsibility, amount of control & support at work, and role conflicts.  AIM: To investigate the effect of CBT on 1) nurses Sense of Coherence indicators of ability to cope with stress and maintain health, 2) Perceived Stress, and 3) mood states as a factor that influences personality resources.	Sense of Coherence – Orientation to Life Scale (SOC)  Perceived Stress Scale (PSS)  Profile of Mood States (POMS)  Data collected at end of 4-month intervention	<u>Study group:</u> Increased SOC levels Improved Vigor levels  Decreased Perceived Stress Decreased Fatigue  <u>Control group:</u> No significant changes  Limitations: sample size, possibility of group effect – possibly more peer support due to meeting more frequently	Level 3
<b>19. Vaclavik, E. A., Staffileno, B. A., &amp; Carlson,</b>	University Medical Center	Quality Improvement project using	Bundle of mindfulness interventions offered on an inpatient unit over 6 months which were tailored	Moral Distress Scale Revised (MDS-R)	3-month & 6-month MDS scores decreased overall.	

<p><b>E. (2018, June)</b></p>	<p>Adult hematology/oncology unit  18 nurses</p>	<p>pre- post test design  56 Nurses participated only 18 completed pre-&amp; post surveys</p>	<p>to address previously identified moral distress trigger of giving a false sense of hope to patients and families.  Interventions offered: 1) Critical debrief within 48 hrs of patient critical event or death facilitated by psychologists 2) Code Lavender bags 3) Tree of Life – memorial of patients expired over past year 4) Work-Life balance committee 5) Yoga classes 6) Mindfulness sessions  AIM: To assess moral distress and whether it is alleviated with use of mindfulness interventions</p>	<p>Additional self-made questionnaire to evaluate staff perception of interventions  Data collected at 3 months and 6 months</p>	<p>At 3 &amp; 6 months, the sub-category of giving false hope to patients continued to create high moral distress. However, Frequency with which staff nurses experienced this decreased from 81% to 44%.  <u>Independent Questionnaire</u> 6 months after study: Overall staff reported feeling supported by, and gaining strength from, one another and a sense of strengthened resilience  <u>Additional observations</u> 6 months after study: 1) Debriefing sessions: staff took over ownership of debriefing sessions 3) Code Lavender bags are now utilized throughout the hospital system</p>
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					<p>3) Tree of Life – Nurses repainted it the tree and use it as a platform for supportive communication</p> <p>4) Work-Life balance effort of weekly healthy food luncheons with music and decoration fostered sense of team.</p> <p>5 &amp; 6) Yoga classes &amp; mindfulness sessions well attended.</p>
<p><b>20. Wei, R., Ji, H., Li, J., &amp; Zhang, L. (2017, March)</b></p>	<p>3 high-level hospitals in China.</p> <p>Emergency Departments</p> <p>102 direct-care ED nurses</p>	<p>Quasi-Experimental, random controlled pre-post test design.</p> <p>Control and intervention groups randomly selected and assigned from ED nurse population.</p> <p>51 nurses in each group</p>	<p>Nurses exposed to ordinary vs comprehensive management for 6 months.</p> <p>Comprehensive management included classes pertaining to communication skills, conflict management, emotion control and working skills. Classes led by nurse managers.</p> <p>Ordinary management consists of Focus group discussions, luncheon parties, staff encouraged to talk about problems and</p>	<p>Maslach Burnout Inventory General Survey (MBI-GS)</p>	<p><u>Study group:</u> Decreased Depersonalization, Emotional exhaustion, and 2 out of 3 Job Burnout scores</p> <p>No change in Personal Achievement</p> <p><u>Control group:</u> No changes in any scores</p> <p>All nurses pre-intervention scored positively for burnout</p>

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<p>All nurses pre-intervention scored similarly positively for burnout</p>	<p>targeted help offered. Meetings twice a week for 30 minutes within the department.</p>	<p>with no significant differences between the groups or scores.</p>
	<p>AIM: To investigate whether an active intervention may play a role in reducing job burnout in ED nurses</p>	

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## APPENDIX B

## Objective Scales and Tools Utilized in Articles Chosen for Review

1. **Connor-Davidson Resilience Scale (CD-RISC)**. 25-item self-report scale that measures resilience and aspects of post-traumatic stress disorder (PTSD). It is scored 1-100 with higher scores reflecting greater resilience. A score of 82 or higher is defined as a positive score for being resilient. The CD-RISC has been used extensively in clinical studies involving healthcare personnel. It maintains a high Cronbach's alpha reliability score of 0.89. (Connor & Davidson, 2003)
2. **Coping with Stress Scale (CSS)**. A 12-item measure used to assess the types of strategies one uses to cope with difficult situations and events. Coping styles described in one sentence with a response of never to always on a 4-point scale. Cronbach's alpha 0.90. (Orioli, Jaffe, & Scott, 1991)
3. **Depression, Anxiety and Stress Scales (DASS)**. A 42-item self-report instrument. It is made up of three separate scales of 14 items. Each is designed to measure one of three related negative emotional states of depression, anxiety and tension/stress. (Lovibond & Lovibond, 1995)
4. **Distress Tolerance Scale (DTS)**. The DTS is a 14-item tool specifically aimed at measuring the perceived capacity to tolerate distress from a multidimensional framework. It measures four components: (1) ability to tolerate emotions (tolerance); (2) assessment of the emotional situation as acceptable (appraisal); (3) level of attention absorbed by the negative emotion and relevant interference with functioning (absorption); and (4) ability to regulate emotion (regulation). Items are rated on a 5-point Likert scale. Cronbach's alpha is 0.82. (Simons & Gaher, 2005)
5. **Freiburg Mindfulness Inventory (FMI)**. A 14-item scale that measures perceptions of mental openness, acceptance, and curiosity. It reports an average Cronbach's alpha of 0.86. (Walach, Buchheld, Buttenmuller, Kleinknecht, & Schmidt, 2006)
6. **Generalized Anxiety Disorder Scale (GADS)**. A 7-item questionnaire that asks how often the participant was bothered by individual symptoms during the previous 2 weeks. Reports an average Cronbach's alpha of 0.92 (Spitzer, Kroenke, Williams, & Lowe, 2006)
7. **General Health Questionnaire (GHQ\_12)**. A 12-item questionnaire which was developed to screen for physical symptoms of anxiety, sleep disturbances, interference with social activities and depression. It is widely used as a screening tool. Cronbach's alpha reliability scores vary between the scoring methods utilized. Overall range is 0.63 to 0.90. (Goldberg & Williams, 1988; Hankins, 2008)

8. **Health Promoting Lifestyle Profile II (HPLP II).** Consists of 52 items that measure the frequency of multiple health promoting behaviors, ranging from physical activity and nutrition to psycho-social health and sleep hygiene. (Walker & Hill-Plawecki, 1996)
9. **Hospital Anxiety and Depression Scale (HADS).** A 14-item self-report screening scale originally developed to indicate presence of anxiety and depression states in the general population, general practice and psychiatric patients. It has a Cronbach's alpha score of 0.83 for anxiety and 0.82 for depression. (Beland, Dahl, Hauge, & Heckerman, 2002)
10. **Job Satisfaction Scale (JSS).** A 16-item questionnaire to assess overall satisfaction with employment. Items are categorized into three subscales: nature of the work, type of clients served and co-worker interaction. Cronbach's alphas of 0.83 – 0.89 have been reported. (Koski, Kirk, Koski, & Ratites, 1994)
11. **Marlow-Crowne Social Desirability Scale – 13 items (M-C).** A 13-item survey pertaining to symptoms of stress such as depression, ability to sleep, feelings of competence, and ability to enjoy daily life. Authors report a Cronbach's alpha of 0.76. (Reynolds, 1982)
12. **Maslach Burnout Inventory (MBI).** Consists of 22-items that measure professional burnout across three domains: (a) EE = *emotional exhaustion* related to work demands, (b) DP = *depersonalization* when interacting with patients, and (c) PA= *personal accomplishment* related to attainment of professional goals. It has been extensively used in business and healthcare research. Mean alpha estimates range from 0.70 to 0.80 for each of the three domains. (English Versions: Maslach & Jackson, 2016; Wheeler, Vassar, Worley, & Barnes, 2011) (Iranian Version: Filian, 1995)
13. **Mindful Awareness Attention Scale (MAAS).** The trait of MAAS is a 15-item scale designed to assess a core characteristic of mindfulness, namely, a receptive state of mind in which attention, informed by a sensitive awareness of what is occurring in the present, simply observes what is taking place. Internal consistency levels generally range from 0.80 to 0.90. (Brown & Ryan, 2003; Carlson & Brown, 2005)
14. **Moral Distress Scale (MDS) – Corley's original scale.** Scale contains 32 items graded on a 7-point Likert scale. A higher score reflects higher levels of distress. It was developed from research on moral problems encountered by hospice nurses. It reports a Cronbach's alpha of 0.70 to 0.97. (English version: Corley et al., 2001) (Iranian version: Merghati, Alizadegan, Motevallian, Goushegir, & Ghoroubi, 2008)
15. **Moral Distress Scale – Revised (MDS-R). (Hamric & Epstein's revised version).** A shortened and revised version of the Corley's original MDS. It presents 21 items scored separately for severity and frequency. It measures multiple components of moral distress and identifies constraints, stressors and individual responses. It has been used extensively in research related to moral distress and ethics within healthcare environments. (Hamric et al., 2012)

16. **Nurses Job Satisfaction Scale (NJSS).** A 24-item scale which measures satisfaction within 7 work factors: administration, co-workers, career, patient care, relation with supervisor, nursing education and communication. Average alpha of 0.84 in studies. (Ng, 1993)
17. **Nursing Stress Scale (NSS).** Designed to assess a total stress score as well as individual scores on seven different sub-scales related to identified sources of nursing stress: 1) Death and dying, 2) conflict with physicians, 3) inadequate preparation, 4) lack of support, 5) conflict with other nurses 6) work load, 7) uncertainty concerning treatment. Cronbach's alpha on full scale, 0.90. (Gray-Toft & Anderson, 1981)
18. **Osipow Occupational Stress Inventory (OOSI).** Tool to evaluate individual stress in six dimensions: role overload, role insufficiency, role ambiguity, role boundary, responsibility and physical environment. Cronbach's alpha of 0.89. (Hayes, Masuda, & DeMay, 2003) (Iranian version: (Osipow, 1998)
19. **Perceived Stress Scale (PSS).** A 14-item self-report tool with 7 statements worded positively, and 7 statement worded negatively that gauge personal stress levels. It asks the participant to rate how often he/she felt certain things over the past month. It has a Cronbach's alpha of 0.84 to 0.86. (Cohen, Kamarck, & Mermelstein, 1983)
20. **Posttraumatic Diagnostic Scale (PDS).** The PDS is a 49-item self-report scale used to measure severity of PTSD symptoms. The scale has four sections: 1) trauma checklist, 2) respondents describe their most upsetting traumatic event 3) measures 17 PTSD symptoms, 4) assesses interference of the symptoms. It has a Cronbach's alpha range of 0.78 to 0.92. (Foa, Cashman, Jaycock, & Perry, 1997)
21. **Professional Quality of Life Scale (ProQOL).** A 30-item instrument that uses a 5-point Likert scale to assess the positive and negative quality-of-life elements that those in the helping professions experience in relation to their work. It has 3 sub-scales: Secondary Traumatic Stress (STS), Compassion satisfaction, & Burnout. Each subscale is comprised of 10 items, which measure frequency of experience over past 30 days. Use of this tool and its validity and reliability have been well established in the literature within 24 languages and countries. (Stamm, 2010)
22. **Profile of Mood States (POMS).** A 58-item scale that measures tension-anxiety, depression-dejection, anger-hostility, vigor, fatigue and confusion. It asks to what extent the item describes the participants current mood on a Likert scale. (English version: McNair, Lorr, & Droppleman, 1971) (Hebrew version: (Hoffman, Bar-Eli, & Tenebaum, 1999)
23. **Satisfaction with Life Scale (SWLS).** The SWLS is a short 5-item instrument designed to measure global cognitive judgments of satisfaction with one's life. (Kobau, Sniezek, Zack, Lucas, & Burns, 2010)

24. **Self-Compassion Scale (SCS)**. The original version contains 26 items, the short form contains 12 items with near perfect correlation between the scales. Both versions measure self-compassion on 3 subscales: self-kindness vs self-judgement, common humanity vs isolation, mindfulness vs over-identification. Internal consistency of alpha 0.88 to 0.91. (Neff, 2003; Raes, Pommier, Neff, & VanGucht, 2010)
25. **Sense of Coherence Orientation to Life Questionnaire (SOC-OTL)**. Tool with 3 sub-domains that correspond to a sense of comprehensibility, sense of manageability, and a sense of meaningfulness as indicators of ability to cope with stress and maintain health. (Antonovsky, 1987; (Eriksson & Lindstrom, 2006)
26. **Smith Relaxation Dispositions Inventory (SRS)**. Assess 19 relaxation states associated with relaxation. These are divided into categories: basic relaxation, core mindfulness, mindful doing, mindful giving and deep mindfulness. There are 38 items rated on a Likert scale rated on how one feels and how often one feel that way. Cronbach's alphas of 0.60 to 0.88 reported. (Smith, 2001)
27. **Stress Self-Assessment Checklist (SAC)**. A 38-item scale used to identify and evaluate symptoms associated with stress. It consists of three components: cognitive-affective, physiological, and pain-complaint component. It has been adapted and used in Turkish studies. (Hovardaoglu, 1997)
28. **Subjective Happiness Scale (SHS)**. A 4-item measure that rates individual happiness overall and in comparison to peers. Cronbach's alpha of 0.79 to 0.94. (Lyubomirsky & Lepper, 1999)
29. **Symptoms of Distress Scale (SDS)**. A 15-item scale. Each item describes a physical or emotional symptom of distress (muscle-tightness, tension, nervousness, etc.) with a 4-point response scale to indicate frequency with which symptoms are experiences in past 30 days. Reported Cronbach's alpha of 0.86. (Orioli et al., 1991)
30. **Ways of Coping Inventory (WCI)**. A 30-item Likert-type scale that consists of five different subscales: self-confident approach, helpless approach, optimistic approach, submissive approach and seeking social support. Each are designed to measure strategies used by individuals to cope with stress. It focuses on two dimensions. One is the effective strategies focused on the problem. The other is the ineffective strategies focused on the emotions. The Cronbach's alpha scores range from 0.45 to 0.80 depending on the study set-up. (Sahin & Durak, 1995)
31. **Work Limitations Questionnaire (WLQ)**. Contains four separate scales assessing the extent to which stress made it difficult for the user to engage in the following activities: 1) difficulty meeting time and scheduling demands, 2) ability to perform job tasks, concentration and focus, 3) interpersonal job demands, 4) person's ability to keep up with the quality and quantity demands of their job. Reported Cronbach's alpha of 0.70 (Lerner, Amick, Rogers, Malspeis, & Bungay, 2001)

## APPENDIX C

## Institutional Review Board Letter of Approval

**LIBERTY UNIVERSITY**  
INSTITUTIONAL REVIEW BOARD

August 17, 2018

Julie McAuley-Gonzalez

IRB Application 3443: Building Resiliency to Combat Moral Distress in Healthcare Professionals, Is It Effective? An Integrative Review

Dear Julie McAuley-Gonzalez,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your research with the data safeguarding methods mentioned in your IRB application.

Your study does not classify as human subjects research because it will not involve the collection of identifiable, private information.

Please note that this decision only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued non-human subjects research status. You may report these changes by submitting a new application to the IRB and referencing the above IRB Application number.

If you have any questions about this determination or need assistance in identifying whether possible changes to your protocol would change your application's status, please email us at [irb@liberty.edu](mailto:irb@liberty.edu).

Sincerely,



**G. Michele Baker, MA, CIP**  
*Administrative Chair of Institutional Research*  
The Graduate School

**LIBERTY**  
UNIVERSITY.

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APPENDIX D

Collaborative Institutional Training Initiative (CITI) Certificate



## APPENDIX E

## Statement of Open Access for PRISMA Flow Diagram



## The PRISMA Statement for Reporting Systematic Reviews and Meta-Analyses of Studies That Evaluate Health Care Interventions: Explanation and Elaboration

Alessandro Liberati, Douglas G. Altman, Jennifer Tetzlaff, Cynthia Mulrow, Peter C. Gøtzsche, John P. A. Ioannidis, Mike Clarke, P. J. Devereaux, Jos Kleijnen, David Moher

Published: July 21, 2009 • <https://doi.org/10.1371/journal.pmed.1000100>

### Abstract

Systematic reviews and meta-analyses are essential to summarize evidence relating to efficacy and safety of health care interventions accurately and reliably. The clarity and transparency of these reports, however, is not optimal. Poor reporting of systematic reviews diminishes their value to clinicians, policy makers, and other users.

Since the development of the QUOROM (*QU*ality *O*f *R*eporting *O*f *M*eta-analysis) Statement—a reporting guideline published in 1999—there have been several conceptual, methodological, and practical advances regarding the conduct and reporting of systematic reviews and meta-analyses. Also, reviews of published systematic reviews have found that key information about these studies is often poorly reported. Realizing these issues, an international group that included experienced authors and methodologists developed PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) as an evolution of the original QUOROM guideline for systematic reviews and meta-analyses of evaluations of health care interventions.

The PRISMA Statement consists of a 27-item checklist and a four-phase flow diagram. The checklist includes items deemed essential for transparent reporting of a systematic review. In this Explanation and Elaboration document, we explain the meaning and rationale for each checklist item. For each item, we include an example of good reporting and, where possible, references to relevant empirical studies and methodological literature. The PRISMA Statement, this document, and the associated Web site (<http://www.prisma-statement.org/>) should be helpful resources to improve reporting of systematic reviews and meta-analyses.

**Citation:** Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gøtzsche PC, Ioannidis JPA, et al. (2009) The PRISMA Statement for Reporting Systematic Reviews and Meta-Analyses of Studies That Evaluate Health Care Interventions: Explanation and Elaboration. *PLoS Med* 6(7): e1000100. <https://doi.org/10.1371/journal.pmed.1000100>

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**Competing interests:** MC's employment is as Director of the UK Cochrane Centre. He is employed by the Oxford Radcliffe Hospitals Trust on behalf of the Department of Health and the National Institute for Health Research in England. This is a fixed term contract, the renewal of which is dependent upon the value placed upon his work, that of the UK Cochrane Centre, and of The Cochrane Collaboration more widely by the Department of Health. His work involves the conduct of systematic reviews and the support of the conduct and use of systematic reviews. Therefore, work—such as this manuscript—relating to systematic reviews might have an impact on his employment.

**Abbreviations:** PICOS, participants, interventions, comparators, outcomes, and study design; PRISMA, Preferred Reporting Items for Systematic reviews and Meta-Analyses; QUOROM, *QU*ality *O*f *R*eporting *O*f *M*eta-analyses

**Provenance:** Not commissioned; externally peer reviewed. In order to encourage dissemination of the PRISMA explanatory paper, this article is freely accessible on the *PLoS Medicine*, *Annals of Internal Medicine*, and *BMJ* Web sites. The authors jointly hold the copyright of this article. For details on further use see the PRISMA Web site (<http://www.prisma-statement.org/>).

The PRISMA Statement was developed by a group of 29 review authors, methodologists, clinicians, medical editors, and consumers [12]. They attended a three-day meeting in 2005 and participated in extensive post-meeting electronic correspondence. A consensus process that was informed by evidence, whenever possible, was used to develop a 27-item checklist (Table 1; see also Text S1 for a downloadable template checklist for researchers to re-use) and a four-phase flow diagram (Figure 1; see Figure S1 for a downloadable template document for researchers to re-use). Items deemed essential for transparent reporting of a systematic review were included in the checklist. The flow diagram originally proposed by QUOROM was also modified to show numbers of identified records, excluded articles, and included studies. After 11 revisions the group approved the checklist, flow diagram, and this explanatory paper.

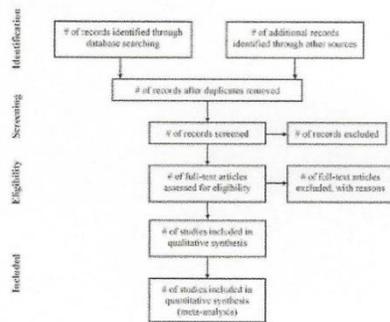


Figure 1. Flow of information through the different phases of a systematic review. <https://doi.org/10.1371/journal.pmed.1000100.g001>

The PRISMA Statement itself provides further details regarding its background and development [12]. This accompanying Explanation and Elaboration document explains the meaning and rationale for each checklist item. A few PRISMA Group participants volunteered to help draft specific items for this document, and four of these (DGA, AL, DM, and JT) met on several occasions to further refine the document, which was circulated and ultimately approved by the larger PRISMA Group.

Item/Topic	Checklist Item	Reported on Page #
<b>TITLE</b>	Identify the report as a systematic review, meta-analysis, or both.	
<b>ABSTRACT</b>	Identify the objectives, including an explicit statement of the review's registration number, objectives, and methods; provide a summary of the search strategy; and provide a summary of the results, conclusions, and implications of key findings. Summarize review registration number.	
<b>INTRODUCTION</b>	1. Identify the rationale for the review in the context of what is already known.	
<b>OBJECTIVES</b>	2. Provide an explicit statement of the review's objectives, including any eligibility criteria, outcomes, and analyses planned, and any restrictions on the review's scope.	
<b>REGISTRATION</b>	3. Provide a statement of the review's registration number, including the URL of the registration record.	
<b>METHODS</b>	4. Describe the methods used to identify and select studies to be included in the review, including the search strategy, screening process, and selection process.	
<b>RESULTS</b>	5. Provide a summary of the search results, including the number of records screened, excluded, and included, and the reasons for exclusion.	
<b>CONCLUSIONS</b>	6. Provide a summary of the findings of the review, including the results of the synthesis and the conclusions.	
<b>DISCUSSION</b>	7. Discuss the implications of the findings of the review, including the strengths and limitations of the review, and the implications for practice and research.	
<b>REFERENCES</b>	8. Provide a list of references included in the review, including the full text of all references included in the synthesis.	
<b>APPENDICES</b>	9. Provide a list of appendices included in the review, including the full text of all appendices included in the synthesis.	
<b>TABLES</b>	10. Provide a list of tables included in the review, including the full text of all tables included in the synthesis.	
<b>FIGURES</b>	11. Provide a list of figures included in the review, including the full text of all figures included in the synthesis.	
<b>ACKNOWLEDGMENTS</b>	12. Provide a list of acknowledgments included in the review, including the full text of all acknowledgments included in the synthesis.	
<b>DECLARATIONS OF INTEREST</b>	13. Provide a list of declarations of interest included in the review, including the full text of all declarations of interest included in the synthesis.	
<b>GRANT SUPPORT</b>	14. Provide a list of grant support included in the review, including the full text of all grant support included in the synthesis.	
<b>CONFLICTS OF INTEREST</b>	15. Provide a list of conflicts of interest included in the review, including the full text of all conflicts of interest included in the synthesis.	
<b>ETHICAL APPROVAL</b>	16. Provide a list of ethical approvals included in the review, including the full text of all ethical approvals included in the synthesis.	
<b>PROVENANCE AND PEER REVIEW</b>	17. Provide a list of provenances and peer reviews included in the review, including the full text of all provenances and peer reviews included in the synthesis.	
<b>REGISTRATION NUMBER</b>	18. Provide a list of registration numbers included in the review, including the full text of all registration numbers included in the synthesis.	
<b>SEARCH STRATEGY</b>	19. Provide a list of search strategies included in the review, including the full text of all search strategies included in the synthesis.	
<b>SCREENING PROCESS</b>	20. Provide a list of screening processes included in the review, including the full text of all screening processes included in the synthesis.	
<b>EXCLUDED RECORDS</b>	21. Provide a list of excluded records included in the review, including the full text of all excluded records included in the synthesis.	
<b>EXCLUDED ARTICLES</b>	22. Provide a list of excluded articles included in the review, including the full text of all excluded articles included in the synthesis.	
<b>EXCLUDED STUDIES</b>	23. Provide a list of excluded studies included in the review, including the full text of all excluded studies included in the synthesis.	
<b>EXCLUDED FULL-TEXT ARTICLES</b>	24. Provide a list of excluded full-text articles included in the review, including the full text of all excluded full-text articles included in the synthesis.	
<b>EXCLUDED FULL-TEXT STUDIES</b>	25. Provide a list of excluded full-text studies included in the review, including the full text of all excluded full-text studies included in the synthesis.	
<b>EXCLUDED FULL-TEXT ARTICLES AND STUDIES</b>	26. Provide a list of excluded full-text articles and studies included in the review, including the full text of all excluded full-text articles and studies included in the synthesis.	
<b>EXCLUDED FULL-TEXT ARTICLES, STUDIES, AND ARTICLES</b>	27. Provide a list of excluded full-text articles, studies, and articles included in the review, including the full text of all excluded full-text articles, studies, and articles included in the synthesis.	

Table 1. Checklist of items to include when reporting a systematic review (with or without meta-analysis). <https://doi.org/10.1371/journal.pmed.1000100.t001>

Scope of PRISMA

PRISMA focuses on ways in which authors can ensure the transparent and complete reporting of systematic reviews and meta-analyses. It does not address directly or in a detailed manner the conduct of systematic reviews, for which other guides are available [13],[14],[15],[16].

We developed the PRISMA Statement and this explanatory document to help authors report a wide array of systematic reviews to assess the benefits and harms of a health care intervention. We consider most of the checklist items relevant when reporting systematic reviews of non-randomized studies assessing the benefits and harms of interventions. However, we recognize that authors who address questions relating to etiology, diagnosis, or prognosis, for example, and who review epidemiological or diagnostic accuracy studies may need to modify or incorporate additional items for their systematic reviews.