

## **Decreasing Burnout in Psychiatric Nursing**

Shannon M. Stewart

Edson College of Nursing and Health Innovation, Arizona State University

### **Author Note**

Shannon Stewart is a Registered Nurse at Banner Baywood Medical Center in Mesa Arizona on the Neurology floor.

She has no known conflict of interest to disclose.

Correspondence should be addressed to Shannon Stewart, Edson College of Nursing and Health Innovation, Arizona State University, Downtown Campus, 550 N. 3<sup>rd</sup> Street, Phoenix, AZ 85004. Email: [Smstewa7@asu.edu](mailto:Smstewa7@asu.edu)

### **Abstract**

Burnout has become an increasingly popular topic among registered nurses, but unfortunately burnout among psychiatric nursing is less understood than other nursing specialties such as the Intensive Care Unit, Emergency Room, or Oncology. Psychiatry is unique and psychiatric nurses, in particular, are often subjected to physical and verbal violence as well as exposure to patient's trauma. The aim of this project was to decrease burnout among psychiatric nurses in a private practice out-patient family psychiatric facility using Rossworm and Larabee's change model (Appendix D). The MBI-HSS was completed by 1 participant ( $n=1$ ) at pre-intervention and post-intervention. Between the pre/post MBI-HSS questionnaire the participant was asked to partake in a mindfulness-based intervention utilizing the smartphone application *Headspace* to complete a 10-session meditation course over one week. The results conclude the participant's burnout decreased overall from pre-intervention to post-intervention. Internal Review Board (IRB) was granted in September 2021, and the project was completed in November 2021. The impact of the project was projected to have a more thorough statistical influence, but due to the participant size, there is minimal impact of system or policies in the psychiatric facility.

*Keywords:* burnout, nurses, mindfulness, psychiatry, mental health.

## **Decreasing Burnout in Psychiatric Nursing**

Working on inpatient psychiatric units can be difficult as nursing and support staff are often subject to physical and verbal violence as well as exposure to patient's traumatic events. Working in such a high-intensity environment may lead to an increased risk of the occupational phenomenon known as "burnout" and secondary trauma. The University of St. Augustine Health Sciences (2020) defines burnout as "the state of mental, physical, and emotional exhaustion caused by sustained work-related stressors." The extent of burnout is under-researched, but what is known are the effects of burnout can be significant.

### **Background and Significance**

#### **Problem Statement**

Burnout is important as it can affect individuals mentally and physically. Per Kelley (2020) burnout can lead to mental disorders including depression and several physical disorders including higher cholesterol and body mass index. It is important to note that studies such as Johnson et al. (2018) compare burnout in medical nursing to psychiatric nursing and report that those working in psychiatric wards had higher emotional exhaustion than their medical colleagues. Burnout is not only present in America, and by studying statistics globally, Johnson et al. (2018) found that out of 12 countries, nine countries reported significant nursing burnout, with rates as high as 78% in Greece supporting burnout as a global crisis.

#### **Purpose and Rationale**

Burnout in psychiatric nurses continues to be understudied. The purpose of this paper is to provide a review regarding psychological damage caused by burnout and to explore the interventions that improve well-being and decrease burnout in mental health nursing.

### **Epidemiological Data**

Caring can be defined as the main characteristic of the art of nursing which resonates with the relations of psychiatric nursing (Edward et al., 2017). Role strain in psychiatric nursing endures when the nursing expectations require suppressed management of emotions that can lead to burnout and eventually attrition (Edward et al., 2017). Burnout can be attributed to many factors, some of which may include workplace-violence which can range from physical, verbal, or emotional harassment. Kobayash et al. (2020) state found that work place violence can impact psychological injuries including depression and anxiety which can lead to severe mental health concerns. Guillaumie et al. (2017) estimate burnout to be the second most prominent occupational health hazard following musculoskeletal disorders.

Anxiety and emotional exhaustion are prominent factors in burnout. Nia et al. (2016) focused their research on the limited knowledge of death anxiety and the increased prevalence in psychiatric nurses. The findings conclude nurses are at an increased risk for anxiety related to death as the stress related to suicidal patients may be overbearing. While research comparing burnout between the sexes of nurses is scarce, there is a contrast of abuse reported between men and women. Kobayash et al. (2020) report female nurses are more often victims of verbal abuse and male nurses are more often victims of physical abuse.

Burnout has increased in recognition, but unfortunately is increasing in prevalence at a faster rate. Janeway (2020) estimates burnout among registered nurses ranges from 35 to 45 percent. Those statistics favor Ross et al. (2017)'s findings as high demands and unfavorable work schedules such as work overload and long work hours have proven to increase burnout.

The COVID-19 virus has further increased the burnout rate of all healthcare workers, especially nurses. Nurses enduring a catastrophic pandemic can lead to traumatic experiences

increasing the risk for burnout. The trauma nurses endure can easily lead to post-traumatic stress disorder and burnout (Janeway, 2020). Adding on to the list of negative side effects, Perez-Fuentes et al. (2018) conducted a study evaluating the development of burnout syndrome and found that burnout can lead to alcoholism and absenteeism.

Current clinical practice guidelines include a multitude of mindfulness techniques that focus on stress reduction. As stated by Mills (2020) Mindfulness-Based Stress Reduction (MSBR) has been used over four decades and has continued to provide evidence that stress reduction and increased mindfulness are common results. There are many different forms of mindfulness activities individuals can complete which include techniques that focus attention on the body's senses, breathing methods, and guided imagery (Mayo Clinic, 2020).

### *Psychiatric Nurses*

Dall'Ora et al. (2020) examined the relationship between factors that cause burnout which include individuals, organizations, the patients, nurse to patient ratios, and the consequences of burnout. Factors that are known to increase burnout and are specific to psychiatric nursing include a higher patient-to-nurse ratio (Dall'Ora et al., 2020). Psychiatric nurses commonly have higher patient-to-nurse ratios than medical nurses, reasons reported include medically ill patients require more one on one time (Dall'Ora et al., 2020). It is important to note that poor ratios were reported to lead to emotional exhaustion as well as high psychological demands and patient violence, all of which are seen often when working with the psychiatric population (Dall'Ora et al., 2020).

### ***Mindfulness Interventions***

Mindfulness is becoming an increasingly popular resource to deter burnout. Mindfulness has been studied to compare the relationship between burnout and nursing. Many studies provide the same literature and state there are benefits to mindfulness activities that may reduce burnout symptoms (Jones, 2020).

Guillaumie et al. (2017) reviewed the effects of mindfulness-based interventions for registered nurses and reports there are benefits of using mindfulness activities such as decreasing depression and anxiety. While mindfulness activities have been proven to help the nurse, the activity has also been shown to improve patient care. Johnson et al. (2018) found that nurses who work in acute psychiatric facilities while utilizing mindfulness-based stress-reduction interventions not only decreased patient safety events but resulted in improved patient satisfaction scores.

### ***Lack of Burnout Interventions***

Although research proves mindfulness-based activities may help reduce burnout, there is a lack of research and evidence to support mindfulness long-term (Guillaumie et al, 2017). As previously stated death anxiety among psychiatric nurses may require management strategies. An intervention for nurses experiencing death anxiety may lead to a decrease in decrements in personal health (Nia et al., 2016). Sarazine et al. (2020) examined the impact of a four-hour mindfulness workshop for nurses who were experiencing symptoms of burnout, the authors reported a decreased in burnout, but further research is needed to determine the long-term impact of mindfulness training on burnout.

Considerable evidence is still required for understanding burnout related to psychiatric nurses. While there is evidence that states mindfulness techniques may be beneficial, future

evidence should aim towards reducing factors that contribute to burnout rather than reversing the effects of burnout.

### **Internal Data**

An examination of internal data in a psychiatric ward in the greater area of Phoenix showed the facility was lacking appropriate mindfulness activities for their nursing staff, which they believe may contribute to higher rates of self-reported burnout. This is consistent with previous literature from the Centers for Disease Control and Prevention [CDC] (2020) as engaging in mindfulness techniques, which may include breathing exercises, can help increase resilience decreasing the risk for burnout. However, hard data for continued mindfulness activities and the correlation of burnout are difficult to trace.

### **PICOT**

While searching for possibilities to decrease depression and anxiety for nurses working in psychiatry this inquiry has led to the PICOT question: “In psychiatric nurses who have self-reported burnout, how can participating in mindfulness activities compared to not participating in mindfulness activities affect rates of burnout?”

## **Evidence Synthesis**

### **Search Strategy**

An extensive review of the literature was performed using the following databases: Cumulative Index of Nursing and Allied Health Literature (CINAHL), Academic Search Premier, PsycINFO, and PubMed. Three out of four databases searched provided robust, high yields and were selected for their focus on nursing, psychiatry, and psychological wellbeing. PubMed was excluded due to the lack of evidence. The databases were searched using key terms

that addressed the PICOT question. The explicit strategy utilized to obtain studies for this literature review is described below.

Key terms *burnout*, *mindfulness*, *psychiatric nursing*, and *stress reduction* were used for the initial search. Boolean connectors were applied to increase results as psychiatric nursing initially reported limited results. Key terms then searched include *secondary trauma*, *mindfulness interventions*, *psychiatry*, *psychiatric nursing*, *mental health*, and *emotional exhaustion*. Which reported more favorable data.

### **Limitations, Inclusion, and Exclusion Criteria**

Filters applied include a publication date of within five years, systematic reviews, randomized controlled trials, meta-analysis, and the English language. Due to limited evidence, qualitative and quantitative studies were both evaluated. The majority of the data includes qualitative studies rather than quantitative, most likely due to the questionnaire that are subjective in nature. The evidence gathered is of high level evidence which ranges from level one to level three based on the hierarchy of research evidence.

### **Search Yield**

The exhaustive search yielded 104 articles in CINAHL, 1250 from PsycINFO, and 88 from Academic Search Premier. Each search was then narrowed down using specific terms to yield more precise articles related to the PICOT. For example, psychiatry nursing was preferred over medical nursing, although medical nursing provided greater results as psychiatric nursing is understudied. Narrowing of terms reported a final yield of 12. Ten of those articles were chosen using rapid critical appraisals. Preference was given to articles with a higher level of evidence and the United States of America as the country of origin.



### **Critical Appraisal and Synthesis of Evidence**

Rapid critical appraisal tools were used to filter through quantitative and qualitative articles. The majority of the evidence provided a distinct tool to measure burnout for psychiatric nurses and due to the subjective data the tool produced, nearly half of the articles found were of qualitative data. A combination of qualitative (see Appendix A, table 1) and quantitative data (see Appendix B, table 1) was included in the evaluation and synthesis table (See Appendix C, table 1) to support the evidence of practicing mindfulness-based techniques to decrease burnout symptoms among healthcare providers, with focus on psychiatric nurses.

Demographics of tables include a substantial majority of female subjects with ages varying from the early 20s to late 50s for both male and female subjects. Research studies included in the tables were not confined to the United States of America as results were limited; ~30 % of studies used were based in Asia. Each study was dedicated to nursing burnout, with a focus on mental health nursing. Unfortunately, results were scarce and medical nursing data was then included, see synthesis table (Appendix C, table 1) for categorization. Each study incorporated mindfulness-based intervention ranging from workshops, social work lead classes, and sessions that focused on dialectal behavioral therapy focusing on body scanning and breathing exercises. Each intervention used in these studies focused on mitigating stress, emotional labor, and depersonalization as well as promoting emotional regulation and awareness of participants' cognition. Measurement interventions were heterogeneous as the MBI-HSS questionnaire was utilized in each study calculating the rate of burnout. Most studies stressed the importance of preventing burnout rather than completing activities to decrease established burnout symptoms in nurses. Most of the studies were of small populations with less than 100 individuals.

## **Conclusion**

While the evidence for mindfulness-based interventions for psychiatric nurses is limited, the evidence still suggests a beneficial outcome. The role strain psychiatric nurses endure instigates burnout and secondary trauma. From the included studies, the evidence displays a considerable benefit psychiatric nurses may gain from completing mindfulness-based activities whether it is independently completed or accomplished in groups. A decrease in burnout symptoms in psychiatric nurses is not only favorable for the nurses but the patients as well. There appears to have a trickle-down effect to decreased call offs which can lead to safer nurse-to-patient ratios, increased patient satisfaction, and ultimately improve patient and nurse safety. Optimizing mindfulness-based treatment programs should be considered in psychiatric nursing settings to better the mental and physical wellbeing of the nurses.

## **Theoretical Framework and Implementation Framework**

### **Theory Application**

As previously stated, mindfulness-based activities can help decrease the risk of burnout. Practicing interventions allows one to be present in the moment focusing on accepting feelings and sensations to help increase overall well-being. The theory of Self-Transcendence presents a systematic way of understanding the behaviors of mindfulness-based activities for psychiatric nurses. The central concept of the theory focuses on characteristics of developmental maturity as enhanced awareness of the environment broadens perspectives of life and is expressed and measured through life perspectives and reflects on boundaries (Smith & Liehr, 2018).

Self-Transcendence is built upon two key concepts: well-being and vulnerability (Reed, 1991). Psychiatric nurses are a vulnerable population due to the emotional trauma they may endure as the patient population can become physically and verbally aggressive including

exposure to trauma. Well-being is defined as a sense of feeling whole and healthy and depending on the individual, indications may include health and wellness, happiness, morale, self-care, and a sense of meaning (Smith & Liehr, 2018). Mindfulness-based activities strive to allow individuals to correlate positive help promoting activities to increase well-being. This theory supports nursing interventions that facilitate well-being as it increases vulnerability (see Appendix D, figure 1).

Vulnerability involves awareness of personal mortality. This theory suggests that life events that heighten inadequacy may further develop identity if the experiences do not crush the inner self (Smith & Liehr, 2018). Psychiatric nursing has many chronic illnesses and life crises, but through mindfulness-based activities such as meditation, self-transcendence can be evoked transforming difficulties to progression. Research provides constant evidence that is linked with positive health-promoting experiences which are predictors for well-being.

### **Implementation Framework**

The Rosswurm and Larrabee model for change is suitable for this population as it assesses the need for change in the first step to integrating the change in the final step. Although this model has concrete steps, the researcher can alternate between steps as analyzing, designing, and implementing research is not without flaw. Using this model for the framework of implementing mindfulness-based activities, the research will mirror the steps effortlessly. Step one includes the need for change in practice, without mindfulness-based interventions, the wellbeing of psychiatric nurses will diminish and the rate of burnout will surge. Step two includes research that provides considerable evidence of the rate of burnout among psychiatric nurses. Step three synthesizes the extensive review of the literature which confirms the benefits of mindfulness-based activities. Steps four and five of the Rosswurm and Larrabee model require

the design of practice change and the implementation and evaluation of change. This is comparable to psychiatric nurses completing mindfulness-based activities 2 times a day for 5 days and completing a self-evaluation of a mindfulness-based intervention questionnaire before and after implementation studying the results. The final step requires integration into standards of practice (see Appendix D, figure 2).

### **Implication for Practice Change**

A private practice out-patient family psychiatric facility located in Scottsdale, Arizona sees psychiatric patients with diagnoses ranging from depression, anxiety, bipolar, schizophrenia, personality disorders, substance abuse and psychosis. These diagnoses can increase susceptibility to secondary trauma which increases the risk of nursing burnout. Stakeholders include the nurses, nurse manager, and educator for psychiatry, all of whom have approved nursing burnout data to be collected using the MBI-HSS. Data collected included emotional exhaustion, depersonalization, and professional accomplishment which measured the extent and likely cause of burnout. After the initial questionnaire, nurses completed a mindfulness-based activity, two times a week for 5 days. The time spent on the mindfulness-based activity was estimated to be 10 minutes per session. Many apps including *Headspace* are free to download and results can be uploaded to the cloud. Allowing individuals to engage with an app permits autonomy for where and when the mindfulness-based activities can be completed. After the intervention was completed, the participant completed the MBI-HSS a second time. Questionnaire scores were evaluated and the evidence was synthesized and presented to Stakeholders.

### Methods

Implementing mindfulness-based intervention for psychiatric nurses has proven to decrease burnout, increase emotional wellbeing, and has the potential to improve the milieu and patient satisfaction. Implementing mindfulness-based interventions are valuable to an institution as a decrease in burnout symptoms may decrease nursing turnover which can be cost-effective. Implementing mindfulness-based interventions once a day for five days is a low-risk high-reward activity to better the physical and mental well-being of psychiatric nurses, as symptoms of burnout can be detrimental. Ethical consideration and human subject protection was used as participation and results were kept anonymous. Internal Review Board (IRB) approval was granted through Arizona State University.

There was no funding for this project needed as the budget is estimated to be under 200 dollars. Once the data was collected, it was processed through Status Intellectus for an accurate statistical analysis. Descriptive statistics were used due to the limited number of participants. Data was then presented to the shareholders to educate on the benefits of mindfulness based interventions for nurses who may have signs and symptoms of burnout.

Challenges encountered included multiple sights dropping this project right before IRB permission was granted and troubles downloading the smart phone *Headspace*, per participant complaints. In person help was required for one nurse to learn how to utilize the app per project guidelines. Recommendations for further research study includes a step by step visual and audio video for what will be required for participants to complete the study. The participants were agreeable to complete the study, but a majority of the participants interviewed stated they were not aware of the time commitment.

### **Results and Discussion**

Descriptive statistics were performed to describe the outcome variables and explain the clinical significance of the findings. The number of participants was 1,  $n=1$ . The participant was a registered nurse with 10 + years of psychiatric nursing experience. Utilizing a likert scale the pre-intervention MBI-HSS questionnaire had a mean score of 37 for EE, 26 for D, and 29 for PA and a post-intervention MBI-HSS mean score 28 for EE, 12 for D, and 35 for PA. These results conclude the participant's burnout decreased overall from pre-intervention to post-intervention. The impact of the project was projected to have a more thorough statistical influence, but due to the participant size, there was minimal impact of system or policies in the psychiatric facility.

The project intervention can easily be sustained and implemented for long term use in the psychiatric facility as mindfulness-based interventions are cost effective, especially when they are completed on a zero-cost self-guided application on a smart phone. Challenges occurred throughout this project as multiple sites withdrew their agreement, and a diminutive sample size as many psychiatric nurses chose not to participate in this study portrayed unsatisfactory statistics. Lack of participation from more nurses may be linked to a lack of initiative to complete project or misunderstanding of anonymity. Recommendations for further study include measuring burnout using mindfulness-based interventions with a larger population of psychiatric nurses would better provide statistical significance.

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**Appendix A**  
**Qualitative Studies**

**Table 1**

*Evaluation Table*

Citation	Theory/Conceptual Framework	Design/ Method	Sample/Setting	Major Themes & Definitions	Measurement/ Instrumentation	Data Analysis	Findings/Themes	Level/ Quality of Evidence; Decision for practice/ application to practice
<p><b>Citation:</b> Dall’Ora et al. (2020). Burnout in nursing: A theoretical review.</p> <p><b>Country:</b> England</p> <p><b>Funding:</b> University of Southampton, UK</p>	<p><b>Maslach (1982)</b> Theory of burnout.</p>	<p><b>Design:</b> TR of empirical studies without formal appraisal of quality.</p> <p><b>Purpose:</b> a comprehensive summary of research that examines theorized relationships between BO and</p>	<p><b>N=91</b> in 28 countries. 87 were cross-sectional studies.</p> <p><b>Demographics:</b> Burnout in nursing, low control over the job, low decision latitude, poor social climate/social support, and low</p>	<p><b>Research Question:</b> What is the relationship of burnout and other variables (high work load and low control over the job)?</p> <p><b>Definitions:</b></p> <p><u>Workload-</u> Patient: RN ratio and hours worked.</p>	<p><b>Tools used to Measure variables:</b> Theoretical review conducted per the methodology outlined by Campbell et al. Guideline by PRISMA-CsR. MEDLINE, CINAHL,</p>	<p>Qualitative data was extracted from previous studies from three independent reviewers</p>	<p><b>Findings:</b> Adverse job characteristics such as high workload, low staffing levels, long shifts were associated with BO in RNs.</p>	<p><b>LOE:</b> I</p> <p><b>Strengths:</b> High level of evidence</p> <p><b>Weakness:</b> Grey literature was not included and the characteristics nurses’ personalities were not considered.</p> <p><b>Application:</b> Identified plausible mechanism to explain associations</p>

Key terms: AX- anxiety; BO- burnout; CAMS-R- cognitive and affective mindfulness scale-revised; CASP- Critical Appraisal Skills Program; CBI- Copenhagen burnout inventory; CR- critical review; D- depersonalization; DERs-36- difficulties in emotional regulation scale; EE- emotional exhaustion; EL- emotional labor; ER- emotional regulation; HADS- hospital anxiety and depression scale; HCP- healthcare professional; HO- healthcare organizations, HSS- human service survey, IARA- meeting compliance responsibility and autonomy, LOE- level of evidence; LPA- low personal accomplishments; MA- meta-analysis; MAAT- Mixed-methods appraisal tool; MBI- Maslach Burnout Inventory; MH- mental health; MI- mindfulness intervention; MSRB- mindfulness-based stress reduction; N- number of participants, PA- personal accomplishments; PCRN- primary care registered nurses; POS- perception of stress; PR- peer reviewed; PSS- perceived stress scale; QES- quasi-experimental studies questionnaire; RCT- randomized control trial; RN- registered nurse(s); SR- systematic review; SS- stress; STS- secondary traumatic stress; SWOT- strengths weaknesses opportunities and threats; TR- theoretical review; ZSRAS- zung self-rating anxiety scale.

Citation	Theory/Conceptual Framework	Design/ Method	Sample/Setting	Major Themes & Definitions	Measurement/ Instrumentation	Data Analysis	Findings/Themes	Level/ Quality of Evidence; Decision for practice/ application to practice
<b>Bias:</b> Not mentioned		other variables, to determine what is known (and not known) about the causes and consequences of BO in RNs, and how this relates to theories of BO.	rewards as predictors of BO. No age, race, sex of individuals stated.  <b>Setting:</b> undisclosed setting of articles in this review.  <b>Exclusion:</b> Non-English studies and studies older than 1975  <b>Attrition:</b> none stated.	<u>Control-</u> resources needed to complete workload.  <u>Reward-</u> Pride or monetary value, incentives.  <u>Fairness-</u> inadequate workload/pay	and PsycINFO with search terms including ‘burnout’ and ‘nursing’. Articles comparing BO among different settings such as cancer were excluded. MBI was used to measure BO in each article.			of adverse job characteristics and BO.

Key terms: AX- anxiety; BO- burnout; CAMS-R- cognitive and affective mindfulness scale-revised; CASP- Critical Appraisal Skills Program; CBI- Copenhagen burnout inventory; CR- critical review; D- depersonalization; DERs-36- difficulties in emotional regulation scale; EE- emotional exhaustion; EL- emotional labor; ER- emotional regulation; HADS- hospital anxiety and depression scale; HCP- healthcare professional; HO- healthcare organizations, HSS- human service survey, IARA- meeting compliance responsibility and autonomy, LOE- level of evidence; LPA- low personal accomplishments; MA- meta-analysis; MAAT- Mixed-methods appraisal tool; MBI- Maslach Burnout Inventory; MH- mental health; MI- mindfulness intervention; MSRB- mindfulness-based stress reduction; N- number of participants, PA- personal accomplishments; PCRN- primary care registered nurses; POS- perception of stress; PR- peer reviewed; PSS- perceived stress scale; QES- quasi-experimental studies questionnaire; RCT- randomized control trial; RN- registered nurse(s); SR- systematic review; SS- stress; STS- secondary traumatic stress; SWOT- strengths weaknesses opportunities and threats; TR- theoretical review; ZSRAS- zung self-rating anxiety scale.

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<p><b>Citation:</b> Edward et al. (2017). Emotional labour in mental health nursing: An integrative SR.</p> <p><b>Country:</b> Australia</p> <p><b>Funding:</b> This study was supported by Gylo hercelinskyj, School of Nursing.</p> <p><b>Bias:</b> These study designs might have introduced bias in the representative research, and were considered low-grade evidence when considering the hierarchy of evidence for</p>	<p><b>Benner&amp; Wrubel (1989); Swanson (1993); Watson (1988)</b> Caring is the defining characteristic of RN.</p> <p><b>Hochschild (1983)</b> Dislocation of feelings</p>	<p><b>Design:</b> SR and MA</p> <p><b>Purpose:</b> Investigate emotional labour of MH work, how it manifested, the impacts of, and the way to mitigate these impacts.</p>	<p>N= 20 articles. 12 quantitative, 8 qualitative.</p> <p><b>Demographics:</b> MH RN, inpatient and community. Age, sex, race, and financial status not stated.</p> <p><b>Setting:</b> undisclosed.</p> <p><b>Exclusion:</b> International studies that were not written in English. No date limits applied.</p>	<p><b>Research question:</b> How does the emotional labour of MH RNs manifest and how can the impacts be mitigated?</p> <p><b>Definitions:</b></p> <p><u>Emotional labour-</u> caring</p> <p><u>Emotional exhaustion-</u> burnout.</p> <p><u>Emotional intelligence-</u> self-protection.</p>	<p><b>Tools used to measure variables:</b> multiple databases including CINAHL , psycINFO, and Medline Complete were used and key words such as ‘psychiatric nurse’ and ‘emotional labour’ were included.</p> <p>Quality assessment of research was critiqued using CASP.</p>	<p>The quantitative studies comprised designs that were either cross-sectional, survey, pretest, or post-test, and often based on self-report. The eight qualitative articles included designs such as naturalistic inquiry, critical feminist approaches, and narrative/story</p>	<p><b>Findings:</b> Emotional labour can manifest as burnout/stress but may lead to resilience and EE may lead to personal growth</p> <p><b>Narrative:</b> Of the three themes related to emotional work for MH RNs that may influence burnout may also contribute to its appeal to work in this area. Daily stress and interactions with individuals who have complex needs and</p>	<p><b>LOE: I</b></p> <p><b>Strengths:</b> high level of evidence, many articles were reviewed. High quality and evidence based interventions.</p> <p><b>Weakness:</b> no stated bias and older studies were included in the research.</p> <p><b>Feasibility:</b> Could be used in practice due to relevance and opportunities to incorporate decision making to protect emotional well-being.</p>

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quantitative research.			<b>Attrition:</b> none stated and none inferred.			telling. Data were collected through participant observations and interviews/ focus groups.	behaviours creates EL for RNs.	

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Citation	Theory/Conceptual Framework	Design/ Method	Sample/Setting	Major Themes & Definitions	Measurement/ Instrumentation	Data Analysis	Findings/Themes	Level/ Quality of Evidence; Decision for practice/ application to practice
<p><b>Citation:</b> Ruiz-Fernandez et al. (2020). Mindfulness therapies on health professionals.</p> <p><b>Country:</b> Spain</p> <p><b>Funding:</b> This study was supported by Health, Regional Government of Spain.</p> <p><b>Bias:</b> Cochrane Collaborations’ risk of bias assessment- no bias found.</p>	<p><b>Lazarus (1991)</b> Transactional Model of SS</p>	<p><b>Design:</b> SR and MA</p> <p><b>Purpose:</b> to find which MI are being used for HCP and their effectiveness.</p>	<p><b>N= 15</b> <b>n= 9 SR</b> <b>n= 6 MA</b></p> <p><b>Demographics:</b> Physicians and nurses. Article did not disclose age, race, or sex.</p> <p><b>Setting:</b> undisclosed setting of articles in this review.</p> <p><b>Exclusion:</b> duplicates and “different reasons”</p> <p><b>Attrition:</b> none stated and none inferred.</p>	<p><b>Research Questions:</b> What mindfulness interventions reduce stress?</p> <p><b>Definitions:</b> <u>Self-compassion</u>- understanding self-inadequacy.</p> <p><u>Stress-</u> feeling overwhelmed, unable to cope.</p>	<p>Cochrane Review</p> <p>Manager-measured bias and lack of information.</p> <p>MSRB used in SR.</p> <p>Databases used include CINHAL, PsycINFO, and Science Direct.</p> <p>Search strategy included key terms such as Physician, Doctor, nursing, and health professional.</p>	<p>Qualitative data was extracted from previous studies by two independent reviewers.</p>	<p><b>Findings:</b> MBSR is effective to examine improved stress; individuals who practiced meditation daily saw a greater decrease in stress and increase in mindfulness.</p> <p><b>Narrative:</b> each mindfulness based stress reduction tool helped</p>	<p><b>LOE:</b> I</p> <p><b>Strengths:</b> high level of evidence</p> <p><b>Weakness:</b> Low Number and unknown population demographics or number of years working in healthcare.</p> <p><b>Application:</b> Identified what clinicians need to address to decrease stress and improve mindfulness related to healthcare.</p>

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<p><b>Citation:</b> Wampole &amp; Bressi (2020). Exploring a social work lead mindfulness-based intervention to address burnout among inpatient psychiatric nurses: a pilot study.</p> <p><b>Country:</b> USA</p> <p><b>Funding:</b> not stated</p> <p><b>Bias:</b> none stated, none inferred.</p>	<p><b>Maslach (1982)</b> Theory of burnout.</p>	<p><b>Design:</b> not stated but inferred: MA</p> <p><b>Purpose:</b> BO among MHRNs, factors that induce BO and experiences of the job that lend to BO. Feasibility and usefulness of SWL-DBT MBI.</p>	<p>N= 8 MHRNs</p> <p><b>Demographics:</b> All white, all Caucasian, 4 had BSN, mean age 42.</p> <p><b>Settings:</b> 63 bed inpatient psychiatric facility.</p> <p><b>Exclusions:</b> MHRNs over 90-day probationary period for new hires.</p> <p><b>Attrition:</b> none stated and none inferred.</p>	<p><b>Research Question:</b> Does SWL-DBT MBI decrease BO in MHRNs</p> <p><b>Definitions:</b></p> <p><u>Depersonalization-</u> not feeling like one’s self.</p>	<p><b>Tools used to measure variables:</b> MBI.</p>	<p>Descriptive statistics including means and ranges of results of MBI were computed. Name of software not stated.</p>	<p><b>Findings:</b> Scores indicated mild symptoms of EE and D.</p> <p><b>Narrative:</b> Of the 8 open ended questions from the MBI, MHRNs had noted key stressors including interpersonal conflicts, poor management, and feeling undervalued. All lead to increased BO.</p>	<p><b>LOE: II</b></p> <p><b>Strengths:</b> MBI questionnaire asked the same question to each participant with open ended questions allowing for more personal data.</p> <p><b>Weaknesses:</b> Demographics of individuals are the same.</p> <p><b>Feasibility:</b> Could be used in practice due to relevance and opportunities to incorporate decision making to protect.</p>

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**Appendix B**

**Quantitative Studies**

**Table 1**

*Evaluation Table*

Citation	Theoretical/ Conceptual Framework	Design/ Purpose	Sample/Setting	Variables	Measure/ Instrument	Data Analysis	Findings	LOE/ Application to practice/Generalization
<p><b>Citation:</b> Barattucci et al. (2019). Mindfulness-based IARA model proves effective to reduce stress and anxiety in healthcare professionals. A six-month follow-up study.</p> <p><b>Country:</b> Italy</p> <p><b>Funding:</b> No external funding</p>	<p>Not stated but <b>Maslach (1982)</b> Theory of burnout is inferred.</p>	<p><b>Design:</b> Self-reported questionnaires before the first IARA meeting and 6 months after the last meeting using DERS-36, ZSRAS, and PSS.</p>	<p><b>N=594 HCP</b></p> <p><b>Control group n=202</b></p> <p><b>IARA intervention n= 295</b></p> <p><b>Setting:</b> multiple HCP</p>	<p><b>IV=</b> ARA meeting intervention</p> <p><b>Definitions:</b></p> <p><u>Adaptation:</u> becoming better suited to environment</p>	<p>Self-reported questionnaires - DERS-36, ZSRAS, PSS, and SWOT analysis.</p>	<p>SPSS 24 statistical package, ANOVA, and t-test.</p>	<p>No differences were revealed between training and control groups for any demographic information or work characteristics. Results indicate difficulties with emotional acceptance and awareness are</p>	<p><b>LOE: III</b></p> <p><b>Strengths:</b> Control group, demographics are stated.</p> <p><b>Weaknesses:</b> IARA requires individuals to take 4 days off work. The training does not effectively reduce anxiety,</p>

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<b>Bias:</b> None stated and none inferred.		<b>Purpose:</b> Analyze the efficacy of the mindfulness-based IARA to ameliorate perceived SS, AX, and enhance ER among HCPs.	including RNs, doctors, and HCP assistants. Mean age was 40.35. Average organizational seniority was 10.98 years, 168 subjects were single, 280 were married, 24 were divorced. 231 had a university degree.				significantly related to SS and AX levels.  <b>IARA scale:</b> - <u>DERs</u> : 3.13 (p=<0.01) - <u>Anxiety</u> : 2.32 (p=0.05) - <u>Stress</u> : 6.90 (p=0.001)  <b>Control group:</b> - <u>DERs</u> : 1.87 (p=not stated) - <u>Anxiety</u> : q.02 (p= not stated) - <u>Stress</u> : -1.94 (p=not stated) No CI stated.	<b>Application to Practice:</b> Further research should apply psychometrically robust measures of AX and perceived work SS for further evaluation.
<b>Citation:</b> Guillaumie et al. (2016). A mixed-methods systematic review of the effects of mindfulness on nurses.  <b>Country:</b> Canada	<b>Thomas et al. (2004) and Thomas &amp; Harden (2005)</b>	<b>Design:</b> SR of qualitative and quantitative data.  <b>Purpose:</b> To review the effects of MBI of RNs	N= 32 studies n= 17 controlled design n= 11 pre-post-design	<b>IV= MBI</b>  <b>DV1= Decreased depression</b>	MAAT and Cochrane risk of bias tool.	Research assistants independently extracted data, tools not stated.	AX was reduced using MBI (-0.78, 95% CI- 11.39 to -0.18) Depression was decreased using MBI (-0.51, 95 % CI -0.78 to -0.18).	<b>LOE: I</b>  <b>Strengths:</b> High level of evidence, Cochrane risk of bias tool used, qualitative and

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Citation	Theoretical/ Conceptual Framework	Design/ Purpose	Sample/Setting	Variables	Measure/ Instrument	Data Analysis	Findings	LOE/ Application to practice/Generalization
<p><b>Funding:</b> no special grant from any funding agency in the public, commercial, or non-profit sectors.</p> <p><b>Bias:</b> not stated and none inferred.</p>		<p>and nursing students, given the stressors of the profession such as death, illness, and close contact with patients measuring AX and depression.</p>	<p><b>n=</b> 4 qualitative design.</p> <p><b>Demographics:</b> published from 1980-2014.</p>	<p><b>DV2=</b> RNs without mindfulness activities.</p> <p><b>Definition:</b> <u>Job Stress:</u> harmful physical and emotional response that occurs when job demands exceed worker's capabilities.</p> <p><u>Anxiety:</u> Feeling of worry</p> <p><u>Depression:</u> Lowering of mood</p>			<p>Regarding work-related variables, MA showed no significant impact for work satisfaction (0.23, 95% CI -0.27 to 0.72).</p> <p>RCTs measuring burnout, work self-efficacy, and work energy reported inconclusive.</p> <p>Studies comparing RN vs nursing students was preformed and no significant difference was demonstrated.</p>	<p>quantitative data analyzed.</p> <p><b>Weaknesses:</b> small sample size, no demographic information given.</p> <p><b>Application to Practice:</b> Work specific variables required such as incentives given, patient load, hours worked in one shift.</p>

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<p><b>Citation:</b> Lou et al. (2019). An evaluation of a positive psychological intervention to reduce burnout among nurses.</p> <p><b>Country:</b> Australia and China</p> <p><b>Funding:</b> None</p> <p><b>Bias:</b> None stated, none inferred</p>	<p>Not stated but <b>Maslach (1982)</b> Theory of BO is inferred.</p>	<p><b>Design:</b> QES</p> <p><b>Purpose:</b> Evaluate the PPI of recording three good things on alleviating RN’s BO.</p>	<p>N= 87</p> <p><b>Setting:</b> RNs from tertiary hospitals. Criteria includes: RNs, BO score of higher than 1.49, and had a phone <i>WeChat</i> could be installed on. 97% were female and average age was 28.</p>	<p><b>IV=</b> BO on RNs <b>DV1=</b> PPI</p> <p><b>Definitions:</b> <u>Good things:</u> Positive parts of the day.</p>	<p>MBI, Cronbach’s dimensions for BO. WeChat for uploading “three good things” after an RNs shift.</p>	<p>SPSS 20.0 programme, Fisher’s test, t-test.</p>	<p>6.9 percent of participants suffered from serious burnout while others suffered some burnout. Average scores of exhaustion, cynicism, and reduced personal efficacy were 2.37, 2.03, and 2.19.</p>	<p><b>LOE: II</b></p> <p><b>Strengths:</b> high level of research</p> <p><b>Weaknesses:</b> no follow-up research</p> <p><b>Application to Practice:</b> equal representation of male and female RNs</p>
<p><b>Citation:</b> Sarazine et al. (2020). Mindfulness workshops effects on nurses’ burnout, stress, and mindfulness skills.</p> <p><b>Country:</b> United States of America</p>	<p>Not stated but inferred: <b>Maslach (1982)</b> Theory of burnout is inferred.</p>	<p><b>Design:</b> pre-intervention and post-intervention questionnaires.</p> <p><b>Purpose:</b> Determine whether a 4-hour workshop teaching the</p>	<p>N= 52 RNs who attended a mindfulness workshop.</p> <p><b>Setting:</b> RNs had average age of 38.5 years, majority were female, marries,</p>	<p><b>IV=</b> 4-hour workshop on <i>MBI</i></p> <p><b>DV1=</b> BO</p> <p><b>Definitions:</b> <u>Mindfulness:</u> calmly</p>	<p>PSS, MBI, CAMS-R</p>	<p>Paired <i>t</i> Tests and Descriptive Statistics.</p>	<p><u>1 month after workshop:</u> -decrease in stress (-2.31, p=0.1) -decrease in EE (-4.78, p=.03) -reports of improvement in self-perceived mindfulness, personal</p>	<p><b>LOE: III</b></p> <p><b>Strengths:</b> Fidelity of intervention was supported in several ways-same qualified instructors was used for all workshops, content of workshop was the same for each class.</p>

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<p><b>Funding:</b> Center for Clinical Research and Scholarship at Rush University Medical Center</p> <p><b>Bias:</b> No bias stated, and no bias inferred.</p>		principles of mindfulness and how to apply them to deal more effectively with stress, D, EE, POS, and PA was an effective intervention for reducing BO symptoms. Measured at 1 month and 6-months post workshop.	white, held a BSN, and worked days.	<p>acknowledging one’s feelings.</p> <p><u>Stress:</u> feeling overwhelmed</p> <p><u>EE:</u> Chronic state of emotional depletion</p> <p><u>D:</u> Observing oneself from outside one’s body.</p>			<p>accomplishment, and D, although not statistically significant.</p> <p><u>6 months after workshop:</u> Increase in mindfulness (2.50, p= .04) Increase in personal accomplishment (4.43, p=.04) Decrease in EE (-6.21, p=.05). decrease in POS and D, but improvements not statistically significant. No CI stated.</p>	<p><b>Weaknesses:</b> Unknown what was taught in 4-hour class. Small sample size, most subjects were female, white, and their specific RN occupation was unknown.</p> <p><b>Application to Practice:</b> Geographical, gender, and age differences should be considered when developing and measuring BO.</p>
<p><b>Citation:</b> Suleiman-Martos et al. (2019). The effect of mindfulness training on burnout syndrome in nursing: A systematic review and meta-analysis.</p>	Not stated but <b>Maslach (1982)</b> Theory of	<p><b>Design:</b> SR and MA</p> <p><b>Purpose:</b> Assess impact of MBI on RNs and</p>	<p><b>N= 17</b> <b>n= 8 RCT</b> <b>n= 9 QES</b></p> <p><b>Demographics:</b></p>	<b>IV- BO Syndrome on RNs.</b>	MSRB/MBI	CINAHL, LILACS, Medline, ProQuest, PsycINFO, Scielo, and	<p>EE: 1.32 (95% CI, p= -9.41-6.78) with lower mean values than the intervention group. D: 1.91 (95% CI, p= -4.50-0.86)</p>	<p><b>LOE: I</b></p> <p><b>Strengths:</b> high level of evidence, many articles were reviewed. High</p>

Key terms: AX- anxiety; BO- burnout; CAMS-R- cognitive and affective mindfulness scale-revised; CASP- Critical Appraisal Skills Program; CBI- Copenhagen burnout inventory; CR- critical review; D- depersonalization; DERs-36- difficulties in emotional regulation scale; EE- emotional exhaustion; EL- emotional labor; ER- emotional regulation; HADS- hospital anxiety and depression scale; HCP- healthcare professional; HO- healthcare organizations, HSS- human service survey, IARA- meeting compliance responsibility and autonomy, LOE- level of evidence; LPA- low personal accomplishments; MA- meta-analysis; MAAT- Mixed-methods appraisal tool; MBI- Maslach Burnout Inventory; MH- mental health; MI- mindfulness intervention; MSRB- mindfulness-based stress reduction; N- number of participants, PA- personal accomplishments; PCRN- primary care registered nurses; POS- perception of stress; PR- peer reviewed; PSS- perceived stress scale; QES- quasi-experimental studies questionnaire; RCT- randomized control trial; RN- registered nurse(s); SR- systematic review; SS- stress; STS- secondary traumatic stress; SWOT- strengths weaknesses opportunities and threats; TR- theoretical review; ZSRAS- zung self-rating anxiety scale.

Citation	Theoretical/ Conceptual Framework	Design/ Purpose	Sample/Setting	Variables	Measure/ Instrument	Data Analysis	Findings	LOE/ Application to practice/Generalization
<p><b>Country:</b> Spain</p> <p><b>Funding:</b> Excellence Research Project</p> <p><b>Bias:</b> more females than males</p>	BO is inferred.	subsequent levels of BO experienced as measured through 3 dimensions (EE, D, LPA)	<p>87 % of RN were women, from 29-52 years old, RNs worked in hospitals, Studies in USA (n=8), MBI (n=9), CBI (n=1), MSRB (n=14). sample population RNs (n=632)</p> <p><b>Setting:</b> not stated</p> <p><b>Exclusion:</b> International studies that were not written in English, Spanish, French, Portuguese, no restriction of</p>	<p><b>DV1:</b> <i>MI and effects on EE, D, and PA.</i></p> <p><b>DV2:</b> <i>No MI</i></p> <p><b>Definitions:</b></p> <p><u>EE:</u> Chronic state of emotional depletion</p> <p><u>D:</u> Observing oneself from outside one's body.</p> <p><u>LPA:</u> negatively evaluate one's worth</p>		Scopus databases. No restriction on year of publication.	PA: 2.2 (95% CI, p=-9.91-14.14)	<p>quality and evidence based interventions.</p> <p><b>Weaknesses:</b> Grey literature and external variables in RN work environment was not included</p> <p><b>Application to Practice:</b> equal representation of male and female RNs and larger sample sizes are needed to better understand the effects of mindfulness training on RNs.</p>

Key terms: AX- anxiety; BO- burnout; CAMS-R- cognitive and affective mindfulness scale-revised; CASP- Critical Appraisal Skills Program; CBI- Copenhagen burnout inventory; CR- critical review; D- depersonalization; DERs-36- difficulties in emotional regulation scale; EE- emotional exhaustion; EL- emotional labor; ER- emotional regulation; HADS- hospital anxiety and depression scale; HCP- healthcare professional; HO- healthcare organizations, HSS- human service survey, IARA- meeting compliance responsibility and autonomy, LOE- level of evidence; LPA- low personal accomplishments; MA- meta-analysis; MAAT- Mixed-methods appraisal tool; MBI- Maslach Burnout Inventory; MH- mental health; MI- mindfulness intervention; MSRB- mindfulness-based stress reduction; N- number of participants, PA- personal accomplishments; PCRN- primary care registered nurses; POS- perception of stress; PR- peer reviewed; PSS- perceived stress scale; QES- quasi-experimental studies questionnaire; RCT- randomized control trial; RN- registered nurse(s); SR- systematic review; SS- stress; STS- secondary traumatic stress; SWOT- strengths weaknesses opportunities and threats; TR- theoretical review; ZSRAS- zung self-rating anxiety scale.

Citation	Theoretical/ Conceptual Framework	Design/ Purpose	Sample/Setting	Variables	Measure/ Instrument	Data Analysis	Findings	LOE/ Application to practice/Generalization
			year of publication, Clinical trial or QES, analysis of impact of MBI of BO.  <b>Attrition:</b> varied for each MBI, ranged from 0-40%					
<b>Citation:</b> Watanabe et al (2019). Brief mindfulness-based stress management program for a better mental state n working populations- Happy nurse project: A randomized control trial.  <b>Country:</b> Japan  <b>Funding:</b> Intramural Research Grant for Neurological and Psychiatric Disorders of National Center of Neurology and Psychiatry, Japan.	Not stated but inferred: <b>Maslach (1982)</b> Theory of burnout is inferred	<b>Design:</b> RTC  <b>Purpose:</b> Explore the effectiveness of the brief mindfulness-based stress management program for hospital nurses	N= 80 RNs  <b>Demographics:</b> Inclusion criteria included 20-59 years of age and female gender, RNs working on inpatient wards, and RNs who gave written consent.  Attrition: 2.4% at 26 weeks 37	<b>IV-</b> MBI program (n=40)  <b>DV1:</b> PL (n=40).  <b>Definition:</b>  <u>Presenteeism:</u> working while in poor health either physical or mentally.	MBI, HADS, PHQ-9, DSM-5.	Descriptive analysis of variables was preformed, name of analysis omitted.	95% CI for each test concluded.  Mean score of HADS were 7.20 (95% CI: 5.94, 8.45) and 5.97 (4.76, 7.81) in the program and leaflet groups.  The group coefficient by time interaction was <u>not statistically significant</u> at -1.41 (-3.35, 0.54; P=0.156).	<b>LOE: I</b>  <b>Strengths:</b> High level of evidence  <b>Weaknesses:</b> Unknown education for RNs. Studying specifically newer RNs.  <b>Application to Practice:</b> Larger group sizes are needed, Ages should not exclusion factor.

Key terms: AX- anxiety; BO- burnout; CAMS-R- cognitive and affective mindfulness scale-revised; CASP- Critical Appraisal Skills Program; CBI- Copenhagen burnout inventory; CR- critical review; D- depersonalization; DERs-36- difficulties in emotional regulation scale; EE- emotional exhaustion; EL- emotional labor; ER- emotional regulation; HADS- hospital anxiety and depression scale; HCP- healthcare professional; HO- healthcare organizations, HSS- human service survey, IARA- meeting compliance responsibility and autonomy, LOE- level of evidence; LPA- low personal accomplishments; MA- meta-analysis; MAAT- Mixed-methods appraisal tool; MBI- Maslach Burnout Inventory; MH- mental health; MI- mindfulness intervention; MSRB- mindfulness-based stress reduction; N- number of participants, PA- personal accomplishments; PCRN- primary care registered nurses; POS- perception of stress; PR- peer reviewed; PSS- perceived stress scale; QES- quasi-experimental studies questionnaire; RCT- randomized control trial; RN- registered nurse(s); SR- systematic review; SS- stress; STS- secondary traumatic stress; SWOT- strengths weaknesses opportunities and threats; TR- theoretical review; ZSRAS- zung self-rating anxiety scale.



Citation	Theoretical/ Conceptual Framework	Design/ Purpose	Sample/Setting	Variables	Measure/ Instrument	Data Analysis	Findings	LOE/ Application to practice/Generalization
<b>Bias:</b> None stated, none inferred.			participants (of 40 MBI) completed program and 40 individuals (of 40 psychological leaflet) completed the program.					

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Appendix C

Table 1

Synthesis Table

Studies		Barattucci et al.	Dall’Ora et al	Edwards et al.	Guillaumi et al.	Lou et al.	Ruiz-Fernandez et al	Sarazine et al.	Suleiman-Martos et al.	Wampole et al.	Watanabe et al.
Basics	Year	2019	2020	2017	2016	2019	2020	2020	2019	2020	2019
	LOE	III	I	I	I	II	I	III	I	II	I
	Design	CS	TR	SR and MA	SR	QES	SR and MA	SR	SR and MA	QES	RTC
	MH RN			X		X	X			X	X
	Mean Age (years)	40.35	NS	NS	NS	28	NS	38	NS	42	20-59
	Sex	215 F 282 M	NS	NS	NS	84F 3 M	NS	48 F 4 M	NS	8 F 0 M	80 F 0 M
	Bias	NS	NS	NS	NS	NS	LR	NS	NS	NS	NS
	# of participants	497	91 articles	20 articles	32 studies	87	15 articles	52	17 articles/632	8	80

CASP- Critical Appraisal Skills Program; CAMS-R- cognitive and affective mindfulness scale-revised; CS- cohort study; D- depersonalization; DERs-36- difficulties in emotional regulation scale; DSM-5- diagnostic and statistical manual of mental disorders; EE- emotional exhaustion; ED-5D- quality of life instrument; EL- emotional labor; ER- emotional regulation; F- female; HADS- hospital anxiety and depression scale; HPQ- Work performance questionnaire; IARA- mindfulness-based model-Italian; LR- low risk; M- male; MA- meta-analysis; MAAT- Mixed-methods appraisal tool; MI- Mindfulness intervention; MBI- Maslach Burnout Inventory; MBSR- Mindfulness-based stress reduction therapy; MH- mental health; NS- not stated; RN- registered nurse(s); PA- personal accomplishments; PHQ-9- patient health questionnaire; PS- perceived stress; PSS- perceived stress scale; QES- quasi-experimental studies questionnaire; RCT- randomized control trial; SM- self-perceived mindfulness; SR- systematic review; SAS- self-rating anxiety scale; SS- stress; STS- secondary traumatic stress; TR- theoretical review; ↓ - Reduced, ↑ - Increased, \*\* no significance

									RNs		
	Cross sectional Survey		X	X							
	Tools Utilized	IARA	Independent researchers. No specific tools listed	CASP	MAAT	WeChat / Cronbach's dimensions for BO	MBSR	MBSR	MSRB	MSRB/DBT	DSM-5/HPQ/ED-5D
Research	Qualitative		X	X			X			X	
Research	Quantitative	X			X	X		X	X		X
<b>Interventions</b>	MBI	X	X	X	X	X	X	X	X	X	X
	CAMS-R							X			
	MI workshop							X		X	
	HADS										X
	DERs-36	X									
	PHQ-9										X
	PSS	X						X			
SAS	X										

CASP- Critical Appraisal Skills Program; CAMS-R- cognitive and affective mindfulness scale-revised; CS- cohort study; D- depersonalization; DERs-36- difficulties in emotional regulation scale; DSM-5- diagnostic and statistical manual of mental disorders; EE- emotional exhaustion; ED-5D- quality of life instrument; EL- emotional labor; ER- emotional regulation; F- female; HADS- hospital anxiety and depression scale; HPQ- Work performance questionnaire; IARA- mindfulness-based model-Italian; LR- low risk; M- male; MA- meta-analysis; MAAT- Mixed-methods appraisal tool; MI- Mindfulness intervention; MBI- Maslach Burnout Inventory; MBSR- Mindfulness-based stress reduction therapy; MH- mental health; NS- not stated; RN- registered nurse(s); PA- personal accomplishments; PHQ-9- patient health questionnaire; PS- perceived stress; PSS- perceived stress scale; QES- quasi-experimental studies questionnaire; RCT- randomized control trial; SM- self-perceived mindfulness; SR- systematic review; SAS- self-rating anxiety scale; SS- stress; STS- secondary traumatic stress; TR- theoretical review; ↓ - Reduced, ↑ - Increased, \*\* no significance

<b>Major findings</b>	EL		↑	↓							
	ER	↑									
	EE		↑	↓		↓		↓	↓	↑	
	SS	↓	↑	↓			↓	↓			**
	STS			↓							
	PA	↑		↑		↑		↑	↑	↓	
	SM-							↑			
	PS	↓		↓							
	AX	↓		↓	↓						
	D		↑	↑	↑			↑	↓	↑	

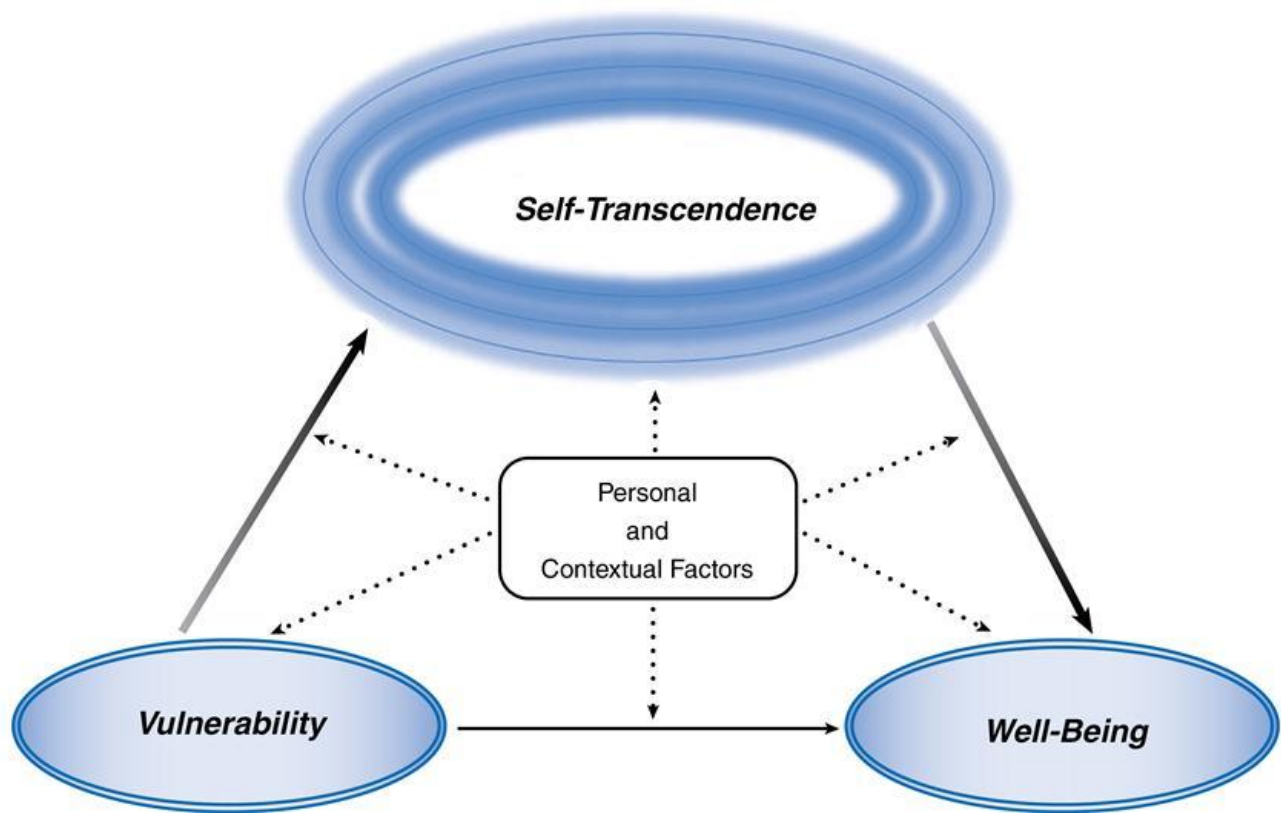
CASP- Critical Appraisal Skills Program; CAMS-R- cognitive and affective mindfulness scale-revised; CS- cohort study; D- depersonalization; DERs-36- difficulties in emotional regulation scale; DSM-5- diagnostic and statistical manual of mental disorders; EE- emotional exhaustion; ED-5D- quality of life instrument; EL- emotional labor; ER- emotional regulation; F- female; HADS- hospital anxiety and depression scale; HPQ- Work performance questionnaire; IARA- mindfulness-based model-Italian; LR- low risk; M- male; MA- meta-analysis; MAAT- Mixed-methods appraisal tool; MI- Mindfulness intervention; MBI- Maslach Burnout Inventory; MBSR- Mindfulness-based stress reduction therapy; MH- mental health; NS- not stated; RN- registered nurse(s); PA- personal accomplishments; PHQ-9- patient health questionnaire; PS- perceived stress; PSS- perceived stress scale; QES- quasi-experimental studies questionnaire; RCT- randomized control trial; SM- self-perceived mindfulness; SR- systematic review; SAS- self-rating anxiety scale; SS- stress; STS- secondary traumatic stress; TR- theoretical review; ↓ - Reduced, ↑ - Increased, \*\* no significance

**Appendix D**

**Models and Framework**

**Figure 1**

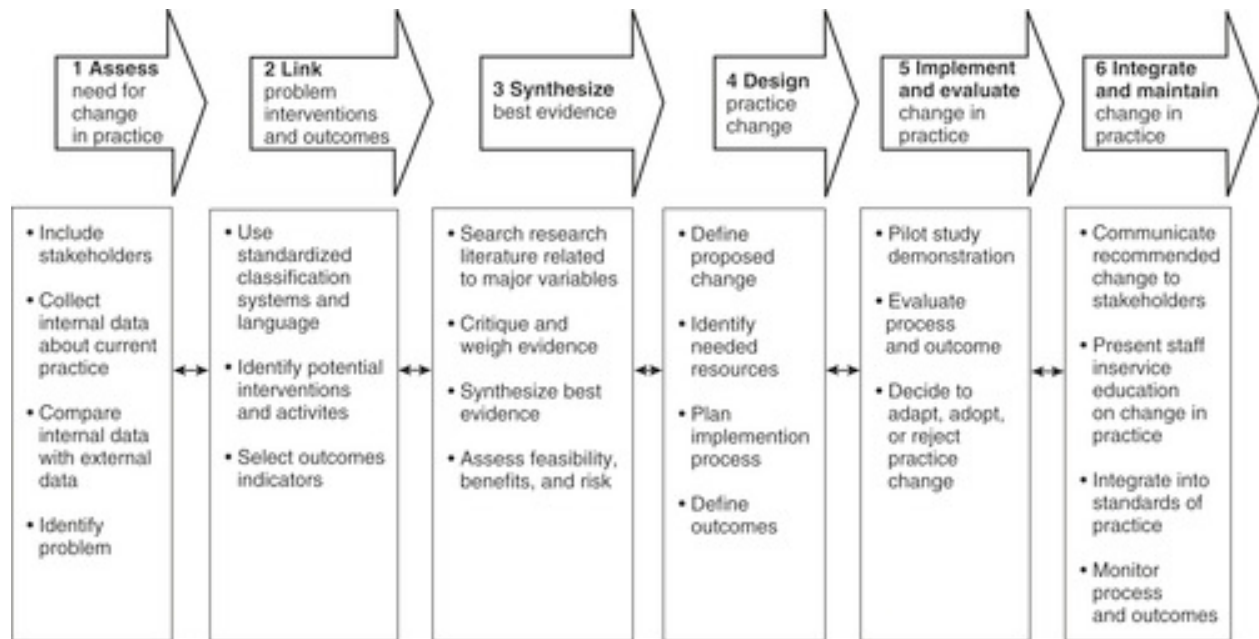
*Self-Transcendence Model*



Reed (1991)

**Figure 2**

*Rosswurm and Larrabee's Model for Evidence-Based Practice*



Rosswurm & Larabee (1999)