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Promoting Mindfulness Based Self-Care in Healthcare Staff

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Promoting Mindfulness Based Self-Care in Healthcare Staff

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Abstract

Background: Healthcare personnel (HCP) like physicians, nurses, advanced practice nurses etc. are at high risk of stress, burnout, and compassion fatigue (CF). Nearly half of the physicians and one-third of the nurses experience burnout in the United States. The physical and mental health of HCPs is impacted by burnout and CF, leading to increased practice errors and decreased patient safety.

Local Problem: HCPs have poor knowledge about mindfulness and its benefits. Mindfulness-based self-care measures are not promoted in HCP.

Methods: An extensive database search was done to find evidence about using mindfulness-based strategies to relieve burnout, stress, and compassion fatigue in HCP.

Interventions: A critical appraisal of selected articles was done using the Johns Hopkins Evidence-Based Appraisal tool to find the highest quality of evidence. An integrated review and synthesis of the literature was performed to determine if compelling evidence exists to use mindfulness-based strategies in HCP.

Results: There is compelling evidence that using various mindfulness-based strategies helps reduce burnout and stress and increase compassion and empathy in HCP. However, there is a lack of high-quality literature measuring the effects of mindfulness practice on compassion fatigue.

Conclusions: Mindfulness-based strategies should be promoted in healthcare settings to relieve stress and burnout and increase compassion levels in HCP. Also, more empirical data should be produced showing the effects of mindfulness on compassion fatigue.

Promoting Mindfulness Based Self-Care in Healthcare Staff

Healthcare personnel (HCP) possess the values of empathy and compassion, which can put them at high risk of stress, burnout (BO), and compassion fatigue (CF) (Cocker & Joss, 2016). Nearly 50% of the physicians and 25% of the nurses in the United States experience BO (Reith, 2018). BO is characterized by emotional exhaustion, depersonalization, and lack of accomplishment and is caused by prolonged exposure to the clients' trauma and stress, long working hours, and care burden on HCP (Cocker & Joss, 2016). CF is described as the "cost of caring" for others in emotional pain (Figley, 1995). Mental healthcare personnel (MHP) like psychiatrist, nurses, mental health technicians, and therapist working in mental health settings are at increased risk of BO and CF due to additional and innate stressors like prolonged listening to patients' traumatic events, violent and unpredictable patients (Maslach & Leiter, 2016; Mangoulia et al., 2015). Additionally, the U.S. Bureau of Labor Statistics (BLS, 2020) reports that 73% of nonfatal workplace injuries (WPV) injuries happen to healthcare workers and MHP account for most of these injuries, with a shocking incident rate of 124.9/10,000 employees in 2018 (BLS, 2020). Higher physical assaults on psychiatric nurses lead to occupational stress, burnout, and PTSD among psychiatric nurses (American Nurses Association [ANA], 2015). Additionally, the coronavirus disease (COVID-19) pandemic is emerging as a new stressor for MHPs as more patients and healthcare workers seek mental health services worldwide (Fiorillo & Gorewood, 2020; Xiang et al., 2020).

Background

Burnout and CF impact HCP's physical and mental health, leading to hopelessness, decreased efficacy, and productivity on the job (Salvagioni et al., 2017). BO also impacts the quality of care delivered to the clients, adverse patient outcomes, patient safety, increased

practice errors, and relationship conflicts among professionals (Mangoulia et al., 2015; 3

Nantsupawat et al., 2016; Suleiman- Martos et al., 2020; Tawfik et al., 2019; Teng et al., 2010).

The high turnover rate and increased sick calls due to BO increase the healthcare cost of

recruiting and retaining employees. Stress can contribute up to 40% of staff turnover and 80% of

work-related injuries (Sarafis et al., 2016).

Regularly practicing self-care has been found to enhance MHP's job performance (Smith,

2017). One such self-care strategy is practicing mindfulness. Mindfulness is described as a

moment-to-moment nonjudgmental awareness cultivated through purposefully paying attention

to the present moments (Kabat-Zinn, 2013). Historically, mindfulness is rooted in Buddhist

meditation traditions; first structured mindfulness-based stress reduction (MBSR) program was

developed by Jon Kabat Zinn in 1979 (Kabat-Zinn, 2013). Since then, MBSR and a wide range

of mindfulness-based interventions (MBIs), like mindfulness-based yoga, breathing, and

gratitude practice, have been implemented in combating stress in various populations including

students, veterans, patients, and healthcare professionals (Green & Kinchen, 2021). Mindfulness

helps build control over emotions, and reactions to the environment, managing stress with

compassion and efficacy in solving problems (Askey-Jones, 2017; Suleiman-Martos et al.,

2020). However, mindfulness is not widely used in healthcare settings due to the lack of staff

knowledge and difficulty implementing MBSR at the organizational level due to high cost and

time commitment (Ameli et al., 2020; Seidel et al., 2021).

The high level of CF, BO, and stress experienced by MHP and its devastating effects on

themselves, patients, and the healthcare system, calls for vital interventions to care for those who

care for others. This integrative literature review aims to find evidence for using MBIs in

healthcare professionals (physicians, nurses, advanced practice nurses) to relieve BO, stress, and CF.

Search Process

A question is developed specifying Population, Intervention, Control, Outcome, and Timeframe (PICOT) to drive the database search for finding evidence about the effects of mindfulness on BO, CF, and stress in HCPs. However, the time frame is not applicable for the interventions under study. Therefore, based on PICO(T) guidelines, the literature search was focused on the following question: in healthcare professionals (clinicians, physicians, advance practice nurses, nurses, psychiatrists) how does practicing mindfulness-based interventions compared to no interventions reduce the rate of burnout, stress, and compassion fatigue?

An in-depth search was conducted to find evidence of the effects of MBIs on stress, compassion fatigue, and burnout from various sources. An extensive search was performed in the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and PsycINFO. The keywords used to search the evidence in CINAHL and PsycINFO were mental health professionals OR psychiatric nurs* OR psychiatrist* OR clinician OR healthcare providers AND mindful* AND burnout OR stress OR compassion fatigue AND systematic review OR meta-analysis OR randomized controlled trial*. The initial yield was 358 articles. Moreover, peer-reviewed studies published in the last five years in English were considered. The final search retrieved 178 articles.

Mesh terms used to explore PubMed were: Mental health professionals OR psychiatric nurses OR psychiatrists AND mindfulness AND burnout OR stress OR compassion fatigue. Initially, PubMed yielded 1414 results. Then, a more rigorous search methodology was used by looking for peer-reviewed meta-analyses, randomized controlled trials, and systematic reviews

published in the last five years. The final search yielded 26 articles. The following journals were also explored to seek evidence using the same search terms: Journal of Psychiatric and Mental Health, Mindfulness, and Holistic Nursing Practice. Moreover, the reference lists of the included articles were also searched manually to find the relevant studies. Inclusion and exclusion criteria were used to find the most relevant studies. Inclusion criteria were the studies reporting the effectiveness of mindfulness-based self-care techniques for mental health personnel in psychiatric settings. However, similar populations like healthcare professionals and clinicians were also considered.

Upon review, almost 100 duplicate studies not targeting the required population and interventions were excluded. Finally, ten articles were chosen that met the criteria. The articles were further appraised for quality and level of evidence on the Johns Hopkins Evidence-Based Practice (JHEBP) appraisal tool (Dang & Dearholt; 2018). Per the JHEBP tool, two randomized clinical trials provided level I; high quality evidence; five studies provided level II; high-quality evidence; two qualitative studies delivered Level III good quality evidence. One mixed-method and study resulted in poor quality quantitative but good quality qualitative evidence because of high dropout rate.

Integrated Review of Literature

While reviewing the literature, the following themes emerged: the forms of mindfulness used, the effect of mindfulness practice on each burnout, stress, and compassion fatigue, and the state of mindfulness and factors affecting the practice of mindfulness strategies by HCP.

Forms of Mindfulness:

The various forms of mindfulness strategies used in literature ranged from the traditional MBSR and other forms based on MSBR (Ameli et al., 2020; Askey-Jones, 2018). The traditional

MBSR was developed by Jon Kabat- Zinn for stress reduction. MSBR requires 2.5- to 3-hour in-class practice sessions daily and one full-day silent retreat within 45 minutes of the daily self-practice recommendation (Kabat- Zinn, 2003). The brief mindfulness program offers a 5-session program with 1.5 hours/of class and home practice recommendations (Askey-Jones, 2018). Other forms of MBIs used in literature were practicing mindfulness yoga or movements, mindfulness breathing, mindfulness eating, and loving-kindness meditation pledges (Hilcove et al., 2021; Horton-Dustech et al., (2020); Owens et al., 2020; Wampole & Bressi, 2020).

Effects of Mindfulness

Effects on Burnout

BO was measured in the studies by Maslach burnout inventory (MBI) which evaluates three components of burnout: emotional exhaustion (EE), depersonalization, and personal accomplishment (PA). Improvement in burnout is determined by decreased scores on EE, depersonalization, and higher scores on PA. Researchers have widely used MBI to measure burnout as it has a high degree of reliability, validity, and internal consistency with a Cronbach's alpha coefficient of 0.85 (Askey-Jones, 2018).

Literature suggests that various forms of mindfulness-based interventions (MBIs) like mindfulness-based stress reduction programs (MBSR), brief mindfulness training ranging from a four-hour workshop to four-week programs, and mindfulness-based yoga, and breathing significantly reduced burnout in HCPs (Ameli et al., 2020; Askey-Jones, 2018; Hilcove et al., 2021; Suleiman-Martos, 2020). Mindfulness positively affected all three components of burnout, i.e., EE, PA, and depersonalization. Regular mindfulness practice helped participants to accept their emotions without judgment, thus relieving emotional exhaustion and increasing the sense of PA (Ameli et al., 2020; Suleiman-Martos, 2020). In addition, increased awareness of present

moments contributed to decreased depersonalization (Wampole & Bressi, 2020). Moreover, a statistically significant negative correlation between mindfulness and burnout was determined (Askey-Jones, 2018). However, the quantitative results of one study remained inconclusive as the small sample size did not allow the use of inferential statistics (Wampole & Bressi, 2020).

Effects on Stress

Stress levels were measured by the perceived stress scale (PSS) in quantitative studies, while other studies showed qualitative data. The PSS is a ten-item questionnaire to assess stress and stressful feelings perception in individuals 12 years and older (Cohen et al., 1983). Mindfulness based interventions significantly reduced stress levels, and the effect was retained after a significant amount of time, ranging from 13 weeks to six months (Ameli et al., 2020; Ruiz-Fernández et al., 2020; Sarazine et al., 2021). Mindfulness interventions helped the HCPs reevaluate how they perceive stress and helped them learn positive coping skills to deal with stress. For instance, HCPs opted to pause for a moment, taking deep breaths instead of crying when stressed. Moreover, decreased stress levels resulted in better sleep quality, boosted confidence, and emotional stability in HCPs leading to a better focus on patient care (Ruiz-Fernández et al., 2020; Wampole & Bressi, 2020; Wu et al., 2021). Furthermore, the positive effect of mindfulness on HCPs' stress levels has been validated by brain images and saliva cortisol levels change after mindfulness practice (Suleiman-Martos et al., 2020).

Effects on Compassion Fatigue

The literature depicts that higher compassion levels have reciprocal relation with compassion fatigue (Wu et al., 2021). Also, mindfulness practice via mindfulness pledges and mindfulness breathing has been shown to increase compassion and empathy in HCPs (Horton-Deutsch, 2020; Owens et al., 2020; Ruiz-Fernández et al., 2020). Mindfulness pledges are based

on Project7, a set of seven mindfulness-based pledges developed by Robert Varney (Horton-Deutsch, 2020). Staff voluntarily chose a pledge for each day to be more mindful. Mindfulness practice fosters an increase in self-awareness, kindness, and self-compassion leading to kindness and compassion towards others, compelling a positive change in the work environment, and better relationships with coworkers (Horton-Deutsch, 2020; Owens et al., 2020; Ruiz-Fernández et al., 2020).

Effects on the State of Mindfulness

Mindfulness training helps the HCPs to be more mindful of present moments and validate their emotions without judgment. Even though stressors in the workplace remain the same, practicing mindfulness helped HCPs not to get carried away with stressful events and thoughts. However, the results in studies are consistent that the state of mindfulness does not increase immediately after intervention but significantly improves after 13 weeks and six months of follow-up (Ameli et al., 2020; Askey-Jones et al., 2018; Sarazine et al., 2021). Moreover, HCPs expressed feeling more aware of themselves, resulting in a positive relationship with colleagues and patients after practicing mindfulness (Wampole & Bressi, 2020).

Factors Affecting the Use of Mindfulness

The time commitment to attending the traditional eight-week MBSR was the main reason for high drop-out rates in studies. HCPs found it hard to attend mindfulness-based training offsite (Ameli et al., 2020; Sarazine et al., 2021; Seidel, 2021). Additionally, the difference in shift timings and day offs made it hard for nurses to participate in onsite mindfulness-based training programs consistently (Sarazine et al., 2021.; Wampole & Bresssi, 2020). Furthermore, it is hard to determine if the participants practiced mindfulness at home for the recommended time.

Rationale

The theoretical framework used to drive the evidence search is the Transactional model of stress and coping (TSC), developed by Lazarus & Folkman in 1984. TSC explained that response to stress results from primary and secondary appraisal of the situation. The primary appraisal determines whether the situation is relevant/ non-relevant or harmful/gainful. Relevant and harmful situations drive a secondary appraisal that analyses available resources and situational demands. A negative stress response occurs if available resources are less than situational demands. On the other hand, available resources lead to a positive stress response which can either change the situation or the relationship with the situation (Appendix B). Furthermore, repeated appraisals with positive resources lead to less stress and a change in coping styles. The model has been used in research for explaining stress responses and developing coping strategies for patients and family members with physical and mental chronic illnesses (Asadi Shavaki et al., 2020; Avcıoğlu et al., 2019; Lee & Poole, 2005). This theory drives the literature search to find the appropriate strategies to deal with HCPs' stress, compassion fatigue, and burnout.

Synthesis of Literature

Literature suggests that HCP working in different healthcare settings like intensive care units, mental health settings, and community hospitals have benefited from practicing MBIs regularly. There is consistency in the literature showing that regular practice is the key to getting the best benefits from MBIs. However, the small sample size and high dropout rate in some studies resulted in lower quality of evidence and decreased the generalizability of studies. Moreover, the studies in this literature review did not discuss staff's baseline psychological

resilience levels and the use of self-care measures other than mindfulness, like sleep hygiene, good nutrition, etc., which might have affected the results.

The effect of mindfulness on HCP's BO and stress is widely studied in the literature with high-quality studies and evidence. However, mindfulness' effects on compassion levels were studied by Qualitative methods. Although high compassion and empathy levels results in decreased risk of compassion fatigue. But there is a paucity of high-quality evidence studying mindfulness' impact on compassion fatigue in HCP. In a nutshell, there is compelling evidence (level I and II on the JHEBP tool) that mindfulness helps reducing burnout and stress in HCP. However, more high-quality research is needed with enough sample size to determine mindfulness's effect on compassion fatigue.

<div align="center">**Implications for Nursing Practice**</div>

Given the positive effects of mindfulness practice on BO, stress, and compassion levels of healthcare professionals, especially nurses, MBIs should be implemented to promote nurses' self-care. Firstly, nursing schools can promote mindfulness training foundations in nursing programs by incorporating these into the curriculum. In addition, healthcare organizations can promote mindfulness practice in nurses in various ways. For example, MBIs training can be provided during new hire orientation and at regular intervals to emphasize the importance of self-care. Moreover, the employers can offer a mindfulness-based self-care package as a part of the benefits, with access to free yoga/meditation classes, mobile mindfulness applications, or paid MBSR classes. Also, Mindfulness-based self-care seminars and self-practice of mindfulness by the staff with initiative from the employers/ trained leaders can be good ways to incorporate mindfulness into HCP's daily lives.

Discussion

Mindfulness practice in various forms has shown promising results in reducing BO, stress and increasing compassion levels in HCP. The high response and interest rates show HCP's keen interest in mindfulness-based interventions (Ameli et al., 2020). However, the high drop-out rate in some studies can be attributed to different shift timings, staff day offs, and time commitment to learning mindfulness in a structured environment. Conducting the intervention in scheduled shift timings, reducing the length of interventions, or promoting the self-practice of mindfulness can make the mindfulness practice more feasible. Also, the best practice recommendation by American Nurses Association (ANA), American Medical Association (AMA), and World Health Organization (WHO) recommends promoting self-care to prevent BO and stress in various HCPs like nurses and doctors (ANA, 2017; Baxter, 2022; WHO, 2020). Moreover, various businesses and organizations is adopting mindfulness training to their leaders for stress reduction (Wolf & Serpa, 2015). Healthcare industry should take initiatives to use MBIs like other industries and businesses so the full benefits of MBIs can be reaped and patient care can be improved.

Conclusion

This integrative literature review aimed to determine if mindfulness practice would help relieve BO, stress, and CF in HCP. The literature shows compelling evidence that mindfulness practice improves stress levels and emotional exhaustion, increases empathy and compassion levels in HCPs, and in turn, helps to improve the quality of care provided to the patients. Therefore, healthcare organizations must incorporate mindfulness practices to promote self-care for HCP.

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Evaluation Table

Purpose of Article or Review	Design / Method / Conceptual Framework	Sample / Setting	Major Variables Studied (and their Definitions)	Measurement of Major Variables	Data Analysis	Study Findings	Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /
APA Reference: Ameli, R., Sinaii, N., West, C. P., Luna, M. J., Panahi, S., Zoosman, M., Rusch, H. L., & Berger, A. (2020). Effect of a brief mindfulness-based program on stress in health care professionals at a US biomedical research hospital: A randomized clinical trial. *Journal of American Medical Association Network Open*, *3*(8). https://doi.org/10.1001/jamanetworkopen.2020.13424							
A Randomized clinical trial (RTC) to evaluate a brief mindfulness-based program effect on stress in healthcare professional (HCPs).	RTC	82 HCPs from the National Institute of Health (NIH), Maryland, were randomly assigned to a brief mindfulness program (five sessions) and a control group.	Primary: Stress levels Secondary: Anxiety levels, burnout, mindfulness state, and knowledge of mindfulness-based self-care	Stress: Perceived Stress Scale. Burnout by using Maslach burnout inventory (2 items only- EE and depersonalization). Anxiety: Visual Analog Scale. For state mindfulness: The Mindful Attention Awareness Scale Trait (MAAS-T) and State (MAAS-S).	Fisher exact test or χ^2: statistical analysis of categorical data. two-sample t-tests: analyzed continuous data between groups. 95% CIs were used to report the effect size.	Reduced score of stress, not reduced scores of burnouts increased mindfulness- not immediately but after 13 weeks.	The study is high-quality with level I evidence on the JHEBP appraisal tool. Weakness: sample size was predominately women from an educated background; might impact generalizability. Strengths: showed feasibility of a brief mindfulness program. Good number of participants follow up.

EE- emotional exhaustion.

Purpose of Article or Review	Design / Method / Conceptual Framework	Sample / Setting	Major Variables Studied (and their Definitions)	Measurement of Major Variables	Data Analysis	Study Findings	Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /
APA Reference: Askey-Jones, R. (2018). Mindfulness-based cognitive therapy: An efficacy study for mental health care staff. *Journal of Psychiatric & Mental Health Nursing (John Wiley & Sons, Inc.), 25*(7), 380-389. 10.1111/jpm.12472							
An efficacy study to evaluate mindfulness-based cognitive therapy's (MBCT, an eight-week program) effect on burnout in mental healthcare professional (MHPs).	Efficacy study; no control group.	The sample included 86 allied mental health professionals working with Northwest National Health Services (NHS).	Burnout: characterized by emotional exhaustion, depersonalization, and personal accomplishment. State mindfulness: by Freiburg Mindfulness Inventory Correlations of mindfulness with burnout was also measured.	Burnout by using Maslach burnout inventory. State mindfulness: by Freiburg Mindfulness Inventory Correlations of mindfulness with burnout was also measured by correlation coefficient.	One-way analysis of variance (ANOVA)	Statistically significant reduced burnout and increased mindfulness in MHPs; the effect was retained after six months. Statistically significant negative correlation between mindfulness and burnout.	Level II; high quality Weakness: No control group. No measure of participant's home practice. Strengths: Good number of participants follow up. large effect sizes of intervention on mindfulness, increasing personal accomplishment and decreasing emotional exhaustion Worth: MBCT should be implemented to reduce burnout, stress in mental HCPs.

Purpose of Article or Review	Design / Method / Conceptual Framework	Sample / Setting	Major Variables Studied (and their Definitions)	Measurement of Major Variables	Data Analysis	Study Findings	Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /
APA Reference: Hilcove, K., Marceau, C., Thekdi, P., Larkey, L., Brewer, M. A., & Jones, K. (2021). Holistic nursing in practice: Mindfulness-Based yoga as an intervention to manage stress and burnout. *Journal of Holistic Nursing: Official Journal of the American Holistic Nurses' Association*, *39*(1), 29–42. https://doi.org/10.1177/0898010120921587							
To evaluate the effect of mindfulness-based yoga on stress, burnout healthcare professionals (HCPs) compared to control group.	Randomized controlled trial; single blinded	80 healthcare workers (nursing assistants, therapists, nurses, physicians and social workers) working in direct patient care in a hospital in the southwestern United States.	Major variables were Stress and burnout (characterized by emotional exhaustion, depersonalization, and personal accomplishment) Other variables were Sleep quality; serenity; mindfulness; salivary cortisol and blood pressure.	Sleep quality by Global Sleep Quality; serenity by Brief Serenity Scale; Mindfulness by Mindful Attention Awareness Scale. Biomarkers of salivary cortisol and Blood pressure measurement. Maslach burnout inventory for burnout Perceived stress scale for stress	Done by Descriptive statistics one-way analysis of variance (ANOVA) for comparison in between intervention and control group. ANOVA and Wilcoxon rank–sum test to compare salivary cortisol between two groups.	The mindfulness-based yoga results in statistically significant lower levels of burnout and stress, sleep quality, serenity, and mindfulness, compared to the control group (p<.01); no significant changes in cortisol levels and B.P measurements were noted.	The study is high-quality with level I evidence on the JHEBP appraisal tool. Weakness: All tools are self-reported Strengths: Good number of follow up participant; high level RTC Worth to Practice: Yes; proved high quality evidence to use mindfulness yoga to reduce stress and burnout in HCPs,

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APA Reference: Horton-Deutsch, S., Monroe, C., Varney, R., Loresto, F., Eron, K., & Kleiner, C. (2020a). Moving from practice to praxis: A qualitative descriptive study revealing the value of Project7 Mindfulness Pledge©. *Journal of Nursing Management (John Wiley & Sons, Inc.), 28*(3), 728-734. 10.1111/jonm.12990							
To evaluate the effect of mindfulness-based project on compassion of Nursing staff.	Qualitative descriptive design	9 nurses and certified nursing assistants (CNAs) working at University of Colorado, Anschutz Medical Campus, Colorado.	N/A	Use of memos, indictive approach to discover themes from descriptive data.	Thematic description of data	Mindfulness-based self-care intervention increase empathy and compassion in nursing staff and in turn promote safe unit culture.	Level III; high quality evidence. The study provides high-quality evidence for incorporating mindfulness based interventions into health care environments. Small sample size was a drawback. Prompts further research at large levels.

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APA Reference: Owens, R. A., Alfes, C., Evans, S., Wyka, K., & Fitzpatrick, J. J. (2020). An Exploratory Study of a 3-Minute Mindfulness Intervention on Compassion Fatigue in Nurses. *Holistic Nursing Practice*, *34*(5), 274–281. https://doi.org/10.1097/HNP.0000000000000402							
To evaluate the feasibility of 3-minute mindfulness intervention (3MBS) on CF, BO, STS, and CS in acute care nurses.	A quasi-experimental. Single group pre/posttest design.	30 RNs working in acute/critical care in 5 New York City area hospitals. participants were members of, the American Association of Critical-Care Nurses (AACN).	BO: burnout CS: compassion satisfaction: STS: secondary traumatic stress	The Professional Quality of Life Test (ProQOL): for 3 aspects of CF: CS, BO, and STS.	Descriptive statistics Paired sample t test.	The results of this study concluded that nurses breathing mindfully for 3 minutes over a period of 4 weeks experience reduced CF.	The study is high-quality with level II evidence on the JHEBP appraisal tool. Weakness: sample size was predominately women from a educated background; might impact generalizability. Strengths: showed feasibility of a brief mindfulness program. Good number of participants follow up.

CF-Compassion fatigue; BO- Burnout; CS- compassion satisfaction. STS: secondary traumatic

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APA Reference: Ruiz-Fernández, M. D., Ortíz-Amo, R., Ortega-Galán, Á. M., Ibáñez-Masero, O., Rodríguez-Salvador, M., & Ramos-Pichardo, J. D. (2020). Mindfulness therapies on health professionals. *International Journal of Mental Health Nursing*, *29*(2), 127–140. https://doi.org/10.1111/inm.12652							
To evaluate and synthesize the effect of mindfulness-based interventions on stress and self-compassion of HCPs.	A systemic review and meta synthesis.	PRISMA guidelines for systemic reviews A total of nine articles for systematic review and and six articles included for meta-analysis.	Stress, Self-compassion: being aware of one's own suffering and methods to alleviate them. and mindfulness (being present in the moment).	For metanalysis of outcome variables: inverse variance statistical method was used with a random effects model.	Various tools like random effect model: to assess effect size; 95% confidence intervals, standardized mean differences; I2 statistic (to assess heterogeneity) of results.	Various mindfulness strategies reduced stress and increased mindfulness in HCPs. But there is paucity in literature about effects of mindfulness on compassion fatigue. However, studies suggest practicing mindfulness increase self-compassion. Self-compassion has been shown to increase compassion towards others.	Level II; high quality evidence Weakness: Less studies on effect of mindfulness on all three variables in together. A small sample size in studies is another limitation. Worth to practice: provide high quality meta-analysis on use of mindfulness in HCPs.

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APA Reference: Sarazine, J., Heitschmidt, M., Vondracek, H., Sarris, S., Marcinkowski, N., & Kleinpell, R. (2021). Mindfulness workshops effects on nurses' burnout, stress, and mindfulness skills. *Holistic Nursing Practice*, *35*(1), 10–18. https://doi.org/10.1097/HNP.0000000000000378							
To determine the effect of a 4-hour session of mindfulness teaching on burnout, stress levels and state of mindfulness of nurses.	A quasi experimental; pretest posttest design.	52 nurses from a Midwestern urban academic institute and its affiliated community hospitals	Burnout; characterized by emotional exhaustion, depersonalization, and personal accomplishment.	Burnout: Maslach burnout inventory Stress: Perceived Stress Scale, State of mindfulness: Cognitive and Affective Mindfulness Scale	Changes in participants' perceptions of burnout, stress, and mindfulness was tested by sing t tests Standard descriptive statistics was used to analyze demographic data.	A four-hour mindfulness workshop significantly reduced stress, burnout in nurses. Retained the results after 6 months with increase in mindfulness.	Level II; high quality evidence The study adds high-quality evidence of using brief mindfulness sessions to manage burnout, stress and increase mindfulness for healthcare professionals. Weakness: high dropout rate of sample due to time commitment; different shift times of nursing staff. Recommendations: conduct interventions in nurse's scheduled shift timings; find solutions to time commitment problems to learn mindfulness

Definition of abbreviations

Purpose of Article or Review	Design / Method / Conceptual Framework	Sample / Setting	Major Variables Studied (and their Definitions)	Measurement of Major Variables	Data Analysis	Study Findings	Level of Evidence (Critical Appraisal Score) / Worth to Practice / Strengths and Weaknesses / Feasibility / Conclusion(s) / Recommendation(s) /
APA Reference: Suleiman-Martos, N., Gomez-Urquiza, J. L., Aguayo-Estremera, R., Cañadas-De La Fuente, G. A., De La Fuente-Solana, E. I., & Albendín-García, L. (2020). The effect of mindfulness training on burnout syndrome in nursing: A systematic review and meta-analysis. *Journal of Advanced Nursing*, 76(5), 1124–1140. https://doi.org/10.1111/jan.14318							
To synthesize evidence about effect of mindfulness-based strategies in Nurses' burnout.	A systematic review and meta-analysis	17 randomized clinical trials and quasi experimental studies were chosen as per PRISMA guidelines to determine effect of mindfulness on nurses 'burnout.	Burnout: characterized by emotional exhaustion, depersonalization, and personal accomplishment. Use of mindfulness for self-care.	Burnout by using Maslach burnout inventory.	For data abstraction: Manual coding; Cohen's kappa and intraclass correlation Coefficient. Descriptive statistics for systemic review. I2 index for meta-analysis.	Mindfulness training resulted in lower emotional exhaustion and depersonalization and increasing personal accomplishment (the three components of burnout).	Level II; high quality evidence provided by systematic review for use of mindfulness for combating burnout in healthcare professionals. Weakness: few RTCs were available; so quasi experimental studies were included. Recommendations: More high-quality studies needed.

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APA Reference: Wampole, D. M., & Bressi, S. (2020). Exploring a social work lead mindfulness-based intervention to address burnout among inpatient psychiatric nurses: a pilot study. *Social Work in Health Care, 59(8)*, 615–630. https://doi.org/10.1080/00981389.2020.1827123							
To find the effect of social worker led mindfulness education on burnout levels and use of manfulness for self-care among psychiatric nurses.	A mixed method exploratory pilot study	Registered nurses directly working with patients in a non-managerial role employed at the 63-bed inpatient psychiatric facility.	Burnout: characterized by emotional exhaustion, depersonalization, and personal accomplishment. Use of mindfulness for self-care.	Burnout by using Maslach burnout inventory. Use of open-ended questions for gathering qualitative data	Descriptive statistics. Unable to use inferential statistics due to small sample size. Thematic analysis of descriptive data.	Nurses identified the mindfulness training beneficial for emotional regulation and stress prevention Inconclusive quantitative findings.	Level III. Good quality qualitative evidence; low quality quantitative evidence. Weakness: small sample size made the quantitative findings inconclusive Strengths: The nurses' positive response to mindfulness-based interventions show the possibility and feasibility of these interventions for stress and burnout Worth to practice: This type of study can be replicated in large settings to draw more generalizable results.

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APA Reference: Wu, X., Hayter, M., Lee, A. J., & Zhang, Y. (2021). Nurses' experiences of the effects of mindfulness training: A narrative review and qualitative meta-synthesis. *Nurse Education Today*, *100*, 104830. https://doi.org/10.1016/j.nedt.2021.104830							
A meta synthesis of qualitative studies to determine the effects and experiences of mindfulness training on nurses.	A qualitative meta synthesis	Three mixed method studies and two qualitative studies.	Major variables Stress conceptualization: nurses' perception of stress. 2. Valued aspects of mindfulness training 3. self-care awareness 4. challenges of implementing mindfulness training.	The Critical Appraisal Skills Program (CASP) to appraise qualitative study and Mixed-Methods Appraisal Tool (MMAT) to appraise mixed method studies.	Thematic analysis: Following themes were discovered: 1. Stress conceptualization and management; 2. Valued aspects of mindfulness training; 3. Self-care awareness and strategies; 4. Challenges of mindfulness training.	Nurses depicted that mindfulness training helped them to reevaluate the way they looked at the stress and to learn positive coping skills to deal with stress like pausing for a moment and taking deep breaths instead of crying. They also became more confident, calmer, and emotionally stable, and more focused on patients. Nurses also felt valued that organizations take efforts to alleviate stress. Also, nurses found the value of self-care.	Level III; high/good quality evidence Weakness: Qualitative studies and voluntary participation of subjects might have biased the results. Time commitment made mindfulness interventions less feasible in healthcare environment. Worth to practice: Provides nurse's point of view for mindfulness training and effects on stress, depicts nurses feel valued if organization validate their stress.