Burnout in Healthcare Workers

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Abstract

The purpose of this project is to determine if mindfulness-based interventions are effective at reducing burnout among healthcare workers. Burnout is a widespread problem that affects healthcare workers nationwide, and if it is not addressed, has the potential to affect patient outcomes. Despite this widespread issue, there are no standardized measures in place to support mental health or prevent burnout among our nation's healthcare workers. Ten high-quality studies were reviewed and synthesized to demonstrate current understanding of the effectiveness of mindfulness-based interventions, and evidence suggests that this could be effective in reducing or preventing burnout. Using a quantitative design, employees at a local rehabilitation facility participated in a 5-minute mindful meditation session twice per week for four weeks. Burnout ratings were measured before and after the intervention period using the validated Maslach Burnout Inventory tool. Descriptive statistics were used to analyze the data collected. The findings from this project indicated that there is a need for mental health support and burnout intervention, and mindfulness-based interventions decreased burnout ratings among participants.

Keywords: healthcare workers, mindfulness, burnout, meditation

Reducing Burnout in Healthcare Workers

The mental health of our nation's medical professionals has long been a problem but has only recently gained attention. Healthcare workers frequently deal with high-stress situations and circumstances, complex decision making, physically demanding jobs. Without the time and resources to address and lessen these problems, this could quickly escalate and become harmful to the individuals' mental health.

Problem Statement

Burnout syndrome is a condition that results from prolonged stressors in the workplace. This problem has become a serious and widespread issue that is affecting individuals, organizations and the quality of patient care provided by these workers. Burnout is a significant problem globally, but in the United States, 46% of healthcare professionals reported feeling burned out in 2022 (Center for Disease Control and Prevention, 2023). According to the U.S Department of Health and Human Services (2022), the issue of burnout is not limited to specific professions, reporting that among nurses 54% of nurses and 60% of residents and medical students were suffering from burnout. This widespread issue directly impacts healthcare workers, but also compromises the quality of care delivered to patients, leading to low employee and patient satisfaction and mental health concerns. Some of the contributing factors include changes and risks with work structure, high demands, and situations that take an emotional toll on employees (Bedin Zanatta & De Lucca, 2021). Collectively, these factors create a challenging environment, exposing workers to situations that can be cause for stress, emotional exhaustion, and depersonalization, all of which are main components of burnout.

Purpose and Rationale

Many studies have been performed to address the problem of burnout in healthcare workers, yet there is still no gold standard to address this problem, and few of them consider patient outcomes (Zivin et al., 2023). The purpose of this paper is to explore various strategies by reviewing data on different interventions and assess their impact on burnout among healthcare workers.

This problem has become a critical issue due to its effect not only on individuals, organizations, and patient care, but on society at a global level. By implementing measures to decrease burnout, it is possible that organizations can establish healthier work environments and improve overall employee well-being.

Background and Significance

Supporting those who care for patients is a complex, but important, initiative. Despite the important role that healthcare workers play in our society; prolonged burnout can have detrimental effects these individuals. Prolonged burnout can lead to healthcare professionals experiencing sadness, anxiety, and substance abuse in response its consequences. These effects not only impact them at work, but also extend to their personal and home life (DeHert, 2020). After a thorough review of literature, it is evident that much of the contributing factors leading to burnout include barriers to self-care and lack of education regarding wellness and resilience.

The National Association of Medicine has recognized the lack of workforce well-being as a national epidemic that has been an issue for years in past and was recently exacerbated and brought to light by the COVID-19 pandemic. The recognition of this has led to the implementation of the National Plan for Health Workforce Well-bring, which began in October 2022. This plan includes a collective and collaborative approach at strengthening the well-bring of the health workforce and restoring the health of the nation. Currently, the priority of this

initiative is focused on institutionalizing health worker well-being as a long-term value and has designated March 18 as national Health Workforce Well-Being (HWWB) Day (National Academy of Medicine. (n.d).

Healthcare Workers

Healthcare workers are employees that work for a company that provides healthcare services to the public. This study will explore burnout among healthcare workers in general, with an emphasis on those who provide care to patients recovering from substance abuse.

Stress-management

Excessive exposure to stress is the most common factor in employee burnout, particularly in healthcare (Kober & Chang, 2024). Of the participants in the study reviewed, employees expressed the desire and willingness to participate in stress management activities. Despite stress playing a major role in causing symptoms of burnout, many employees felt that they did not have the skills to manage their stress on their own.

In a study conducted by Tort & Ciapponi (2023), there was a focus on addressing stress on both an individual and organizational level. This focus included providing resources, information, and stress-reduction workshops. The goal of the intervention was to encourage workers to develop coping skills by focusing their attention on the feelings of stress and provide techniques to manage the demands of their work.

Creative art and writing have shown to be effective interventions when aiming to reduce stress (Moss et al., 2022) utilized ~~a~~ creative art and writing intervention. In this study, participants completed a 90-minute art therapy session for 12 consecutive weeks. During these 90-minute sessions, themes were focused on vulnerability, safety, and community. The goal of

the art therapy was to decrease anxiety and depression and was shown to be an effective method of decreasing burnout.

Exercise

Due to reported levels of fatigue and overall time constraints, exercise is not regularly included in the routine of many healthcare workers. Regular physical activity has shown to improve overall mental health and well-being (Balatoni et al., 2023). Many companies are willing to offer discounts to local fitness facilities, but this does not address the issue of time or fatigue. Ginoux et al., (2019) identified that there is a positive relationship between not only burnout, but vigor and physical activity. This study showed that employees who engaged in physical activity reported lower burnout symptoms than physically inactive employees, as well as that regularly engaging in physical activity could decrease work-related fatigue. Further, this study reviewed the effect on workplace physical activity to address the issue of time constraint and did show that it was helpful at reducing overall burnout. Some interventions included adding organized walks, organized yoga activities during lunch breaks or before or after work. With these interventions, it is conveniently accessible to employees.

Mindfulness and Resilience Trainings

Mindfulness and resilience training can be useful in populations where there are unexpected levels of high stress, work-related stress and increasing demands, making healthcare workers a vulnerable population. In a systematic review, Selič-Zupančič et al., (2023) reviewed 15 studies that included a variety of mindfulness interventions, such as mindful meditation, yoga, stretching and breathing techniques. In this review, mindfulness-based stress reduction showed to have a positive effect on scores regarding burnout. The scores most used to evaluate effectiveness included the Maslach Burnout Inventory (MBI) and the Five Facet Mindfulness

Questionnaire (FFMQ). Resilience allows healthcare workers to adapt to situations without increasing stress levels (Tzeng et al., 2023). In this review, there was one study that did not implement an intervention, but rather compared burnout of those who did practice well-being compared to those who did not. This study discovered that a lack of well-being was correlated with burnout, however both studies did theorize that mindfulness trainings had lasting effects in healthcare workers.

Current State

The prevalence of burnout among healthcare professionals is a significant problem that has received much attention in recent years, currently affecting an estimated 46% of healthcare employees (Center for Disease Control and Prevention, 2023). Burnout, which is defined by emotional weariness, depersonalization, and diminished personal achievement, is often seen among various healthcare workers, such as doctors, nurses, and other clinical personnel.

Burnout among healthcare personnel is driven by various factors such as excessive workloads, prolonged time spent working, administrative responsibilities, insufficient resources, and demanding patient expectations. In addition, the inherent characteristics of the healthcare profession, which often include managing high-pressure situations, making significant decisions that might determine life or death outcomes, and delivering care to patients in fragile conditions, can lead to burnout.

Evidence suggests that burnout not only adversely affects the physical and mental health of healthcare professionals, but also has significant consequences for the delivery of healthcare services. These consequences include a reduction in the quality of care, a rise in medical errors, and a decrease in patient satisfaction. Burnout may also result in higher levels of absenteeism,

turnover, and early retirement among healthcare workers, which creates staffing shortages and impairs the accessibility of healthcare services.

Efforts to reduce burnout among healthcare workers involve using organizational interventions such as attempts to reduce workloads, establishing a supportive work environment, offering access to mental health services, and encouraging a balance between work and private life. Currently, there is no current standard of practice that is universally implemented to address these concerns.

To gain a deeper understanding of the underlying causes and repercussions of burnout among healthcare professionals and to address this growing issue, further research is needed. By prioritizing the wellness of our nation's healthcare workers, we can increase the overall quality of healthcare delivery and achieve better patient outcomes.

Outcomes

The desired outcome is to improve overall mental health and provide an intervention that can reduce burnout. A portion of the included studies reviewed outcomes related to improvement in motivation and engagement, work satisfaction, and the effect on work-related fatigue (Balatoni et al., 2023). Additional studies demonstrated an increase in job satisfaction, improved work-life boundaries, and a decrease in anxiety and depression (Carles et al., 2023) as well as improved sleep and overall wellness (Coelho et al., 2023). Maddock (2023) reviewed sources that observed a decrease in feelings of pressure, stress, turnover, and an increase in resilience.

Internal Evidence

The organization operates in the Phoenix Metro area and serves adult individuals with mental health needs and substance addiction. They offer inpatient, outpatient, and transitional care and supports patients who are reintegrating into the community as an independent citizen.

The stakeholders at this organization include the office and regional managers for the Phoenix, Arizona offices, and 30 employees.

The problem of burnout was discovered when office managers began to receive feedback and concerns from office staff. These concerns included verbalization of feelings of guilt and sadness after a patient loss, decreased motivation and inadequacy. Management at this office then observed increases in absences and a decline in employee performance.

PICOT Question

A review of the literature led to the clinically relevant PICOT question: "In healthcare workers, how does implementation of a wellness strategy compared to no interventions affect mental health and employee burnout?"

Search Strategy

A thorough review of current evidence took place to answer the PICOT question. Four databases were searched extensively: PubMed, Cochrane Library, CINAHL and Psycinfo. These databases were searched due to their relevance to the topic of reducing burnout in healthcare workers. These databases are appropriate due to their rigor and contributions to medicine.

Keyword Selection

The databases were searched using combinations of key terms that addressed all components of the PICOT question and included: *healthcare workers, healthcare professionals, medical workers, medical professionals*. Key words for the intervention included*: Physical activity prevent, reduce, exercise, wellness, resilience*. Key terms did not include *mental health* because this narrowed the results too significantly. The outcome was specified using the following terms: *burnout, resilience, well-being, stress reduction, job satisfaction.* Filters applied

included date of publication (2019-2024), English language, and peer-reviewed journal articles. To expand the search, MeSH and Boolean terms were used.

Initial and Final Search Yields

The search of Cochrane Library included the terms *healthcare professionals, medical professionals, burnout.* The initial search yielded 1,092 results. The terms *wellness* and *mental health* and filters including date of 2019-2024, peer-reviewed journals and articles only, include were added to limit the search and yielded 380 results.

CINAHL was searched using the key terms: *healthcare workers* and *burnout.* This search yielded 4,726 results. Filters included peer-reviewed journals, publication date within five years, were added and yielded 9,405 results.

The search of PubMed included search terms of *healthcare workers, reducing burnout,* and *wellness.* This search yielded 2,202 results. When adding the filter of five years, and eliminating books and documents, only to include clinical trials, meta-analysis, randomized control trial, reviews, and systematic reviews, it yielded 234 results.

PsycInfo was searched using key terms: *Healthcare workers, wellness* and *reducing burnout*. This search yielded 49,249 results. Filters including full-text, peer-reviewed scholarly journals, and a date range of 2020-2024 were added and yielded 1,058 results.

Limitations, Inclusion, and Exclusion Criteria

The inclusion criteria included studies published within five years, 2019 to present. Articles that were published prior to 2019 were excluded, as well as non-English articles. Criteria for inclusion included all healthcare workers in any specialty or role, any intervention with the goal of reducing burnout, and studies conducted outside of the United States were included. Limitations included English articles published within five years.

Critical Appraisal and Synthesis of Evidence

Relevant studies were appraised to determine quality using a rapid critical appraisal tool (Melnyk, 2019). The final analysis included ten studies that were included in the below tables (appendix A, Table A1). The evaluation included examination of study design, variables, assessment tool validity, bias, and results. The studies used both quantitative and qualitative data comprising of random control trials, cross sectional surveys, interviews, single samples, and random selection. Each study was performed in various healthcare settings using a variety of professions and interventions, which were then synthesized (see Appendix A Table A2). They common finding is that mindfulness and wellness activities reduce burnout in healthcare workers in a variety of ways, including decreasing overall depression, anxiety and stress while improving job satisfaction, emotional exhausting, depersonalization, and sense of personal accomplishment.

Issues with some studies included bias regarding self-reported scales and attrition rates among participants. Strengths included large sample sizes and utilization of validated and reliable tools to measure outcomes. Using these tools, outcomes measured did show statistically significant improvements with compliance among self-reported tools.

While burnout in healthcare workers continues to be a global problem, there are many interventions to improve or reduce the severity of impact that this has. One of the largest contributing factors seems to be exposure to repeated unanticipated or highly stressful situations without ways to cope, as well as time outside of work to practice mindfulness and wellness. With the information reviewed in the studies included, it can be concluded that mindfulness-based interventions are effective at assisting with coping and decreasing overall severity and incidence of burnout in healthcare workers.

Theory/Theoretical Framework Application

The self-efficacy theory, formulated by Albert Bandura, states that an individual's confidence in their capacity to achieve tasks and objectives influences their motivation, behaviors, and general state of well-being. Self-efficacy is a crucial factor in the burnout experienced by healthcare professionals (Abusubhiah et al., 2023).

Healthcare professionals who possess a strong sense of self-efficacy are more likely to use appropriate coping mechanisms when confronted with difficult situation, such as heavy workloads, demanding patient expectations, and emotional stress. When confronted with these types of situations, higher confidence in their ability to manage them could help alleviate burnout and allow them to see these difficult events as opportunities to learn and conquer rather than as a barrier. Self-efficacy in these individuals allow them to possess a higher confidence level of persisting in the face of hardship, helping to avoid the effects of burnout.

Healthcare professionals more likely to excel in their job performance and get greater satisfaction from their work with an increased sense of self-efficacy. Experiencing a sense of competence and capability in one's job may act as a defense against burnout by promoting feelings of achievement and overall satisfaction. When there is an insufficient belief in one's own abilities, this contributes to feelings of inadequacy and depersonalization, which can make a person more susceptible to burnout.

Overall, self-efficacy could act as a safeguard against burnout in healthcare professionals by impacting their capacity to manage stress, sustain job satisfaction, and seek assistance when needed. Interventions focused on improving self-efficacy, could potentially reduce burnout and enhance the overall well-being of healthcare workers.

Implementation Framework

The framework used for this project will be the Model for Improvement. This model is used to facilitate quality improvement initiatives and processes, and includes planning, implementing, and evaluating with three initial steps when working to improve an outcome or measure. This model has been utilized and tested across many different settings, is widely used in healthcare, and has been shown to be effective. This model includes three key questions, or initial steps, and a four-part repetition process. The initial data has been gathered through literature review and the PICOT has been formulated based on the problem.

The first step of the Model for Improvement will include identifying the goal, which will be to reduce burnout in healthcare workers. The second step will then identify the goal and whether it was effective, and a valid tool will be used in the case of this project. Finally, the intervention will then be identified.

Part two of this model includes the Plan-Do-Study-Act portion of the model. This portion is a structured framework for implementing changes and observing the results, allowing for adjustments if needed. This model allows an opportunity to systematically plan, implement and evaluate changes to achieve a measurable improvement or goal, while emphasizing data-driven decision making and collaboration.

Implications for Practice Change

The stakeholders include healthcare professionals at a Phoenix, Arizona organization that provide mental health assistance and treatment for individuals suffering from substance abuse problems. The intervention will consist of a mindfulness-based approach designed to decrease burnout among this group of people. The data collection will begin with the use of the Maslach Burnout Inventory (MBI), a tool designed to evaluate burnout in the three areas of depersonalization, emotional exhaustion, and personal achievement. This assessment will be

conducted both before and after the intervention to evaluate the impact of the intervention on these specific areas among the individuals in the group. The purpose is to determine any changes to assess the significance of the intervention's effect. The scale has been used in several investigations and is considered a reliable and valid tool.

Methods

Ethical considerations and human subject protections included obtaining informed consent and expedited IRB approval. Informed consent allowed subjects to be aware that participation was voluntary and may be withdrawn at any time, described the process of implementation, and possible benefits of the intervention – no risks were identified. Confidentiality and privacy were ensured by secured storage and data was de-identified. Beneficence and nonmaleficence were considered by maximizing benefits and using evidence-based interventions, and integrity in data collection and analysis was verified and presented without manipulation.

The project was implemented at a site that provides mental healthcare and rehabilitation services in Phoenix, Arizona. The population was adults who are employed at this facility with direct patient contact.

The intervention was implementation of a five-minute mindfulness-based meditation two times per week for four weeks. The timeline consisted of the following: Week 1: Recruitment and informed consent; Week two: collect pre-intervention surveys; Week three through week six: practice mindful meditation two times per week; Week seven: collect post-intervention surveys. Data was collected using the Maslach Burnout Inventory tool via Microsoft Forms, and outcomes were measured by comparing the pre and post severity ratings of emotional exhaustion

and depersonalization and the sense of personal accomplishment. Data was analyzed using descriptive statistics Intellectus.

No funding was received for the implementation or data analysis for this project.

Results

The subject was a white, female, high school-educated, full-time, on-site worker with prior meditation experience. Descriptive statistics were used to describe the outcome variable of burnout which consists of three separate variables: emotional exhaustion, depersonalization, and personal accomplishment. Emotional exhaustion and depersonalization are measured in severity. A higher score indicated a more severe sense of emotional exhaustion and depersonalization. Personal accomplishment is scored on severity; a lower score indicated a lower sense of personal accomplishment.

Due to limited subjects, no statistical significance was identified. There is clinical significance in this project. In four weeks, there were significant changes in the scores reported on the Maslach Burnout Inventory when comparing scores from before and after the intervention.

This project could have a positive impact on organizations that identify characteristics of burnout in their employees. If burnout is addressed early, it can impact on the quality of patient care and reduce turnover, addressing staffing shortages. With better staffing due to lower turnover, this could significantly affect the healthcare system.

This project intervention is time-efficient and low-cost. The intervention could be sustained with minimal effort. There are many resources and mindfulness-based meditation audio and video available online that can be accessed by the public. Additionally, this intervention could be incorporated into the workday with little time lost from workers, providing an efficient way to support employees without impact to the organization’s productivity.

Discussion

Findings

The findings of the project showed that mindfulness-based meditation could have a positive impact of burnout in healthcare workers. The subject showed a significant change in the measurement of emotional exhaustion, rating this area as a 45 before the intervention and a 28 after the intervention, showing a significant reduction of severity of emotional exhaustion. Depersonalization was rated as a severity of 9 before the intervention, and 3 after the intervention. The sense of personal accomplishment went from 31 before the intervention to 35 after, indicating that the subject had a higher sense of personal accomplishment.

Limitations and Barriers

Limitations and barriers included small sample size, short duration of intervention and self-reported data. Initially there was more interest in participation, but due to staff turnover there was only one subject to complete the project from start to finish. This project was implemented over four weeks, but could have provided more information for analysis had it had higher participation and was implemented for a longer period of time. The Maslach Burnout Inventory is a self-report tool, which could lead to variations in scoring and results. This data could be inaccurate or bias due to misinterpretation of questions or external factors affecting emotional status at the time of the survey submission.

Relative Findings

The findings from this project closely aligned with other research that identified mindfulness-based interventions as effective ways to reduce burnout in healthcare workers. Klatt (2022), found that mindfulness-based training was effect at reducing burnout as measured by multiple tools, with the Maslach Burnout Inventory being one of them. This study implemented interventions over eight weeks compared to four for this project. Additionally, Marotta, 2022, implemented mindfulness-based stress reduction and measured the severity of burnout with the

Maslach Burnout Inventory tool. This study showed that mindfulness-based activities were effective at reducing burnout and stress in healthcare workers during the COVID-19 pandemic by comparing scores before and after intervention.

Recommendations

Recommendations for further study would include a larger sample size. To encourage a higher level of participation, additional recruiting could be considered for a longer period of time. Working with an organization that is not undergoing structural changes and experiencing turnover would likely lead to more participants. Additionally, providing time incorporated into the workday to practice the intervention could encourage participation without subjects feeling as though they are needing to take time away from their patients to participate. A longer period for the intervention could also be beneficial. A period of four weeks did show clinical significance but having the implementation phase over 8 weeks could provide more detailed data for a deeper understanding of how mindfulness-based interventions can impact burnout.

Conclusion

While there was no statistical significance due to limited participation, this project does show promise. The Maslach Burnout Inventory provides information on three subcategories, identifying severity of more detailed aspects of burnout, including emotional exhaustion, depersonalization, and personal accomplishment. Further research could be significant in identifying the efficacy of mindfulness-based meditation, specifically. This intervention is time-efficient, low-cost, and easily sustainable, making it a feasible option to incorporate into daily life. By effectively addressing the issue of burnout, there could be a significant impact on behaviors and perspectives that affect the care provided to patients and the healthcare system.

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Appendix A

Evaluation and Synthesis Tables

Table A1

Evaluation Table for Quantitative Studies

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Jochen, 2021. Randomized control trial of the WISER intervention to reduce healthcare worker burnout **Country:** United States **Funding:** Eunice Kennedy Shriver National Institute of Child Health and Human Development and Jackson Vaughan Critical Care	Self-efficacy	**Design:** Random Control Trial **Method:** Participants completed 6 well-being modules **Purpose:** Test web-based implementation for the science of enhancing resilience (WISER) intervention efficacy in reducing healthcare worker (HCW) burnout.	**N=290** **Demographics:** NICU nurses Employed at least 4 weeks Work >0.4 FTE **Setting:** NICUs in Massachusetts, North Carolina, Tennessee, Texas, New Mexico, California. **Exclusion:** Working less than 4 weeks, working less than 0.4 FTE **Attrition: 30%**	**IV:** WISER module **DV1:** Burnout **DV2:** Depression **Definitions: n/a**	**Tools:** Maslach Burnout Inventory (MBI) **Validity/Reliability:** MBI Cronbach alpha 0.92	**Statistical Tests Used:** SAS PROC GLIMMIX and included a Kenward–Roger degree of freedom correction. A p-value of <0.05 was considered statistically significant.	**DV1:** Statistically significant to reduce burnout (p=0.008) **DV2:** Statistically significant to reduce depression (p=0.022)	**Level of Evidence: 2** **Strengths:** # of participants **Weaknesses:** Attrition, bias **Feasibility:** Feasible where internet access is available. **Application:** Can be applied to a multitude of settings.

Key: **DV** Dependent Variable, **IV** Independent Variable, **RQ** Research Question

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Research Fund. **Bias:** Attrition Bias								
Klatt et al., 2022. Sustained resiliency building and burnout reduction for healthcare professionals via organizational sponsored mindfulness programming **Country:** United States **Funding:** None included. . **Bias:** participants who completed the follow-up	Self-efficacy approach	**Design:** Quantitative **Method**: Survey sent to participants of 8 week program **Purpose:** Measure healthcare professional (HCP) result sustainability following implementation of an organizationally sponsored Mindfulness Based Intervention (MBI), Mindfulness in Motion (MIM), in areas of burnout, perceived stress, resilience, and work engagement.	**N= 220** **Demographics:** Age: 41.02 Female: 83% Male: 17% Non-Hispanic: 95% White: 88% **Setting:** Ohio State University Wexner Medical Center **Exclusion:** None **Attrition:** 154	**IV1:** Mindfulness Training **(MIM)** **DV1:** Burnout **DV2:** Perceived Stress **DV3:** Resilience **DV4:** Work-engagement **Definitions:** Resilience – Ability to maintain good functioning in stress. Perceived stress measure of degree to which situations are perceived as stressful.	**Tools:** Maslach burnout inventory (MBI) Perceived stress scale (PSS) Connor Davidson resilience scale (CDRISC) Utrecht work engagement scale (UWES) **Validity/Reliability:** All tools are deemed reliable and validated. MBI Cronbach 9.0; PSS Cronbach .90; CDRISC Cronbach .85; UWES Cronbach .92	**Statistical Tests Used:** One-way ANOVA	**DV1:** Improved p = 0.0047 **DV2:** Improved p = 0.0001 **DV3:** Improved p = 0.0004 **DV4:** No significant change p = 0.4008	**Level of Evidence:** 4 **Strengths:** Large sample size Diverse population Validated tools **Weakness:** Bias Lack of response rate **Feasibility:** Feasible with willingness to participate **Application**: Can be applied in places where activity is acceptable on

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
survey may reflect response bias as those who were experiencing benefits from the mindfulness intervention may be more likely to complete the survey **Bias:** None				Burnout – Emotional exhaustion, depersonalization and decrease in personal accomplishment. Work engagement – vigor and dedication				the job. Can be applied outside of work, and benefit from it in work.
Ledikwe et al., 2018, Associations between healthcare worker participation in workplace wellness activities and job satisfaction, occupational stress and burnout: A cross-sectional	Self-Determination Theory	**Design:** Cross-sectional survey **Method:** Multistage questionnaire distributed to 1856 randomly chosen healthcare workers at 135 facilities. **Purpose:** Assessed whether participation in Botswana's	**N= 1856** **Demographics:** Female (62%) Not married (65%) Had children (84%) Mean age 40.0 Respondents split between participation: No WWP activities (29.4%) 1–6 WWP activities (38.9%)	**IV:** WWP Activities **DV1:** Job Satisfaction **DV2**: Professional efficacy **DV3:** Exhaustion **DV4:** Cynicism **Definitions:** Job satisfaction included:	**Tools:** General Health Questionairre-12 (GHQ-12) Maslach burnout Inventory – General Survey (MBI-GS) **Validity/Reliability:** Validated and reliable tools, Redcap for validated data entry	**Statistical Test:** One Way ANOVA.	**DV1:** WWP improved overall job satisfaction (p=0.004) **DV2:** WWP Had a higher rating of professional efficacy (P=<0.001) **DV3:** WWP improved exhaustion rating (p=<0.001)	**Level of Evidence:** 2 **Strengths:** Multilevel random sampling methodology and previously validated scales 73% response rate **Weakness:** Inability to determine the

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
study in Botswana **Country:** Botswana **Funding:** President's Emergency Plan for AIDS Relief (PEPFAR), through funding to the University of Washington and I-TECH from the US Department of Health and Human Services, Health Resources and Services Administration (HRSA) Global HIV/AIDS Bureau **Bias:**		Workplace Wellness Program (WWP) for healthcare workers was associated with job satisfaction, occupational stress, well-being and burnout.	7+ WWP activities (31.7%) **Setting:** 153 facilities in Botswana (5 hospitals in each of the 27 districts) **Attrition:** 27%	coworkers, pay, supervision, opportunities for promotion, work in present job			**DV4**: WWP improved rating of cynicism (p=0.04)	direction of causality due to the cross-sectional nature of the survey. **Feasibility:** Feasible if there is availability to incorporate in workday. **Application:** Can be applied to a multitude of practices

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
none								
Marotta et al., 2022. Effect of mindfulness-based stress reduction on the well-being, burnout and stress of Italian healthcare professionals during the COVID-19 pandemic **Country:** Italy **Funding:** None . **Bias:** None	Self-efficacy approach	**Design:** Cross-sectional survey **Purpose:** Evaluate baseline distress before and after the pandemic, and the effect of Mindfulness-Based Stress Reduction (MBSR) training on well-being (PGWBI), stress (PSS) and burnout (MBI) in Italy	**N= 204** **Demographics:** Age: 44.4 Female: 23 Male: 27 Physicians: 9 Nurses: 27 Allied healthcare: 13 **Setting:** Fondazione Monasterio cardiological center of in Tuscany and two hospitals in Massa and Pisa, Italy. **Exclusion:** None	**IV1:** Mindfulness-Based Stress Reduction (MBSR) **DV1:** Burnout (MBI) **DV2:** Stress (PSS) **DV3:** Well-being Stress: Perceived stress over the last 4 weeks Burnout: feelings of overwhelming emotional exhaustion, depersonalization and detachment from the job, and lack of personal or professional accomplishment	**Tools:** Maslach burnout inventory (MBI) Perceived stress scale (PSS) **Validity/Reliability:** Validated and reliable tools	**Statistical Tests Used:** ANOVA t-tests	**DV1:** Improved MBI scores for areas of depersonalization (p=0.04) and emotional exhaustion (p=0.0007) **DV2:** Improved PSS scores to 18.0 to 14.1 (p=0.0001) **DV3:** Improved Well-being scores from 9.5-11.9 (p=0.005)	**Level of Evidence:** 2 **Strengths:** Diverse population Validated tools **Weakness:** Self-reporting Lack of response rate Sample size **Feasibility:** Feasible with ability to incorporate in workplace **Application**: Can be applied for anyone in the healthcare field
Moss et al., 2022, The Effect of	Self-Determination Theory	**Design:** Random Control Trial	**N= 165** **Demographics:**	**IV1:** Creative Art Therapy	**Tools:** Maslach burnout inventory (MBI)	**Statistical Tests Used:**	**DV1:** anxiety decreased by 27.8%%	**Level of Evidence**: 2

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Creative Arts Therapy on Psychological Distress in Health Care Professionals **Country**: United States **Funding**: The National Endowment for the Arts (NEA). **Bias**: None		**Purpose:** To determine if creative arts therapy (CAT) improves psychological distress and turnover intention in health care professionals with burnout symptoms.	Mean age – 35 female (92%) male – (8%) Nurses (52%) Doctors (10%), Behavioral health specialists (16%) Practicing in a hospital setting for at least 20 hours per week **Setting:** Denver Hospital **Attrition: 21**	**DV1:** Anxiety **DV2:** Depression **DV3:** PTSD Score **DV4:** Burnout Score **Definitions:** **Burnout symptoms:** Defined as either an emotional exhaustion score of >17, depersonalization score of >7, or a personal accomplishment score of < 31 using the Maslach Burnout Inventory	Posttraumatic Diagnostic Scale (PDS) **Validity/Reliability:** Validated tools, PDS requires criteria to qualify for	t-tests, x2 tests, Fisher exact tests, ANOVA	**DV2:** Depression was reduced by 35.5% **DV3:** PTSD symptoms decreased by 25.8% **DV4:** Burnout score decreased by 11.6%	**Strengths**: Intervention developed by CAT experts. Included a variety of healthcare professions. Only 2 study participants did not complete post study surveys. **Weakness**: The control group only completed pre- and post-surveys and was not designed as an attention control The study could not be blinded. **Feasibility**: Feasible with the ability to

Key: **DV** Dependent Variable, **IV** Independent Variable, **RQ** Research Question

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
								dedicate time during the workday **Application**: Can be applied to a multitude of practices
Ofei-Dodoo et al., 2020. Impact of a mindfulness-based, workplace group yoga intervention on burnout, selfcare, and compassion in health care professionals **Country:** United States **Funding:** University of Kansas School of Medicine Wichita Office of Research with funds from the	Self-efficacy approach	**Design:** Single-sample **Purpose:** Investigate whether a workplace, group mindfulness-based yoga intervention could help manage burnout and improve wellbeing among health care professionals	**N= 43** **Demographics:** Male: 6 Female: 37 Age mean: 36.8 Faculty: 11 Staff: 18 Medical Trainees: 14 Years in clinical practice: mean 8.1 **Setting:** University of Kansas School of Medicine-Wichita	**IV1:** Mindfulness based yoga sessions. **DV1:** Burnout **DV2:** Resilience, stress, anxiety, and compassion **Definitions:** Burnout: physical or mental exhaustion caused by overwork or stress Resilience: ability to recover from adversity Compassion: deep awareness	**Tools:** Maslach Burnout Inventory (MBI-9 Depression Anxiety Stress Scales-21 (DASS-21) 14-item Resilience Scale (RS-14) Santa Clara Brief Compassion Scale (SCBC) **Validity/Reliability:** Used validated scales Reliable – 0.90 interrater reliability	**Statistical Tests Used:** One-way ANOVA	**DV1:** Decreased ($P<0.01$) **DV2:** significant improvement in depression ($P<0.01$), anxiety ($P<0.01$), and stress ($P<0.01$)	**Level of Evidence:** 3 **Strengths:** Diverse population Validated tools **Weakness:** Conducted in one medical center, small sample size. **Feasibility:** Feasible if access to yoga intervention is provided **Application**: Can be applied

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Wichita Center for Graduate Medical Education **Bias:** none				of the suffering of another coupled with the wish to relieve it				in places where activity is acceptable on the job. Can be applied outside of work, and benefit from it in work.
Wolff et al., 2021. Associations Between Occupational and Leisure-Time Physical Activity With Employee Stress, Burnout and Well-Being Among Healthcare Industry Workers **Country:** United States	Self-efficacy approach	**Design:** Cross-sectional **Purpose:** Examine associations of occupational and leisure-time physical activity with job stress, burnout, and wellbeing among healthcare industry workers.	**N= 557** **Demographics:** • Age mean: 35.72 • Female 419 • Male 131 • White 422 • African American 53 • Asian 26 • Hispanic 19 3.5 • Other 28 • High School/GED 23 • Associate degree, some college, or technical/vocational training 205 • Bachelor's Degree 172 • Postgraduate work	**IV1:** Occupational Physical Activity **IV2:** Leisure Time Physical Activity **DVI:** Stress **DV2:** Job Burnout **Definitions:** **Occupational physical activity:** Activity performed during performance of a job. **Leisure-Time Physical**	**Tools:** The Godin Leisure-Time Exercise Questionnaire Baecke Physical Activity Questionnaire Cohen's Perceived Stress Scale Oldenburg Burnout Inventory Employee Well-Being scale **Validity/reliability:** The Godin Leisure-Time Exercise Questionnaire Baecke Physical	**Statistical Tests Used:** T-tests One-way ANOVA	**DV1:** Positive significant associations with job stress P < .0001. No significant associations were found between OPA with other psychological outcomes. **DV2:** Inverse association between LTPA and exhaustion p=.007	**Level of Evidence:** 2 **Strengths:** Large sample size Diverse population Validated tools **Weakness:** Bias, self-reporting **Feasibility:** Feasible with participation in survey **Application**: Can be applied in places where

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Funding: Ramsey Award from the University of Georgia. **Bias:** may have taken place among the participants when reporting frequency, intensity or duration of physical activity or the intensity			or Postgraduate Degree 150 • Income level (household) o $0-20,000 13 o $20,000-40,000 104 o $40,000-60,000 135 o $60,000-80,000 119 o $80,000þ 179 • Divorce/Separated 62 • Married/Living with Partner 355 • Single 132 • Non-Direct Patient Care Workers 306 • Direct Patient Care Workers 244 • Supervisory Status o No 358 o Yes 191 **Setting:**	**Activity:** Exercise and physically active hobbies done in one's free-time.	Activity Questionnaire – Cronbach: 0.88 Cohen's Perceived Stress Scale Cronbach: 0.87 Oldenburg Burnout Inventory – Cronbach: 0.85 Employee Well-Being scale – Cronbach: 0.94			activity is acceptable on the job. Can be applied outside of work, and benefit from it in work.

Key: **DV** Dependent Variable, **IV** Independent Variable, **RQ** Research Question

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
			Healthcare industry **Exclusion:** **<**18 years old <35 hours per week worked. **Attrition:** 7					

Key: **DV** Dependent Variable, **IV** Independent Variable, **RQ** Research Question

Table A2

Evaluation Table for Qualitative Studies

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
Friganović, et al., 2020, A cross-sectional multicenter qualitative study exploring attitudes and burnout knowledge in intensive care nurses with burnout. **Country:** Croatia **Funding:** Slovenian Research Agency **Bias:** Researcher-induced	Self-Determination Theory	**Design:** Semi-structured Interview **Method:** Voluntary participation, semi structured interviews **Purpose:** To determine the attitudes and sense of knowledge of burnout	**N=28** **Demographics:** Mean age – 35.5 Female (86%) Male – (14%) **Setting:** Croatian hospitals **Attrition: 0**	**RQ1:** Influence of work on personal life **RQ2:** Knowledge of burnout syndrome **Definitions:** Burnout as defined by a score of 57 or higher on the MBI tool.	**Data Collection:** Interviews Maslach Burnout Inventory (MBI) **Data Dependability:** Reliability is increased due to semi structured interviews vs unstructured. All data was coded and thematic analysis was confirmed to ensure that one person's perspective did not bias interpretation of the date. This made the working methods reliable and valid	**Data analysis:** Conversation transcripts, theme generation,	**RQ1:** • Lack of leisure time (12), • Strained • Relationships (7), • Projecting dissatisfaction onto family (5) • Inadequate coping – (12) **RQ2:** • How to recognize it (15) • Being acquainted with it (10) • Being able to describe it (14) • Burnout relief (9) • Sources of information (5)	**Level of Evidence:** 5 **Strengths:** Exploration, in depth Understanding of context Participant perspective **Weakness:** Limited generalization Bias due to subjective interpretations Sample size **Feasibility:** Feasible with willingness to participate in survey. **Application:** Can be applied to a

Key: **DV** Dependent Variable, **IV** Independent Variable, **RQ** Research Question

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
								multitude of practices
Knudsen et al., 2023. The Influence of mindfulness-based stress reduction on the work life of healthcare professionals – A qualitative study. **Country:** Denmark **Funding:** Faculty of Health Sciences, University of Southern Denmark, the Health Research Foundation of Central Denmark Region, the Danish Nursing	Self-efficacy	**Design:** Semi-structured focus group **Method:** Participant observation followed by six semi-structured focus group interviews and 15 individual interviews were conducted. **Purpose:** Explore healthcare professionals' experiences of how attending a course in Mindfulness-Based Stress Reduction influenced their work life, including their relationship with patients and colleagues.	**N=56** **Demographics:** n/a Female 43 Male 1 Nurses 27 Midwives 10 Physicians 4 Lab tech 1 Secretary 1 **Setting:** Cardiology and gynecology departments in Denmark Clinics **Attrition**: n/a	**RQ1:** How healthcare workers Interrelate mindfulness into work life **Definitions:** Self-efficacy an individual's personal beliefs in and understanding of their capabilities to handle and manage the motivation, cognitive resources, and the series of behaviors required to assert control over outcomes and results in their lives.	Survey after attending a mindfulness-based course to see how this influenced their life.	**Data Collection:** Participant observation, focus group interviews, and individual interviews. **Data Dependability:** Dependable, self-reported	**RQ1:** Allowing a pause and focusing on one thing, Awareness of the freedom to choose improved. Need for self-compassion improved. Value of presence and calmness in patient encounters improved. Awareness of how stressful behavior affects oneself - improved.	**Level of Evidence:** 5 **Strengths:** Use of different qualitative methods for data collection Use of participant observation over time **Weakness:** Small sample size Large range of experience **Feasibility:** Feasible if adequate time and class is provided to participants. **Application:** Can be applied to a multitude of practices

Key: **DV** Dependent Variable, **IV** Independent Variable, **RQ** Research Question

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
Research Fund, the Department of Gynecology and Obstetrics, Horsens Regional Hospital, and the Department of Cardiology, Lillebaelt Hospital, University Hospital of Southern Denmark.								
Rollins, et al., 2021. Organizational conditions that influence work engagement and burnout: A qualitative study of mental health workers **Country:** Denmark **Funding:** VA Health Services Research and	Self-efficacy	**Design:** Random Selection **Method:** Structured interview of mental healthcare clinicians and mangers participating in burnout interventions **Purpose:** Identify interventions to improve burnout and work engagement.	**N=40** **Demographics:** n/a Female 27 Male 13 White 31 Master's degree or higher 30 Social work 21 Psychology 13 Midwives 10 Physicians 4 Lab tech 1	**RQ1:** Factors are associated with burnout and work engagement at the level of the organization **RQ2:** Perceived barriers and facilitators for intervention **Definitions:** Self-efficacy an individual's	**Data Collection:** Interviews **Data Dependability:** Dependable, self-reported	Phase one identified themes Phase two sub themes were created	**RQ1:** desire for organizational culture to focus on person-centered care over productivity Lack of management skills and practices to overcome bureaucracy Lack of opportunities for employee professional development and self-care.	**Level of Evidence:** 5 **Strengths:** Identify that burnout and workforce engagement can be on an organizational level **Weakness:** Small sample size Only tested in mental health workers **Feasibility:**

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Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
Development Service **Bias:** none			Secretary 1 **Attrition:** n/a	personal beliefs in and understanding of their capabilities to handle and manage the motivation, cognitive resources, and the series of behaviors required to assert control over			**RQ2**: High workload, productivity requirements, unrealistic expectations	Feasible to gather input for interventions in the workplace to reduce burnout. **Application:** Can be applied over multiple organizations

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Table A3

Synthesis Table

Study (Author, year)	Friganović, et al., 2020	Jochen et al., 2021	Klatt et al., 2022	Knudsen et al., 2023	Ledikwe et al., 2018	Marotta et al., 2022	Moss et al., 2022	Ofei-Dodoo et al., 2020	Rollins et al., 2021	Wolff et al., 2021
Design LOE	INT	RCT	Q	RS	CS	CS	RCT	SS	RS	CS
Sample										
n subjects	28	290	220	56	1856	50	165	43	50	557
M-Age	35.5	/	41.02	/	40	44.4	35	36.8	/	35.72
Setting										
HMC	X	X	X	X		X		X		
MMO					X		X		X	X
Interventions										
MB		X	X		X	X		X		
PA										X
LP										
PCC										
PDO										
INT	X			X					X	
CAT							X			
Outcomes/ Themes										
Burnout		+	+			+	+	+		+
Depression		+					+	+		
Stress			+			+		+		+
Anxiety							+	+		
Resilience			+					+		
Well-being						+				+
Work-Engagement			+							
Job Satisfaction					+					

HMC – Hospital/Medical Center **MMO –** Multiple Medical Organizations **SS** - Single-Sample **CS** – Cross Sectional **RS -** Random Selection **RCT** – Random Control Trial **INT** – Interview/Survey **Q** – Quantitative **X** – Applicable/Utilized **MB** – Mindfulness-Based **PA** – Physical Activity **CAT** – Creative Arts Therapy **PDO** – Professional Development Opportunities **PCC** – Person-Centered Care **LP** – Leadership Practices **+** - Improved **/** - Not present

Study (Author, year)	Friganović, et al., 2020	Jochen et al., 2021	Klatt et al., 2022	Knudsen et al., 2023	Ledikwe et al., 2018	Marotta et al., 2022	Moss et al., 2022	Ofei-Dodoo et al., 2020	Rollins et al., 2021	Wolff et al., 2021
Exhaustion					+					
Professional Efficacy					+					
Cynicism					+					
PTSD							+			

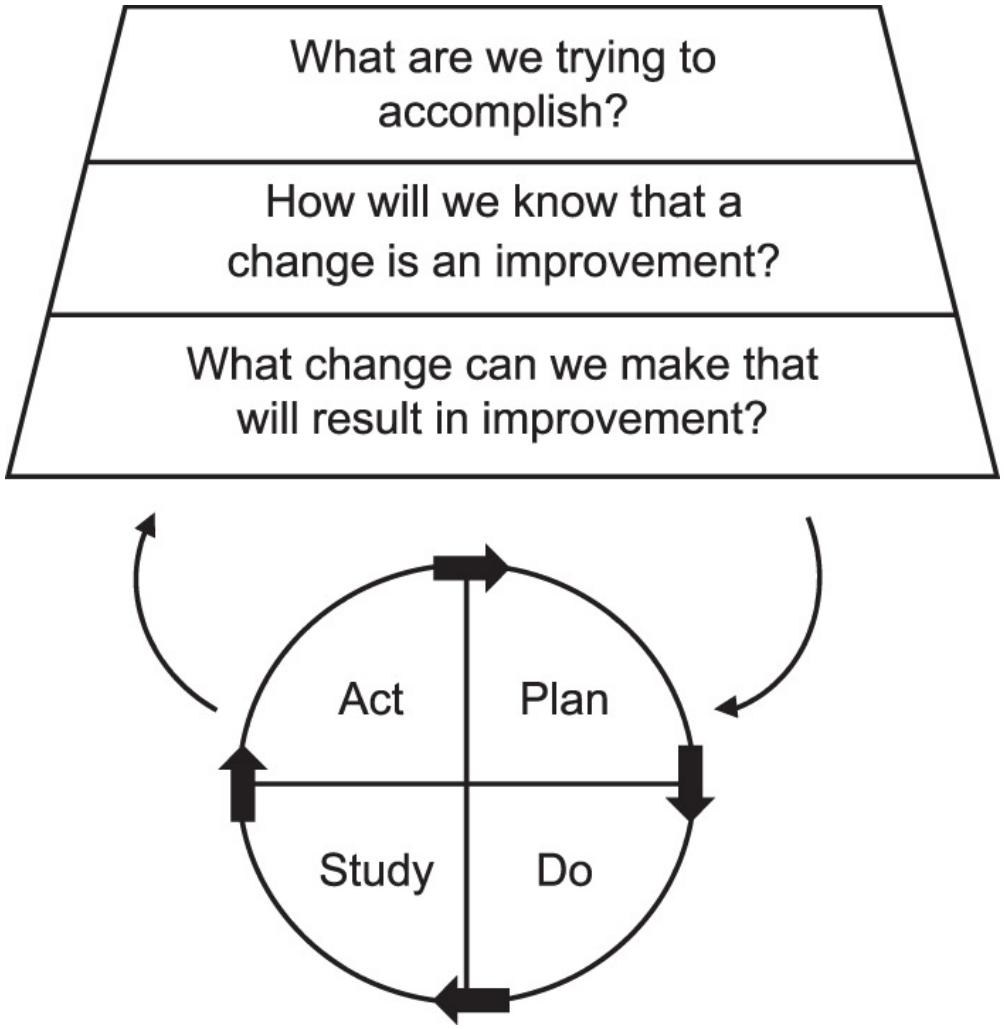
HMC – Hospital/Medical Center **MMO –** Multiple Medical Organizations **SS** - Single-Sample **CS** – Cross Sectional **RS -** Random Selection **RCT** – Random Control Trial **INT** – Interview/Survey **Q** – Quantitative **X** – Applicable/Utilized **MB** – Mindfulness-Based **PA** – Physical Activity **CAT** – Creative Arts Therapy **PDO** – Professional Development Opportunities **PCC** – Person-Centered Care **LP** – Leadership Practices **+** - Improved **/** - Not present

Appendix B

Models and Frameworks

Figure B1

Model for Improvement



(Valier, 2020)