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# The Impact of Mindful Breathing on Stress of Employees Working from Home

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**The Impact of Mindful Breathing on Stress of Employees Working from Home**

Lindsey R. Goldberg

A project submitted to the faculty of

Gardner-Webb University Hunt School of Nursing

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Doctor of Nursing Practice

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### **Abstract**

This DNP project was designed to decrease stress among employees working from home (WFH) by educating them on mindful breathing practices. Through the implementation of a mindful breathing activity, the intended project outcome was to improve stress levels of employees working from their homes. Mindful breathing is an evidence-based strategy that has demonstrated decreased stress levels. Mindful breathing was implemented among two companies employing an estimate of 170 WFH employees to improve health and well-being with potential long-term positive impact on sustainability of organizations in the post-COVID, work from home environment. The participants were invited to perform 8-minutes of daily mindful breathing for two weeks. Project impact was measured utilizing a pre/post-survey evaluating their stress levels before and after the mindful breathing activity. Results identified moderate to high levels of stress in work from home employees at baseline and post-intervention. Additional research is indicated to increase sample size. In conclusion, implementing a mindfulness breathing technique may impact the organizations positively by decreasing the stress of the employees working from home.

*Keywords:* “mindfulness”, “mindfulness and stress”, “work from home”, “substance use and working from home”, “mindfulness theory”, “mindfulness and breathing”, “breathing and stress”, and “mindful breathing”.

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## **Introduction**

Once a rarity, working from home has now become more mainstream, especially in the throes of the COVID-19 pandemic. One would imagine the stress level of employees would be lower; when they were working from a home setting; however, burnout, isolation, high turnover, and work/life imbalances have become prominent and had the opposite impact on the mental health of these individuals. Van Veldhoven (2020) found sustained increased cortisol levels, also known as the stress hormone, in work from home employees. Sako (2021) reported that over 35-50% of U.S. employees were working entirely or partly from home by May 2020. The pandemic caused an accelerated push towards working from home; however, the WFH employee is not a new concept (Sako, 2021). Improving technology and decreasing stigma around working from home helped skyrocket the workforce to the home setting during 2020 (Sako, 2021). One study found 98% of surveyed employees hope to have a home-based option for the rest of their career (Sako, 2021). And employers surveyed stated they hoped to offer at least one day of work from home employment by 2022 (Sako, 2021).

## **Problem Recognition**

Nationally, the evidence is mounting in the literature that working from home may have negative implications. Locally, executives have also noted virtual workload challenges. One CEO of a small, United States (US) based, entirely work from home company, noted that virtual workload seems insurmountable, social connection is lost, and lines between home and work are substantially blurred.

Workplace stress can be a predictor for development of metabolic syndrome, depression, anxiety, overeating, substance use, low energy, sedentary activities, poor sleep hygiene, and

social isolation (Hugh-Jones et al., 2017). Hugh-Jones et al., (2017), published their research about workplace stress and the implications on health even before the COVID-19 pandemic and the influx of WFH employment that followed. Song and Gao (2020) found that working from home on weekdays, weekends, and holidays increases stress. Additional factors increasing WFH stress include gender, parental status, childcare concerns, and animals in the home (Song & Gao, 2020). The roles of the WFH employee are strained. One example found by the researchers was a parent who is unable to focus on the household chores or a child's needs during their workday (Song & Gao, 2020). In contrast, WFH options may positively impact the wellbeing of employees by improving time management and eliminating daily commutes, both of which can decrease stress, reduce tiredness, and improve mood (Song & Gao, 2020).

Furthermore, the consideration of the generation of the employee may also influence their adaptability to work from home with a heavy reliance on technology (Mahmoud et al., 2020). Work styles of different generations may show variance based on when an individual was born. Baby Boomers (born 1946-1964) are one of the generations rapidly retiring in the workplace, being replaced by Gen X (born 1965-1980) in many supervisory/leadership roles. Gen X employees may place increase focus on work/life balance, regarding free time and time with friends and family as a priority (Mahmoud et al., 2020). Millennials (born 1981-1996), now comprise one of the largest generations in the workforce. Often considered "digital natives," Millennials demonstrate high comfort with use of everyday technology (Mahmoud et al., 2020). Finally, Generation Z (born 1997-2015) is just beginning to enter the workforce and is also considered to be very comfortable with technology. Like Millennials, Generation Z employees

may expect significant flexibility in their schedules and more freedom to work from a variety of locations (Mahmoud et al., 2020).

The changing dynamic of workforce needs and staffing models creates an opportunity for health care and business leaders to innovate. Leaders must increase awareness of both positive and negative implications of home-based employment, potentially higher stress level, and impact on mental health. The increased percentage of home-based employees since 2020 and the predicted longevity of this type of employment are important for corporate leaders to keep at the forefront of their organizations vision, mission, and goals. Some considerations for leaders include the generational makeup of the organization, technology comfort, parental status, gender, and home environment. In considering home-based employment as the new standard, and addressing the potential barriers, leaders may be able to improve job satisfaction, decrease stress level, and positively affect the mental health of the organization.

### **Needs Assessment**

Many employees are experiencing an increase in negative health due to the rise in stress from the ongoing pandemic and for some the added stressors of combining their home environment with their work environment. Health implications include both physical and mental components. Specifically, the mental health of home-based employees has been negatively impacted as exhibited by increased anxiety, depression, and substance misuse. The NYU Global Public Health survey (2021) included 5,850 respondents and looked at the increase of substances during a change in routine, for example working from home during a pandemic. Results revealed that 29 percent increased their use of alcohol, 64 percent of those with depression were more likely to increase their alcohol intake, and those with anxiety were 41 percent more likely to

drink (NYU, 2021). As the American workforce transitions from the peaks and valleys of the current COVID-19 pandemic trends, into a more predictable endemic type of seasonal virus, it is imperative that strategies are implemented to improve the mental health of all, especially individuals working in home-based environments.

Based on awareness of the needs, home-based employees of two select companies were identified as the target population for the DNP Project implementation. Based on their own internal measures, both companies had identified a need for employee stress reduction. The two companies located in the United States were identified and a needs assessment was conducted. Company A is a mid-sized company, composed of less than 150 home-based employees. Company A transitioned to home-based employees in 2020 at the beginning of the COVID-19 pandemic. Company A delivers healthcare services to patients electronically via a chat-based platform. Company A has seen an increase in staff burnout, increased stress levels, and decreasing empathy as some of the employees have been directly impacted by the COVID-19 pandemic as they are registered nurses, care coordinators, and supervisors, dealing directly with patients dealing with COVID illnesses. In response, they have offered to pay for mental health applications such as Headspace, Calm, and yoga subscriptions, have encouraged involvement in lunchtime mental health seminars, utilization of employee assistance, and offered behavioral health resources through company benefits. Company A, as an organization, shows strength in their leadership taking an active role in addressing mental health needs; however, the company is weaker in personal relationships due to the fully work from home environment. Company A has an opportunity to improve mental health by increasing available paid time off or increasing the amount of wellness days offered. The threats to Company A are the stressors that come with

working from home, the inability to disconnect and to separate from other roles, such as parent or spouse.

Company B is small, composed of less than 20 home-based employees, providing information technology security and compliance consulting to healthcare organizations. Company B has had home-based employees since their inception. Company B encourages a “work from anywhere” model. Company B also has the potential for increased stress due to the fully work from home status of the employees, whereas the employees miss out on social interaction and forego the ability to form closer relationships with colleagues. The CEO realized the inability to switch roles between work and home and has since offered unlimited paid time off and encourages his employees to utilize those days off to recharge. Company B shows immense strength with the interest the CEO takes in the importance of mental health and wellness. The opportunity for improvement lies in the willingness of the leadership team to learn new techniques that empower their employees and improve their stress level. Both Company A and B face threats like all work from home employers, where employees may have a hard time disconnecting from work which in turn leads to increased stress and burn out.

Each organization has a unique organizational structure, team makeup, and a variety of stakeholders in the outcomes of the project implementation. For the purposes of the DNP Quality Improvement Project, team selection included the human resources department for Company A and the chief executive officer (CEO) and similarly for Company B with the CEO and Senior Director of Privacy. When approached with the idea, the stakeholders voiced immediate interest in partnering in the project as they had internally recognized the need. All stakeholders agreed to provide support in disseminating mindfulness interventions to their

employees as the need for mental wellness is becoming more of a priority during the ongoing COVID-19 pandemic and with the current emotional climate of the nation.

Baseline mental health status at the respective organizations was based on focus groups conducted with organization executives and human resources leaders. Although the anecdotal evidence is strong, no specific metrics were available for either organization on baseline perceived stress or mental health status. As part of project design, a baseline benchmark of perceived stress was collected from participants.

Based on feedback and baseline data, the project intervention focused on improving mental health in home-based employees. Following the intervention, comparison data was collected on perceived stress at the organizations. Studies have shown that employees can benefit from the tools learned from mindfulness by learning coping skills, increasing positivity, increasing job satisfaction (therefore decreasing stress), also indicative of improved quality of life (Nevill & Havercamp, 2019).

### **Expanded Literature Review**

The project was designed to identify and improve stress levels among employees in a home-based environment. Through the implementation of a mindfulness activity, the project intended to improve the stress levels of employees working from their homes. As part of the project design, a review of the literature was performed using Bulldog OneSearch, CINAHL, Nursing and Allied Health (ProQuest), Public Health (ProQuest), and Google Scholar databases. Keywords used during the search included “mindfulness”, “mindfulness and stress”, “work from home”, “substance use and working from home”, “mindfulness theory”, “mindfulness and

breathing”, “breathing and stress”, and “mindful breathing”. The findings of the literature search were synthesized to impact project design.

Van Veldhoven et al., (2019) describes job resources in relationship to job satisfaction and stress level. The study elaborates on the importance of detaching from work or “switching off” in the evenings to allow for the employee to recharge and thus be able to re-engage with work the next day (Van Veldhoven et al., 2019). Sako (2021) goes a step further into the importance of disconnecting when discussing the work from home employee and the sudden influx of this type of employment post COVID-19 pandemic. With an estimated 35-50% of the U.S. workforce having some capacity to work from home the ability to turn off from work is directly related to the stress level of the employee (Sako, 2021). The prediction is that working from home will remain a norm with one survey indicating that in the year 2022, over 98% of the U.S. workforce will work from home (or anywhere) at a minimum one day a week (Sako, 2021).

Hugh-Jones et al., (2018) describe how implementing mindfulness into the workplace can aide in decreasing the stress levels of employees. The study introduced Mindfulness-Based Stress Reduction (MBSR) into a higher education institute among the academic staff in which high levels of stress were reported (Hugh-Jones et al., 2018). The intervention aimed at bringing awareness to the stress, legitimizing the importance of self-care, improving impulsivity and decision making, and “upward spiraling” which involved bringing positivity to negative thoughts or “being mindful” rather than reactive (Hugh-Jones et al., 2018). Overall, the study showed that mindfulness promotes well-being at work and allows the employees to deal with challenges in a more positive approach (Hugh-Jones et al., 2018). A systematic review of mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT) resulted in high

participant satisfaction and completion rates with a majority preferring to participate virtually in the interventions, due to the COVID-19 pandemic (Moulton-Perkins et al., 2020).

Song and Gao (2020) were interested in expanding the literature to see how stress from working from home differs from the in-person workplace stress. This study considered gender and parental status (Song & Gao, 2020). Working from home can eliminate some stressors such as commuting and childcare; however, it comes with a variety of factors such as more interruptions from children, animals, and household temptations (Song & Gao, 2020). The study differentiates between bringing work home in the evenings and a full workday from home (Song & Gao, 2020). In both scenarios, working from home negatively affects the household by jeopardizing time spent with the family and disturbing the work life balance with the employee having a difficult time disconnecting (Song & Gao, 2020). Overall, the study found that bringing extra work home and working fulltime from home negatively impacts happiness, interferes with leisure time, and increases guilt about time not spent with family members (Song & Gao, 2020).

Work life balance and stress from working from home are a common undertone of the literature reviewed. Westfall (2020) reports that 80% of work from home employees would consider a job change if a position presented itself with guaranteed work life balance. Other commonalities among the literature are the inability of WFH employees to “shut off” in the evenings, the need for mental health days to recharge, and the increased stress or decreased health caused by intertwining the household roles with that of the workplace (Westfall, 2020). The key to conquering the increased stress of the WFH employees is that organizations become adaptable and embrace the importance of mental health and wellness (Westfall, 2020).

Mindfulness has been shown to decrease stress and can be utilized with WFH employees to ensure the success of organizations in the post-COVID, work from home environment. Nevill and Haverkamp (2019) reviewed the effects of mindfulness specifically looking at burnout, coping skills, and resilience. The study determined that mindfulness, coping skills, and resilience are considered protective against increased stress, burnout, and turnover among the participants (Nevill & Haverkamp, 2019). Mindfulness and mindfulness-based interventions were shown to reduce stress and to protect against burnout in high-risk environments (Nevill & Haverkamp, 2019). With negative coping strategies such as substance abuse, denial, avoidance, and disengagement leading to increased stress and burnout (Nevill & Haverkamp, 2019). Increasing mindfulness and healthy coping skills with the use of meditations, yoga, and body awareness improve the protective factors against stress, burnout, and turnover (Nevill & Haverkamp, 2019). Wasson et al., (2020) echoes Nevill & Haverkamp (2019), describing increased burnout and compassion fatigue affecting overall quality of life. Mindfulness-based interventions are shown to improve self-compassion and decrease stress, which can lead to burnout (Wasson et al., 2020). Maslach et al., (1996, p. 192) describes burnout as “a syndrome of emotional exhaustion, excessive stress, loss of meaning in work, feelings of ineffectiveness, and a tendency to view people as objects rather than people.” Implementing mindfulness interventions in the workplace can increase awareness, identify present-moment experiences, improve responses, and impact tolerance (Wasson et al., 2020). The study indicated that the use of mindfulness-based interventions could improve self-compassion and reduce stress (Wasson et al., 2020). Of the mindfulness-based interventions, the mindfulness-based stress reduction program was of interest to organizations when agreeing to treatment options for their employees (Wasson et al., 2020).

The literature review conducted indicated that breathing mindfully could affect the overall health of the individual and promote stress reduction. Bergland (2019), Jerath et al., (2015), Thayer et al., (2021), and Zaccaro et al., (2018) all discuss, how mindful breath work with extended exhalations can positively impact a person's heart rate variability (HRV), improve the response of their vagus nerve, and positively impact their health. All four studies discuss how breath work can turn off the fight or flight response and turn on the parasympathetic resting response (Bergland, 2019; Jerath et al., 2015; Thayer et al., 2021; & Zaccaro et al., 2018).

### **Goals, Objectives, and Mission Statement**

The goal, process, and outcome objectives for the project were two-fold: improve mental health while reducing the stress of work from home employees. The DNP Quality Improvement process focused on positively impacting the quality of life, decreasing stress, and providing a mindfulness tool that is easily adaptable into the employee's schedule. A mindfulness intervention may serve as a starting point for companies to help improve mental health and decrease the stress of their employees.

Westfall (2020) found that over 80% of home-based employees would potentially quit their current jobs if an opportunity presented itself that offered work-life balance and decreased stress. The increasing trend has been identified and labeled the "Great Resignation"; where it was estimated that 4 million Americans quit their jobs in July 2021 (Cook, 2021). Although the Great Resignation involves more than just those employees working from home, it still must be acknowledged as a potential factor. Mental health stressors identified in home-based employees are: "4 out of 5 employees find it difficult to "shut off" in the evening, many employees rely on a mental health day, 97% of employees take their vacation days to "recharge", over half of the

employees report sleep disturbances and an overall feeling of less health working from home” (Westfall, 2020, para. 2). Ultimately, the quality improvement project intended to implement an easy tool to improve mental health and decrease stress for those employees who work from home.

Implementing a mindfulness breathing technique has the potential to positively affect the organizations by decreasing the stress of the home-based employees. Using mindfulness as a stress-reducing intervention has been shown to improve the quality of life of individuals (Fletcher, 2019) and implementing such an intervention in the work from home environment has the potential to decrease stress and improve the overall mental health of the entire organization.

For this DNP Quality Improvement project, a free podcast, *2x Breath for Relaxation* (Mathes, 2020), was introduced as the virtual mindfulness intervention. This intervention can be viewed by anyone with internet access; it is four minutes in length, and no cost. The mindful breathing activity is based on Pranayama, a specific type of breathing style. Pranayama is a set of breathing techniques mainly used in meditation and yoga but has shown to positively impact the mind, body, and mood of those who perform these techniques regularly (Zaccaro et. al., 2018). The autonomic nervous system (ANS) and respiratory activity have shown to impact the emotional response a person feels (Jerath et al., 2015). Slow deep breathing, or “paced breathing,” can stimulate the parasympathetic nervous system whereas stress, anxiety, and depression stimulate the sympathetic nervous system (Jerath et al., 2015). The 2x breathing technique involves inhaling for two seconds then exhaling for four seconds and increasing the duration if the participant can double the amount of exhalation. Research regarding this breathing style has demonstrated potential for increased heart rate variability (HRV). According to

Bergland (2019), HRV represents the fluctuations in a healthy heartbeat, during inhalation, the sympathetic nervous system accelerates the heartbeat and during exhalation, the vagus nerve secretes a neurotransmitter, acetylcholine (Ach), which causes a deceleration. A higher HRV indicates the health of a person's vagus nerve response and is associated with lower stress levels, better health, and improved cognition (Bergland, 2019). De Couck et al., (2019) delves further into the impact of increasing one's heart rate variability by showing how deep breathing can diminish perceived stress during challenging decision making as well as improve the task of deciding. HRV relates to areas of the brain that are involved in decision making, such as the prefrontal cortex (Thayer et al., 2012). The relationship of the heart and brain is connected by the communication received from the vagus nerve (Thayer et al., 2012), therefore each time mindful breathing is performed with a focus on prolonged exhalation, the vagus nerve is strengthened, the HRV is increased, and the level of stress decreases. Overall, activating the vagus nerve can help individuals rebound from a stressful workday faster and potentially lower the risk of burnout (Bergland, 2019).

By implementing the 2x breath, twice daily for two weeks, the goal was to decrease the stress of the employee, improve their mental health, and adopt a mindfulness tool for future stress reduction. In conducting the literature review, it was found that increasing the duration of mindfulness training was more beneficial than a lower dose or single-day training (Wasson et al., 2020).

### Method

Upon approval from the University Institutional Review Board (IRB) as a Quality Improvement project and with consent of both companies, the project was initiated. Employees

of both companies were informed of the project availability and were invited to participate in the optional intervention. After reviewing the informed consent, individuals interested in participating began with a pre-survey. The Perceived Stress Scale (Cohen et al., 1983), was administered, with permission, before the breathing intervention was presented. Employees were asked to perform the breathing intervention twice daily for two weeks. After two weeks, the Perceived Stress Scale was sent as a post-survey. Each participant received an email with directions, including the link to the pre-survey, the *2x breath for relaxation* (Mathes, 2020) podcast, and the post-survey. The email indicated how long each section would remain open, the online consent, and a brief synopsis of the benefits of mindful breathing. The pre-survey stayed open for one week and the participants provided consent, or opted out, to the mindfulness intervention during that window. The intervention spanned over a 2-week timeframe with the post-survey following.

The Perceived Stress Scale (Cohen et al., 1983) assesses individuals stress utilizing a ten-item assessment (available in public domain at <https://www.mindgarden.com/documents/PerceivedStressScale.pdf>). The responses to the scale are formatted in a five-point Likert scale: 0= never; 1=almost never; 2=sometimes; 3=fairly often; 4=very often (Cohen et al., 1983). Aggregate responses to the pre-survey were compared to the post-survey results to explore potential benefit of the 2x breathing technique on stress reduction of the work from home employee. The Perceived Stress Scale (Cohen et al., 1983) was provided to the participants via a Qualtrics survey in the first and fourth week of the intervention. Once the post survey closed, the quantitative data was analyzed by comparing Likert scores

before the mindful breathing intervention and after. Decreased Likert scores will determine if the mindful breathing intervention was effective in decreasing stress among WFH employees. The goal of this DNP Quality Improvement process was to identify that WFH employees are under stress and that mindful breathing is beneficial in the reduction of stress and useful for leadership to embed into their wellness programs moving forward.

### **Quantitative Results and Analysis**

The results of the pre/post survey were exported into Microsoft Excel software for analysis. Data was analyzed using descriptive statistics and due to the small, and unequal sample size, a statistical *t* test could not accurately analyze the results.

The pre-implementation Perceived Stress Scale (PSS) survey had a total of 17 participants combined from both companies with employees who work from home. The response rate (10%) was lower than anticipated with 17 responses out of a potential 170 employees. PSS scores were calculated following the directions of the assessment tool (Cohen et al., 1983). The Likert scores of questions 4, 5, 7, and 8 are reversed and combined with the scores of the remaining questions. The PSS scores range from 0-40, with 0-13 considered low stress, 14-26 considered moderate stress, and 27-40 considered high perceived stress (Cohen et al., 1983). Analysis of pre-survey data revealed 17.65 % (N=3) of participants with low perceived stress, 70.59% (N=12) with moderate stress, and 11.76% (N=2) with perceived high stress.

Post-survey PSS survey had a total of four responses, only 23.52% of the original pre-survey sample size, and 2.35% of the potential 170 combined employees. Of those four, two participants (50%) reported participating in the breathing exercise as directed, twice daily for two weeks. The other two participants (50%) reported participating in the breathing exercise but not

every day. All four participants scored between 14-26 on the PSS range, falling in the moderate perceived stress category post intervention.

### **Limitations**

The project was limited in scope and generalization of findings. Data confirms that work from home employees are experiencing moderate to high levels of stress as indicated in the pre-survey. Due to the small sample size, further research is needed to endorse mindful breathing as an intervention to decrease stress levels of employees working from home. It is noted that participants who answered the post-survey questions, had PSS scores on the low end of moderate, with scores of 14 and 19. In future studies, it may be beneficial to use a more interactive breathing activity, for instance, a live or virtual instructor led activity. It may also be more impactful to continue the breathing activity for a longer duration. Finally, having a live or virtual seminar explaining the benefits and science behind mindful breathing may increase participation. Providing the science, or the “why,” behind the breathing technique, may increase participation, resulting in a higher sample size in the future.

### **Conclusion**

As the literature has indicated, increased numbers of employees working from home is more common and having the tools to disconnect and re-engage from the work environment when it is in one’s home is crucial both for the employees and the organizations success. Research also shows that working from home may increase employees stress, having an impact on their physical and mental health. Mindful breathing is one strategy shown to switch on the resting nervous system, improve heart rate variability, strengthen the vagus nerve response, decrease stress, and improve decision-making (Bergland, 2019; Jerath et al., 2015; Thayer et al.,

2021; & Zaccaro et al., 2018). Therefore, implementing mindful breathing into the daily routine of the WFH employee may improve the overall mental wellbeing of the employee, decrease stress, and ideally increase engagement in their work. Results of the project implementation was provided to both companies to assist leadership teams when developing or revising their wellness programs in the work from home era. Psychiatric Mental Health Nurse Practitioners (PHMNPs), primary care providers, and nurses may contribute to the reduction of stress in the future. These health care professionals can acknowledge and identify the potential for increased stress among their patients working from home and provide resources, such as mindful breathing, to help aide in stress reduction. PMHNP's and primary care providers can raise awareness of stressors and of the ways in which simple breathing techniques may make an impact on their patients' lives.

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