



# Mindfulness for Novice Pediatric Nurses: Smartphone Application Versus Traditional Intervention



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## ARTICLE INFO

### Article history:

Received 8 September 2016

Revised 12 June 2017

Accepted 12 June 2017

Available online xxxx

### Keywords:

Nurses

Mindfulness

Burnout

Compassion fatigue

Compassion satisfaction

## ABSTRACT

**Purpose:** The current study compares the effects of a traditionally delivered mindfulness (TDM) intervention to a smartphone delivered mindfulness (SDM) intervention, Headspace, an audio-guided mindfulness meditation program, in a group of novice nurses.

**Design and Methods:** Novice nurses participating in a pediatric nurse residency program were asked to participate in either a TDM or SDM intervention. Participants (N = 95) completed self-administered pencil and paper questionnaires measuring mindfulness skills, and risk and protective factors at the start of their residency and three months after entering the program.

**Results:** Nurses in the SDM group reported significantly more “acting with awareness” and marginally more “non-reactivity to inner experience” skills compared to the TDM group. The smartphone intervention group also showed marginally more compassion satisfaction and marginally less burnout. Additionally, nurses in the SDM group had lower risk for compassion fatigue compared to the TDM group, but only when the nurses had sub-clinical posttraumatic symptoms at the start of the residency training program.

**Conclusions:** Smartphone delivered mindfulness interventions may provide more benefits for novice nurses than traditionally delivered mindfulness interventions. However, the smart-phone intervention may be better indicated for nurses without existing symptoms of posttraumatic stress.

**Practice Implications:** Mindfulness interventions delivered through smartphone applications show promise in equipping nurses with important coping skills to manage stress. Because of the accessibility of smartphone applications, more nurses can benefit from the intervention as compared to a therapist delivered intervention. However, nurses with existing stress symptoms may require alternate interventions.

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## Introduction

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It is widely recognized that healthcare professionals experience high levels of stress within their work, which is associated with high individual and organizational costs (Cooper, 2012; Peltzer, Mashego, & Mabeba, 2003). Compassion fatigue and burnout are two commonly investigated individual consequences of exposure to high levels of stress. Compassion fatigue is understood as the emotional and physical exhaustion that can affect helping professionals and caregivers over time and results in reduced empathy and compassion, and is sometimes

referred to as secondary traumatic stress (Beck, 2011; Mathieu, 2012). Compassion fatigue involves feelings of exhaustion, frustration, anger and depression and is associated with experiences of trauma (Stamm, 2010). Burnout is a progressive loss of idealism, energy, and goals associated with feelings of hopelessness and difficulties in dealing with work or in doing a job effectively (Baker, 2012; Stamm, 2010). Compassion satisfaction, which is the satisfaction one feels from doing their work well (Stamm, 2010), has been shown to protect against the effects of secondary traumatic stress (Samios, Abel, & Rodzik, 2013). Compassion satisfaction was also found to serve as a buffer against burnout (Craigie, Osseiran-Moisson, et al., 2016).

### Stress, Compassion Fatigue, and Burnout in Nurses

Nurses are at high risk for high stress exposure and its associated negative consequences (e.g., Chou, Li, & Hu, 2014). This is not surprising given that nurses often report high levels of stress in light of the nature

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of their work and close relationships with their patients. Adwan (2014) found that nurses' experiences of grief after losing a patient are similar in quality to the grief experiences of the patient's family. Nurses have similar negative outcomes from direct stress exposure (i.e., the stressful event happened to them), as well as indirect stress exposure (i.e., they witnessed a stressful event; Meyer, Li, Klaristenfeld, & Gold, 2015).

Of particular concern is that nurses often begin to experience symptoms of stress after a short period of clinical practice. For example, a study by Li, Early, Mahrer, Klaristenfeld, and Gold (2014) demonstrated that after 3 months of bedside experience, 7.3% of novice nurses met diagnostic criteria for Posttraumatic Stress Disorder (PTSD). An additional 11.2% of nurses met diagnostic criteria for partial PTSD, meaning that they met criteria for diagnosis in two of the three symptom clusters associated with PTSD (re-experiencing, avoidance/numbness, hyperarousal).

Stress can negatively affect compassion satisfaction, compassion fatigue, and burnout in novice nurses (Meyer et al., 2015). For example, caring for patients, system issues such as workload and management decisions, and personal issues have been identified as "trigger" situations for burnout and compassion fatigue in nurses, with patient care being the most frequently endorsed trigger (Yoder, 2010). Burnout within in the nursing profession has often been linked with a high demand and limited supply of nurses, and may cause nurses to leave the profession altogether (Flinkman, Leino-Kilpi, & Salanterä, 2010). Both age and years of experience have also been found to be predictors of burnout, with younger and less experienced nurses being at higher risk for burnout across multiple countries (Flinkman et al., 2010; Gauthier, Meyer, Greife, & Gold, 2015; Lee, Yen, Fetzer, & Chien, 2015; Xie, Wang, & Chen, 2011). Adwan (2014) found that nurses' burnout was associated with especially difficult aspects of their jobs including perceived number of deaths on their unit, feelings of guilt associated with patient deaths, and personal existential tension felt by nurses as a result of patient deaths. Negative consequences of burnout include decreased patient satisfaction (Vahey, Aiken, Sloane, Clarke, & Vargas, 2004) and decreased quality of care (Poghosyan, Clarke, Finlayson, & Aiken, 2010).

#### *Nurses' Coping With Stress*

Nurses cope with their stress in many ways. In a study by Yoder (2010), nurses most commonly reported work-related coping strategies included changing their personal engagement at work, changing the nature of their work involvement, debriefing informally, focusing on activities outside of work, spiritual or religious practice, introspection, and attitude modification. Some studies have suggested that some common coping strategies among nurses, including talking/debriefing with others about stressful or traumatic events and thinking positive/comforting thoughts, may actually increase nurses' likelihood of developing persistent traumatic stress rather than recover from it (Buurman, Mank, Beijer, & Olf, 2011; Niijama et al., 2009).

Nursing education programs, as well as other medical education programs, have begun to implement trainings and interventions to prepare students to more effectively cope with occupational stress and prevent burnout (Beddoe & Murphy, 2004). Interventions and trainings are also being delivered within the work field for clinicians already in practice (see Irving, Dobkin, & Park, 2009 for a review of studies). Many of these interventions include a focus on mindfulness. Mindfulness is defined as "moment-to-moment, non-judgmental awareness, cultivated by paying attention in a specific way, that is, in the present moment, and as non-reactively, as non-judgmentally, and as openheartedly as possible" (Kabat-Zinn, 2015). Mindfulness is a multifaceted construct which includes five distinct facets (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). They are observing (noticing/attending to internal experiences), describing (labeling inner experiences with words), acting with awareness (paying attention to ongoing activity), non-judging of inner experience (non-evaluative stance towards thoughts and

feelings), and non-reactivity to inner experience (allowing feelings to come and go without getting caught up in them; Baer, Samuel, & Lykins, 2011). One of the most common mindfulness interventions is Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1994). MBSR is an eight week intervention which was developed by Jon Kabat-Zinn at the University of Massachusetts Medical Center in 1979 and has been shown to be effective in improving the well-being of participants in multiple populations with both clinical and non-clinical problems, including patients and health care providers (Grossman, Niemann, Schmidt, & Walach, 2004; Irving et al., 2009; Praissman, 2008). A wide range of benefits have been observed among health care professionals who participate in MBSR, including decreased stress and psychological symptoms, as well as increased life satisfaction, relaxation, and self-satisfaction (see reviews by Escurieux & Labbé, 2011; Irving et al., 2009). MBSR has been implemented with practicing nurses and nursing students. Beddoe and Murphy (2004) demonstrated that an 8-week Mindfulness Based Stress Reduction training (MBSR) decreased nursing students' anxiety and stress and increased their positive coping and empathy. Other studies have shown the effectiveness of MBSR implemented with nurses in medical settings for reducing burnout (e.g., Goodman & Schorling, 2012).

#### *Feasibility of Interventions*

Much of the research on mindfulness interventions with health care professionals has investigated the utility of abbreviated or condensed versions of interventions. This is understandable given the demanding nature of nurses' work and the difficulties associated with taking time to participate in interventions, while still responsible for patient care. Difficulties in participation are reflected in studies such as Shapiro, Astin, Bishop, and Cordova's (2005) study investigating MBSR with healthcare professionals, in which 8/18 participants did not complete the program. Half of those who did not complete the program cited time as a reason for non-completion.

Abbreviated mindfulness interventions have been shown to have promising effects. For example, an abbreviated version of MBSR adapted for primary care physicians was shown to be effective in reducing indicators of job burnout, depression, anxiety, and stress (Fortney, Luchterhand, Zakletskaia, Zgierska, & Rakel, 2013). Foureur, Besley, Burton, Yu, and Crisp (2013) demonstrated the effectiveness of MBSR presented to nurses as a one day workshop, in which nurses agreed to independently practice daily meditation for 8 weeks following the workshop. Participants in this study showed improvements in health, sense of coherence, and stress levels.

Self-guided mindfulness interventions have also been demonstrated to be effective, such as Taylor, Strauss, Cavanagh, and Jones (2014) study, which demonstrated improvements in life satisfaction, mindfulness, and self-compassion as well as reductions in depression, anxiety, and stress symptom severity in a sample of undergraduate and graduate students whom completed a self-help book based in mindfulness. Cavanagh, Strauss, Forder, and Jones (2014) conducted a meta-analysis of self-help mindfulness and acceptance-based interventions which found an average 73% completion rate, decreases in depression, and increases in mindfulness skills of participants, both clinical and non-clinical. Warnecke, Quinn, Ogden, Towle, and Nelson (2011) showed the effectiveness of a self-guided mindfulness intervention in senior medical students in reducing stress and anxiety.

#### *Technological Advances in Service Delivery*

Technological advances have made it possible for interventions to be delivered in a cost effective and time efficient manner at the convenience of the user. For example, internet-based mindfulness courses have been shown to be effective in reducing stress in employees, including medical professionals (Aikens et al., 2014; Morledge et al., 2013; Kemper & Yun, 2014). Likewise, cellular phones have been used a

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