Healthcare Provider Compassion Fatigue and Burnout in the United States: A Comprehensive Assessment of the Current Trend, Burden and Future Opportunities

Capstone Project
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Executive Summary

Compassion fatigue and burnout among healthcare providers are significant problems in the United States (US); indeed, in 2015 it was estimated that at least 55% of US physicians experience at least one symptom of compassion fatigue and / or burnout. Compassion fatigue and burnout have significant negative impacts at the individual, patient, healthcare organization and system levels. These impacts include, but are not limited to, significantly reduced psychosocial wellbeing among individual physicians, measurable declines in the safety and quality of patient care delivered by these physicians, and major economic costs (particularly in relation to decreased physician productivity and increased attrition) to healthcare organizations and systems. Thus, compassion fatigue and burnout among physicians in the US are recognized to be problems of broader societal relevance.

Rates of compassion fatigue and burnout among physicians in the US are increasing, and a number of prominent national bodies have issued calls for this problem to be urgently addressed. This paper presents a literature review on the topic of burnout and compassion fatigue among physicians in the US. Specifically, it considers: (1) the origins and background; (2) the problems and magnitude; (3) the causes and determinants; and (4) the prevention and intervention strategies described in the literature in relation to burnout and compassion fatigue among US physicians. It also provides a discussion about the response to compassion fatigue and burnout among physicians in the US, with considerations of the potential implications of this response. Ultimately, the aim of this review is to deliver a strong case to the policy and business communities about the importance of the problem of burnout and compassion fatigue among physicians in the US and, subsequently, to establish a strong argument to invest meaningful resources to combat this problem.

I. Introduction

Compassion fatigue – also referred to as 'secondary traumatic stress' – is a work-related, maladaptive psychological state, which results "when caregivers [such as physicians] are exposed to repeated interactions requiring high levels of empathetic engagement" (Smart et al., 2014; Sorensen, Bolick, Wright & Hamilton, 2016). The negative impacts of such work build in duration and severity, and can potentially lead to the depletion of a clinician's emotional resources and a reduced capacity to demonstrate compassion towards the patients for whom they care (Gregory & Menser, 2015). If compassion fatigue is poorly managed, it may lead to burnout.

Burnout is recognized as a psychological state which results from prolonged stress (Shanafelt et al., 2012), and particularly that caused by compassion fatigue. Three key dimensions of burnout are recognized: (1) experience of overwhelming exhaustion, (2) feelings of cynicism towards, and detachment, from the job, and (3) a sense of ineffectiveness and, subsequently, a lack of accomplishment (Maslach & Leiter, 2016). Physicians experiencing one or more of these symptoms experience a reduced capacity to adapt to and, subsequently, function effectively in their work environment (Moss, Good, Gozal, Kleinpell & Sessler, 2016). Burnout ultimately results in physicians disengaging from their work environment (Hensen, 2016), which – as described in detail in a later section of this review – carries significant negative carried-forward impacts at the patient, healthcare organization and system levels. Burnout is typically measured using the Maslach Burnout Inventory (MBI), a 22-item, self-report questionnaire which, although its cutoff-scores are thought to be region-specific, is a valid, reliable and widely-accepted measure of burnout among physicians (Moss et al., 2016; Schrijver et al., 2016). The MBI will be referenced throughout this review.

Recently, “physician wellness has risen to a level of importance for societal systems and the population” in the US (Epstein & Privitera, 2016). A number of leading national bodies have issued calls for the problem of compassion fatigue and burnout among physicians in the US to be urgently addressed (American Academy of Family Physicians, 2014; Moss et al., 2016). This review seeks to deliver a strong case to the business and policy communities about the importance of the problem of burnout and compassion fatigue among physicians in the US and, subsequently, to establish a strong argument to invest meaningful resources to combat this problem.

II. Methods

This paper presents a systematic literature review on the topic of burnout and compassion fatigue among healthcare providers in the US. Consistent with the nature of a literature review, the aim of this review is to provide a comprehensive, objective summary of the published literature on the topic. This review considers specifically: (1) the origins and background; (2) the problems and magnitude; (3) the causes and determinants; and (4) the prevention and intervention strategies described in the literature in relation to burnout and compassion fatigue among physicians in the US.

Commensurate with a literature review, a structured process - involving a series of thorough searches on electronic databases – was undertaken to retrieve literature relevant to the research topic. Searches were undertaken on a variety of databases, including the *Cumulative Index of Nursing and Allied Health* (CINAHL), *Excerpta Medica* (EMBASE), *Medical Literature Online* (Medline), and SCOPUS as these are all examples of databases which contain quality, peer-reviewed academic health literature. Citation chaining was used to enhance the thoroughness of the searches.

The terms used in the searches were words taken from the research topic and their synonyms, and included: *“compassion fatigue”*, *burn*out*, *physician**, *doctor**, *medic**, *registrar**, *surgeon*, clinician*, consultant**, *“United States”* and *US.* To improve the focus of the searches

undertaken, the search terms were combined using Boolean operators (*and*, *or*, *not*) and truncated. Limiters and inclusion criteria were also used to control the scope of the review. To be eligible for inclusion in the review, a piece of literature must have been: (1) published 2008 to 2017 inclusive (10 years' currency, although more recent literature was preferred); (2) published in English, with full text available, in a peer-reviewed academic journal; (3) a study undertaken in the US, OR an opinion piece written by an expert from the US – except in a small minority of cases where the use of international literature is explicitly stated; AND (4) of direct relevance to the research topic. Literature was compared against the limiters and inclusion criteria at two stages: firstly, with title and abstract only, and secondly, for literature with potential relevance to the research topic, with full text. A large body of current, high-quality literature relevant to the research topic was retrieved. This literature will be presented in the following section of the paper.

III. Origins and Background

Compassion fatigue and burnout among physicians in the US are problems which have risen to public attention due to the recent increase in suicide rates among US physicians (Rubin, 2014; Salles, Liebert & Greco, 2015). However, they are not new phenomena (Epstein & Privitera, 2016); indeed, burnout specifically was first described in the 1970s (Moss et al., 2016). As will be discussed in detail in a later section of this paper, rates of burnout among physicians in the US are currently high, and these rates are trending upward; the origins and background of this particular aspect of the problem ultimately center on the rapidly changing context of the US healthcare system. Before the development of large medical systems, most physicians in the US cared for patients in single-office settings; this afforded physicians a high degree of control over their work environment (Gregory & Menser, 2015). Today, however, the US healthcare system is characterized by complex continuous healthcare reform, and physicians often have little control over their work environment (Gregory & Menser, 2015). This has led to "a culture of [physician] endurance" rather than wellbeing (Epstein & Privitera, 2016; Wasserman, 2016).

As noted by Schrijver (2016), US physicians' working hours, and subsequent "claims on personal time", have increased significantly in the past decade; indeed, a recent study suggests approximately 25% of physicians in the USA work ≥60 hours per week. This is likely to be due to the ever-increasing demand for, and expectations of, physicians as the population in the US rapidly grows and ages (Shannon, 2013). A progressive shift towards the use of complex technology in the healthcare system, the ongoing risk of medical malpractice suits, and "a surge in regulatory and competency maintenance requirements" contributes to this problem (Bodenheimer & Sinsky, 2014; Schrivjer, 2016; Epstein & Privitera, 2016). Additionally, US physicians now have an increased responsibility for administrative tasks within the healthcare system, and subsequent documentation burden may also contribute to the increased rates of compassion fatigue and burnout observed among physicians in the US (Williams et al., 2010; Schrivjer, 2016; Shanafelt et al., 2016a).

Further complicating this situation is that the healthcare system in the US is becoming increasingly complicated and inefficient. Indeed, the literature suggests the US healthcare system is now "characterized by uncertainty, chaos and ambiguity" (Menaker, 2016), and constrained by growing shortages of both physicians and resources (Moss et al., 2016; Boissy et al., 2016). This suggests that the prevalence of compassion fatigue and burnout among physicians in the US will only continue to increase, unless these problems are effectively addressed.

IV. Problem and Magnitude

Compassion fatigue and burnout are a significant problem among physicians as well as among healthcare professionals generally in the US (Moss et al., 2016). Recent studies among physicians in the US have found rates of overall burnout ranging from 40% to 55% (Shanafelt et al., 2009; Shanafelt et al., 2012; Shanafelt et al., 2015). One older study found rates of burnout ranging from 60% in ophthalmologic physicians to 75% in obstetric-gynecology physicians in the US (Martini, Arfken & Churchill, 2004). However, the relevance of these findings in the current

healthcare system context is unclear. The rates of compassion fatigue and burnout among US physicians are recognized to be trending upward. Indeed, in the 3 years between 2011 and 2014, the number of physicians in the US who self-reported experiencing at least one symptom of burnout increased by 8.9% (Shanafelt et al., 2015). It is interesting to note that, in the US, physicians are more likely than people in any other occupation to experience compassion fatigue and / or burnout (Shanafelt et al., 2011).

Estimates of prevalence of compassion fatigue among physicians in the US were not found in the literature. However, it is reasonable to assume that because compassion fatigue is a precursor to burnout, the prevalence of compassion fatigue is at least comparable to, and may be even higher than that of burnout. In one study among nurses in the US, Potter et al. (2010) found rates of compassion fatigue to be at approximately 53%.

Physicians at the front line of care in the US – including family physicians, general internal medicine physicians and emergency medicine physicians (Shanafelt et al., 2012) – and those caring for patients who are critically ill (Moss et al., 2016) are recognized to be at the greatest risk of experiencing compassion fatigue and burnout. Although they were once understood to be a later-career phenomena (Moss et al., 2016), physicians at mid-career (11 to 20 years of practice) are now recognized to be at the greatest risk of experiencing compassion fatigue and burnout (Blackwelder et al., 2016). For reasons thus far undetermined, female physicians are recognized to be more at risk of burnout in particular than male physicians (Rabatin, Williams, Baier, Schwartz, Brown & Linzer, 2016). Despite evidence for differing prevalence in different groups, it is important to recognize that *any* physician in *any* context may experience compassion fatigue and / or burnout (West, 2016).

Compassion fatigue and burnout result in a variety of problems, including: (1) at the individual- (physician) level, (2) at the patient-level and, subsequently, (3) at the healthcare organization- / system-levels):

In the individual context, the literature suggests that compassion fatigue and burnout among physicians may result in significant psychological problems – such as depression, anxiety, post-traumatic stress disorder and suicidal ideation (Shanafelt et al., 2009; Lin, Liebert, Tran, Lau & Salles, 2016; Moss et al., 2016); an increased likelihood of substance use and / or misuse (Jackson, Shanafelt, Hasan, Satele & Dyrbye, 2016; Lin et al., 2016); increased irritability, fearfulness and unhappiness (Moss et al., 2016); relationship difficulties, including dysfunctional relationships with colleagues (Lin et al., 2016; Maslach & Leiter, 2016); an increased risk of motor vehicle accident (Kim & Wiedermann, 2011); and sleep deprivation and subsequent fatigue (Moss et al., 2016), etc. It is vital to highlight that physicians in the US have higher rates of suicide and substance abuse than people in other professions, and than the population in general (Lee, Brown & Cabrera, 2017). In the US at least one physician every twenty-four hours, or up to 400 physicians per year, commit suicide (Harolds, Parikh, Bluth, Dutton & Recht, 2016; Lee, Brown & Cabrera, 2017), and 6.5% of all physicians in the US report experiencing recent suicidal ideation (Shanafelt et al., 2011). It is not unreasonable to characterize that physicians' experience of compassion fatigue and burnout is significant.

It is interesting to note Schrijver's (2016) finding that many physicians in the US have a tendency to tolerate the symptoms of burnout, sometimes for long periods – possibly because these symptoms develop gradually (Moss et al., 2016). This problematic coping mechanism may begin as early as when a physician is in medical school (Maslach & Leiter, 2016; Lee, Brown & Cabrera, 2017). It is also important to highlight that the effects of compassion fatigue and burnout in physicians are not self-limiting, and result in an uncertain prognosis for physicians and their future in the medical profession (Epstein & Privitera, 2016).

In the patient context, the literature suggests that compassion fatigue and burnout among physicians may result in increased risk of patient harm, including through physician error and delivery of substandard care (Fahrenkopf et al., 2008; West, Dyrbie, Erwin & Shanafelt, 2009; West, Tan, Habermann, Sloan & Shanafelt, 2009). This can be seen, for example, in a

recent study conducted in the US by Tawfik et al. (2017), which found there to be a moderate correlation between burnout prevalence among physicians and risk of hospital-acquired infection. The correlation between physician burnout and poor patient outcomes is understood to be due to safety lapses, underpinned by impaired attention, lack of recall, poor decision-making and/or reduced focus, etc., which may all affect physicians with compassion fatigue and/or burnout (Lyndon, 2016). Moss et al. (2016) suggest this relationship is bidirectional, with errors leading to burnout, and burnout leading to subsequent errors. In a study among US surgical physicians specifically, Shanafelt et al. (2009) found that 8.9% reported concerns they had made a major error in the previous 3 months, and that burnout in particular corresponded in a 5% increase in physicians' self-reported rates of medical errors.

As noted by Shannon (2013), “physician...dissatisfaction and burnout have a profound negative affect on the patient experience of care”. Physicians who experience compassion fatigue and/or burnout frequently report detachment from, and/or indifferent or negative attitudes towards, their patients and, via depersonalization, come to view them as ‘objects’ (Shannon, 2013; Lyndon, 2016). This detracts significantly from physician-patient relationships, interaction and communication (Lyndon, 2016), a problem ultimately underpinned by a lack of empathy from physicians (Bodenheimer & Sinsky, 2014). This can be seen in a recent study which found that pediatric physicians who experienced burnout in particular were more likely to have negative patient care attitudes and behaviors – including, for example, discharging patients early to make service delivery more manageable, not fully discussing treatment options to patients, avoiding answering patients’ questions, and consciously ignoring the social or personal impact of an illness on a patient, etc., and this has had a significant negative impact on patient care (Baer, Feraco, Sagalowsky, Williams, Litman & Vinci, 2017). Among physicians in the US, burnout in particular is associated with reduced adherence to treatment plans and subsequent negative clinical outcomes (Bodenheimer & Sinsky, 2014).

In the organizational and system context, the literature suggests that compassion fatigue and burnout among physicians may result in threats to the achievement of successful health care reform (Dyrbye & Shanafelt, 2011); declining work-related satisfaction, and reductions in professional work effort and productivity (Shanafelt et al., 2016b); increased rates of intention to leave and subsequent attrition, with increased pressures on physicians who remain (Williams et al., 2010; Wasserman, 2016); and reduced professionalism (Harolds et al., 2016), etc. Each of the problems caused by compassion fatigue and burnout discussed in this section represents a significant cost burden to the healthcare organizations and, more broadly, the healthcare system. Although there are no cost estimates from the US, a recent study from Canada, a broadly comparable international setting, estimated the cost of burnout among physicians – measured in terms of early retirement and reduction in clinical hours alone – to be the equivalent of approximately US$160 million (Dewal, Jacobs, Thanh & Loong, 2014).

V. Causes and Determinants

Compassion fatigue and burnout are, ultimately, a consequence of long-term, work-related stress (Schrijver, 2016), usually over multiple consecutive months (Epstein & Privitera, 2016). Compassion fatigue and burnout are thought to occur due to a complex interplay between individual and organizational factors, which result in physicians experiencing issues such as a high burden of responsibility, low perceived control and unsupportive work environments, etc. (Epstein & Privitera, 2016). There are both personal and organizational factors which contribute to a physician's experience of compassion fatigue and burnout:

The personal factors which may contribute to a physician's experience of compassion fatigue and burnout include experience of *moral distress*, where organizational constraints impact a physicians' capacity for ethically-appropriate practice (Austin, Saylor & Finley, 2016); high levels of cognitive rigidity and subsequent compromised adaptability (Epstein & Privitera, 2016); low levels of emotional intelligence, and subsequent inability to moderate stressors (Lin et al., 2016); low perceived meaning to work (Shanafelt et al., 2016c); low perceived control of

modifiable work factors, and few rewards for work-related effort (Maslach & Leiter, 2016); competing work and life demands, resulting in a skewed work-life balance (Menaker et al., 2016); chronic sleep deprivation (Wasserman, 2016); and a tendency for idealism, perfectionism, self-criticism, neuroticism, and over-commitment (Moss et al., 2016), etc.

As noted by Shanafelt et al. (2012), "the fact that almost one in two US physicians has symptoms of burnout implies that the origins of this problem are rooted in the environment and care delivery system". The organizational factors which may contribute to a physician's experience of compassion fatigue and/or burnout include the experience of work-related psychological stressors, such as a need to make ethically complex decisions and provide end-of-life care, etc. (Brant, Wetherell, Lightman, Crown & Vedhara, 2010); a lack of opportunity for personal recovery between shifts (Cranley, Cunningham & Panda, 2016); mounting pressures to increase the efficiency and productivity of healthcare delivery (Epstein & Privitera, 2016; Menaker et al., 2016); an intolerance of, and stigma about, compassion fatigue and burnout, both among colleagues specifically and within the organization generally (Epstein & Privitera, 2016); a culture of inequity and discordant values, etc., which may have a 'contagion' effect in terms of the development of compassion fatigue/burnout (Maslach & Leiter, 2016; Moss et al., 2016); poor professional relationships, both with colleagues and patients / families (Moss et al., 2016); and excessive workload – which may be defined in a variety of ways, including as length of shift, and time since last non-working period, etc. (Moss et al., 2016), etc.

It is important to highlight that many organizational factors, which may contribute to a physician's experience of compassion fatigue and/burnout – perhaps more so than the personal factors – are modifiable (Moss et al., 2016). Therefore, Lee, Brown and Cabrera (2017) suggest that it is the responsibility of healthcare organizations in the US to respond to burnout at an institutional level, using the strategies described in this section and / or others similar. This is particularly important considering that wellness programs directed by healthcare organizations to address physician compassion fatigue and/or burnout are recognized to offer the best

outcomes in terms of sustained improvement in physician wellness (Lee, Brown & Cabrera, 2017).

VI. Future Proposals – Prevention and Intervention Strategies

As noted by Moss et al. (2016), "currently there are no large randomized controlled trials that have examined strategies to prevent or treat burnout [or compassion fatigue] in [healthcare] professionals", either in the US specifically or internationally. However, the literature selected for inclusion in this review identifies a number of key prevention and intervention strategies, which may be effective in addressing compassion fatigue and burnout in physicians. These can be thought of as: (1) individual-level strategies – to help physicians better cope with their work environment (for example: mindfulness-based interventions, communication skills training, small group / peer support strategies, and personal changes related to psychological outlook and lifestyle behaviors, etc.), and (2) organization-level strategies – to improve the work environment itself (for example: duty-hour change, changes in response to the 'Quadruple Aim', awareness-raising and destigmatization, and broader organizational culture changes, etc.) (Maslach & Leiter, 2016; West et al., 2016). These strategies are described in detail in this section of the review.

Individual-Level Strategies

Mindfulness-Based Interventions: Mindfulness is defined in the literature as "the intentional act of paying attention, in the present moment, without judgment" (Taylor, Hageman & Brown, 2016: p. 374). Epstein and Privitera (2016) suggest that mindfulness-based interventions may be effective in the prevention and / or management of compassion fatigue and burnout because they can enable physicians to identify the symptoms of these conditions, and also the factors which contribute to these conditions, in their early stages, thus enabling a proactive response. Mindfulness-based interventions may be delivered to physicians in a variety of ways; because physicians often experience time-paucity, Taylor et al. (2016) provide evidence to suggest that a brief mindfulness-based intervention delivered via a smart phone

application may be effective in this context. The literature suggests that mindfulness-based interventions can result in statistically-significant improvements in physicians' experiences of burnout (Krasner et al., 2009; Regehr, Glancy, Pitts & LeBlanc, 2014), reducing the absolute risk of burnout by 6% in one systematic review of US and international studies – although this was a statistically non-significant finding (West et al., 2016). Mindfulness-based interventions may also have other positive effects on physicians' experience of compassion fatigue and burnout – for example, improving the quality of their sleep (Kemper, Mo & Khayat, 2015). In a study among physicians in the US, Goldhagen, Kingsolver, Stinnett and Rosdahl (2015) suggest that those who may benefit the most from mindfulness-based interventions are young, relatively inexperienced physicians, who may be more receptive to such interventions.

Communication Skills Training: Although there are a variety of different approaches to communication skills training for physicians, all have the fundamental aim of improving clinicians' capacity to communicate with patients and, subsequently, to improve the quality of care they deliver to these patients (Regehr et al., 2014; Boissy et al., 2016). The literature suggests that communication skills training can result in statistically-significant, and sustained, improvements in physicians' experiences of burnout; for example, Boissy et al. (2016) report that US physicians who participated in a communication skills training program had subsequent improvements in all three measures of burnout on the MBI. However, it is important to highlight that these positive findings are not consistent in the literature. Ghetti, Chang and Gosman (2009) found that physicians who participated in a structured communication program had no significant changes in their burnout and empathy scores at 12 months. Communication skills training would benefit from a systematic review and meta-analysis, including studies conducted in international settings, to draw more robust conclusions about effects on physicians' experience of compassion fatigue and burnout.

Small Group / Peer Support Strategies: As with the strategies discussed previously, there are a variety of different approaches to delivering small group strategies to reduce

physicians' experience of compassion fatigue and burnout; such strategies may be delivered by the healthcare organization itself, or by an external organization. One example of such a strategy is that reported by Winkel, Hermann, Graham and Ratan (2010), which involved physicians participating in reflective, didactic writing workshops with their peers. Although there was a downward trend in the burnout scores, as measured by the MBI, among the physicians participating in this intervention, this was not found to be statistically significant (Winkel et al., 2010). Goodman and Schorling (2012) describe a group-based intervention of programmed mindfulness/meditation activities and a retreat for physicians, and found that physicians who participated in this program had subsequent improvements in all three measures of burnout on the MBI. Again, these conflicting results suggest that small group strategies as an approach to preventing and / or managing compassion fatigue burnout among physicians would benefit from a systematic review and meta-analysis, including studies conducted in international settings, to draw more robust conclusions about effects on physicians' experience of compassion fatigue and burnout.

Personal Changes: The literature suggests that physicians may make a variety of personal changes to reduce their risk of compassion fatigue and burnout. These include, for example, utilizing psychological interventions to promote cognitive reappraisal, perspective-taking, self-understanding and resilience (Epstein & Privitera, 2016; Maslach & Leiter, 2016); developing practical coping skills such as conflict resolution and time management (Maslach & Leiter, 2016); engaging in reflective processes and practice (Menaker, 2016); and utilizing relaxation strategies (Maslach & Leiter, 2016), etc. Lifestyle strategies, such as developing social support networks, and participating in self-care activities (e.g. healthy diet, physical activity, counseling, spiritual practices, hobbies, etc.), may also be important in reducing physicians' experience of burnout and compassion fatigue (Blackwater et al., 2016; Maslach & Leiter, 2016; Moss et al., 2016; Lee, Brown & Cabrera, 2017). As suggested by Menaker (2016), it is reasonable to assume that physicians will require some degree of education to

implement the strategies discussed in this section (Menaker, 2016), and it reasonable to assume that this may be provided in some form by the healthcare organization. It is important to note that the efficacy of these strategies in reducing physicians' experience of compassion fatigue and burnout have not been tested, and further empirical research would be beneficial.

Organizational-Level Strategies:

Duty-Hour Changes: In 2003, limits to US physicians' work hours were introduced in legislation with the aim of mitigating fatigue-related medical errors (Kim & Wiedermann, 2011). Subsequent studies suggest that this has resulted in statistically significant improvements in physicians' experiences of burnout (Kim & Wiedermann, 2011; Wasserman, 2016). However, it is important to highlight that these positive findings are not consistent in the literature. Two recent studies found no significant positive *or* negative impacts on a number of items which may cause and result from compassion fatigue and burnout in clinicians (e.g. fatigue, lack of sleep, depression, medical errors, etc.) (Landrigan et al., 2008; Ripp, Bellini, Fallar, Barazi, Katz & Korenstein, 2015), and another reported that duty hour changes may have resulted in an overall *increase* in physicians' burnout scores, for reasons that are unclear. A meta-analysis which pooled the findings of a number of these studies reported that duty-hour changes resulted an overall reduction in the risk of burnout in physicians from 62% to 50% (West et al., 2016).

Thus, in the US there is cautious support for further changes to physicians' work patterns – including in relation to total hours of work, minimum rest breaks and overtime – as well as interest in interventions involving the redesign of job tasks (Maslach & Leiter, 2016). Lee, Brown and Cabrera (2017) suggest the latter may involve, for example scheduling physicians' shifts, and – if relevant – the numbers of patients physicians are expected to see per shift – in a manner that allows physicians to receive adequate rest and avoid becoming overwhelmed by the pace of their work. However, such interventions require further study.

The 'Quadruple Aim': Recently, the Triple Aim initiative – which involves: (1) improving patients' experience of care, (2) improving population health, and (3) reducing the per capita

costs of healthcare provision – was introduced into the US. Recently, a fourth aim has been introduced – that is, improving healthcare professionals' wellbeing, including in terms of reducing their experience of compassion fatigue and burnout – thus creating the Quadruple Aim initiative (West, 2016). West (2016) suggests that it is necessary for the responsibility for physicians' wellbeing to be "shared by both individual physicians and the healthcare systems in which they impact patients". Bodenheimer and Sinsky (2014) hypothesize that the Quadruple Aim initiative will have a significant positive impact on patients' experience of physicians' care; however, there are no studies which have explicitly tested this. In order for the Quadruple aim to be implemented effectively,

Awareness Raising and Destigmatization: The Hippocratic oath, taken by all physicians in the US on their admission to the medical profession, states that physicians must have "an awareness of [their] own frailty" (Blackwelder et al., 2016). As explained by Lee, Brown and Cabrera (2017), when a physician recognizes the early signs of burnout, either in themselves or in their colleagues, they are more able to be proactive in responding to the problem. Awareness-raising may also help to reduce the stigma about compassion fatigue and burnout which is pervasive in the US healthcare system (Blackwelder et al., 2016).

Epstein and Privitera (2016) suggest that healthcare organizations have a fundamental role in awareness-raising in relation to compassion fatigue and burnout by monitoring levels of these in their physician workforces, and disseminating findings. One example of a successful screening and awareness-raising program for compassion fatigue and/or burnout among physicians in the US is that conducted by Moutier et al. (2012), which involved physicians in one healthcare organization self-identifying to participate in a screening process using a validated tool, and those identified to be at risk of, or experiencing, compassion fatigue and/or burnout referred to appropriate support services. It is important to highlight that this study found just 17% of US physicians identified to be at risk of, or experiencing, compassion fatigue and/or burnout accepted a referral for further support (Moutier et al., 2012). This points again to the importance

of destigmatizing compassion fatigue and burnout among physicians in healthcare organizations (Blackwelder et al., 2016), an outcome which may be achieved through interventions such as, for example, staff education (Moutier et al., 2012).

Organizational Culture Changes: The literature suggests that there are a variety of changes to the work environment which may be beneficial in reducing compassion fatigue and / or burnout. In particular, the literature supports the creation of work environments which foster collaboration among physicians (Maslach & Leiter, 2016); this may involve, for example, organizational managers shifting towards teamwork-based models of care (Lee, Brown & Cabrera, 2017),and the provision of mentoring support to physicians . A systematic review conducted by Aronsson et al. (2017) found that work environments which facilitate job control in particular, and – though to a lesser extent – recognition of effort, manager and co-worker support and job security, may mitigate the risk of compassion fatigue and burnout among physicians. However, it is important to note that there is currently few published empirical studies which provide evidence for these strategies in reducing compassion fatigue and burnout among physicians, nor describing how these strategies can be implemented in practice.

VI. Discussion and Implications

Compassion fatigue and burnout are significant problems among physicians in the US. At least 55% of US physicians experience at least one symptom of compassion fatigue and/or burnout, and the rates of both conditions among US physicians are increasing. Compassion fatigue and burnout result in significant negative impacts at the individual, patient, and healthcare organization/system levels – including reduced psychosocial wellbeing among physicians, declines in the safety and quality of patient care, and major economic costs to healthcare organizations and systems. Thus, compassion fatigue and burnout among physicians in the US are recognized to be problems of broader relevance to US society. A number of leading national bodies have issued calls for the problem of compassion fatigue and

burnout among physicians in the US to be urgently addressed (American Academy of Family Physicians, 2014; Moss et al., 2016).

This review has presented a broad range of strategies which may be effective in preventing and managing compassion fatigue and/or burnout in physicians in the US – including both individual and organization level strategies. That such strategies are being debated and tested in the literature is an important first step in responding to the problem of compassion fatigue and/or burnout in clinicians in the US.

A recent systematic review and meta-analysis pooled findings about the impacts of a number of the strategies reported in this paper to prevent and manage compassion fatigue and/or burnout in physicians in the US (West et al., 2016). This study suggests that these strategies may result in an absolute reduction in the risk of burnout among physicians by 10%, a statistically-significant finding (West et al., 2016). In the case of burnout specifically, these interventions have a particularly positive impact on a clinicians' experience of emotional exhaustion (a 30% relative risk reduction) and depersonalization (a 12% relative risk reduction) (West et al., 2016); a significant findings, considering emotional exhaustion and depersonalization are factors which underpin issues such as risk of patient harm through physician error, and poorer quality of patient care, etc.

It is important to note that there is no single 'gold standard approach' recommended in the literature for the prevention and management of burnout and compassion fatigue in physicians in the US. Rather, the literature suggests that "various carefully planned approaches seem useful" (West et al., 2016). Considering the significant heterogeneity which exists in the large, complex healthcare system in the US, it is reasonable to suggest that strategies selected to prevent and/or manage compassion fatigue and burnout in physicians should be physician- and organization-specific – that is, targeted to the unique context in which they will be implemented. Regardless of the strategies that are selected for implementation, however, ultimately the focus of these strategies should be on the promotion of physicians' broader

wellbeing, rather than simply the prevention and management of burnout (Eckleberry-Hunt, Kirkpatrick, Taku, Hunt & Vasappa, 2016).

It is also important to highlight that cost-effectiveness analyses were *not* reported in relation to any of these interventions in any of the literature retrieved for this review, and this is a significant limitation of both this review and the broader evidence on the topic. Considering that the cost of burnout among physicians – measured in terms of early retirement and reduction in clinical hours alone – is estimated to be the equivalent of approximately US$160 million (Dewal et al.,, 2014), it is reasonable to assume that the implementation of *any* of the strategies to reduce compassion fatigue and burnout in physicians described in this review – provided that: (1) these are not particularly resource-intensive, and (2) they result in a positive impact in physicians' experience of compassion fatigue and burnout – is a wise investment. However, future comprehensive economic analyses will need to be undertaken in order to further inform the implementation of these strategies.

This review has made a strong case regarding the importance of the problem of burnout and compassion fatigue among physicians in the US and, subsequently, has established a strong argument to invest meaningful resources to combat this problem. The implications of addressing compassion fatigue and burnout among physicians in the US will be significant, and can be considered inverse to the negative impacts of compassion fatigue and burnout described throughout this paper – including, for example, increased physician psychosocial wellbeing, increases in the safety and quality of patient care, and a reduction in economic costs to healthcare organizations and systems. Ultimately, this would represent an effective response to a problem of broader societal relevance in the US.

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