Work 57 (2017) 517–527
DOI:10.3233/WOR-172576
IOS Press

Occupational therapists' experience of workplace fatigue: Issues and action

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Received 15 June 2016
Accepted 4 December 2016

Abstract.
BACKGROUND: Occupational therapists (OTs) work in all areas of health and wellbeing. The work is physically and psychologically demanding, but OTs are often not diligent about recognizing and attending to the workplace health and safety issue of fatigue in their own work settings.
OBJECTIVE: The purpose of this paper is to determine current issues and the evidence-base as presented in the literature so as to develop awareness and best practice interventions for fatigue reduction and management in occupational therapists' workplace.
METHODS: A comprehensive search strategy was carried out by the medical librarian on the study team and themes were extracted from the relevant literature by the study team.
RESULTS: The literature revealed little research directly addressing occupational therapy workplace fatigue and we expanded our review of the evidence-base across all healthcare workers to identify publications of particular relevance to occupational therapists.
CONCLUSION: This background paper is an important first step to raising awareness among OTs, guide key stakeholders regarding contributing factors to, and consequences of, OTs' workplace fatigue, and set research direction. Knowing which factors influencing workplace fatigue are shared across healthcare professionals and which are unique to OTs can also help organizations develop more tailored workplace fatigue risk reduction programs. This review concludes with a list of existing guidelines and tools for developing workplace fatigue risk assessment and management programs relevant to occupational therapists.

Keywords: Work-related injury, burnout, psychological health, occupation, healthcare professional

1. Introduction

Occupational therapists (OT) provide functional assessment and interventions to patients and clients ranging from premature infants in intensive care across the life span to older adults with dementia, and from community non-profit organizations working with children living on the street to national railways delivering back pain prevention programs [1]. Their jobs are physically and cognitively demanding. Also, because of the often long-term relationships with complex patients and clients, and the significant losses often experienced by these clients and their families, OTs' work can be emotionally demanding as well. The concept of workplace health and safety (WHS) is included in OTs' pre-qualification university curriculum, and practicing OTs are alert to WHS issues that need to be addressed for the wellbeing of their patients and clients [2]. Unfortunately, it appears OTs are often not as diligent about recognizing and attending to certain WHS issues in their own work settings. There is a small, but informative, body of literature exploring OTs experience of physical injury in the workplace [3–8]. Yet, it is only recently that

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workplace fatigue has emerged as a concern as it relates to healthcare providers, including OTs, themselves [9]. The existing fatigue literature relating to healthcare workers focuses almost exclusively on hours of work and shift work [10, 11]. However, the vast majority of the close to 16,000 occupational therapists in Canada [12] do not work shifts. As such, the context of fatigue in the occupational therapy workplace needs to be explored more broadly. This is an important topic given that fatigue is considered to be a risk factor for worker burnout [13] and the few studies that have been conducted on burnout in the occupational therapy profession consistently demonstrate occupational therapists rank high on formal assessments of burnout [14–16]. A Statistics Canada survey revealed that 47% of occupational therapists found most days at work "quite" or "extremely" stressful and ranked occupational therapists as the seventh most stressed healthcare providers behind nurses, medical lab technicians, and specialist and family physicians [17].

Encouragingly, stakeholders understanding of the complexities of workplace fatigue is shifting and growing. The Mental Health Commission of Canada, working with the Canadian Standards Group, took a particularly important step in developing the voluntary standard outlined in *Psychological Health and Safety in the Workplace* [18]. Examples of how this standard is being enacted are wide-ranging in medical and nursing literature [19–21] and include discussion of the role that fatigue risk assessment and management plays in the psychological well-being of healthcare workers. What is less clear is to what extent this literature is relevant to occupational therapists and what, if any, unique factors need to be considered. The primary goal of this paper is to present the findings of a literature review of workplace fatigue research relevant to occupational therapy practice. This review provides stakeholders with a much-needed foundation upon which to build targeted research, education and policy development initiatives.

2. Method

To ensure a comprehensive review, we adopted the workplace fatigue definition presented by the Canadian Nurses Association (CNA) Position Statement *Taking Action on Nurse Fatigue* [22]. This definition expands and contextualizes the definition of workplace fatigue as it applies to healthcare workers and emphasizes the significant interplay between physical, cognitive and emotional domains. Of particular importance to searching for materials relevant to workplace fatigue as experienced by OTs are the sections of the CNA definition stating that workplace fatigue is:

> ... a subjective feeling of tiredness ... that is physically and mentally penetrative. It ranges from tiredness to exhaustion, creating an unrelenting overall condition that interferes with individuals' physical and cognitive ability to function to their normal capacity. It is multidimensional in both its causes and manifestations; it is influenced by many factors: physiological (e.g., circadian rhythms), psychological (e.g., stress, alertness, sleepiness), behavioural (e.g., pattern of work, sleep habits) and environmental (e.g., work demand). Its experience involves some combination of features: physical (e.g., sleepiness) and psychological (e.g., compassion fatigue, emotional exhaustion). It may significantly interfere with functioning and may persist despite periods of rest [22 : 1].

A comprehensive review of the literature for combinations of the key search terms "occupational therap*"; "fatigue"; "workplace"; "work-related"; "injury" and "psychosocial" was carried out by the medical librarian on the team. We included only peer-reviewed research articles, excluding book chapters and theoretical papers. We also searched the grey literature for guidelines, reports, and papers whose reference lists may have included research publications. As we were specifically interested in fatigue, we also excluded results related to any other workplace injuries or negative incidents unless a review of the abstract identified that the concept of fatigue, as defined above, was included in the paper. There were no limitations set on the years searched. The final search was carried out October 2014 on electronic databases (SCOPUS, PubMed, MedLine, CINAHL, Web of Science, Google Scholar, GreySource).

3. Findings

Our search generated only two specific references to occupational therapists' workplace fatigue. In Alnaser's qualitative study of psychosocial aspects of work-related musculoskeletal injuries, OTs commented that long hours of patient contact contributed to fatigue [23]. Similarly, OTs in Darragh, Campo

and King's study of work-related activities associated with injury commented that fatigue was a contributing factor to injury [3]. There was no discussion in these papers specific to the components or origins of the fatigue, and the researchers commented only that fatigue was a contributing factor for workplace injury. These limited findings specific to occupational therapists' experience of workplace fatigue were supplemented with research on other healthcare professionals. To achieve this expanded search, the medical librarian removed the search term "occupational therapy" and reran the search on the same databases.

Additionally, over the course of the project, we provided in-service training on the topic of workplace fatigue to occupational therapists. Some participants left comments anonymously on the in-service evaluation and feedback forms. As such they were not gathered for research purposes, and we were not able to identify who the comments were from. Where relevant to this review we incorporated these comments in a summarized form in the Findings section.

Key findings emerged included: distinction between the related concepts of burnout and workplace fatigue; OTs' practice of 'gap-filling'; helping work and psychological/emotional fatigue; sleep deficiency; ethical behavior; increased risk of injury; fertility and health; fatigue and unsafe driving; role ambiguity and role conflict; peer pressure and workplace culture; decision-making and autonomy; technology; age of workforce; and lifestyle risk factors. Additionally, although the literature in much sparser in this area, potential restorative factors were identified including: the role of the family; compassion satisfaction; and, multigenerational workplaces. Each of these areas will be expanded below.

3.1. Burnout

While fatigue is proposed by some researchers to be related to burnout [13] the two are not interchangeable concepts. Fatigue, as it relates to burnout, is primarily concerned with emotional exhaustion [24] whereas fatigue as defined for this paper (see Methods section above) "ranges from tiredness to exhaustion, creating an unrelenting overall condition that interferes with individuals' physical and cognitive ability to function to their normal capacity" [22]. The limited literature that exists specific to occupational therapists focuses on the singular aspect of workplace fatigue, burnout. In the burnout and occupational therapy literature, Gupta et al. [14] present evidence of significant levels of emotional exhaustion, cynicism, and perceived low professional efficacy among the 76 Canadian OT participants in their study. The construct of "burnout" includes the three inter-related domains of emotional exhaustion, depersonalization/cynicism, and personal accomplishment as detailed by Maslach in her seminal work on burnout [24]. While Gupta's work [14] and other studies of OTs' experience of burnout are useful, the concepts of burnout and workplace fatigue are related but not interchangeable constructs. Fatigue must be understood from both psychological and physical domains, cognizant that physical fatigue is different that emotional fatigue and is not under voluntary control such that it can be willed away or overcome by strength of character. Rather, it is governed by physiological mechanisms related to sleep, sleep loss and circadian rhythm [25]. The authors, while leading fatigue awareness and risk management in-services for occupational therapists, noted that participants' comments routinely aligning with the features of fatigue detailed in the CNA definition [22]. For example, we heard frequent comments about a perceived relationship between fatigue and problems with higher cognitive demands such as goal setting and problem solving. Concerns over driving while fatigued were expressed, as were perceptions that the need to stay current and provide comprehensive, evidence-based, best practice when working with patients was an often unachievable and fatiguing goal. Therapists also expressed a concern to the authors that fatigue made them less compassionate towards patients and increased their irritation and frustration with work and co-workers in general. Some comments about the workplace physical environment (noise, temperature, crowding) as it relates to fatigue were shared with the authors during educational in-services but less commonly than those expressing emotional and cognitive concerns.

3.2. Gap-filling

The reason workplace fatigue appears to have received minimal attention from OTs is unknown. However, Fortune [26] points out that OTs appear to share a professional ethos of "filling the gaps"' when shortages of workers in the healthcare system are present. This value may translate into an internalized expectation that one's professional self-worth is more related to continuous "doing", as opposed to seeking balance and workplace wellbeing. Molineux [27] speculates that this value, and

practice, of "gap-filling" actually contributes to role blurring, role overlap, and role ambiguity. Role blurring and ambiguity are known to be contributing factors to workplace fatigue [28] and will be discussed in greater depth in the relevant section below.

3.3. Helping work and psychological/emotional fatigue

Among the several domains encompassed by the term "fatigue," the psychological aspect of "helping work" warrants further mention: OTs' experiences of workplace fatigue go beyond long hours, shift work and physically demanding tasks. *Compassion fatigue*, a term which embraces elements of workplace fatigue, burnout, and *secondary traumatic stress* (also termed *vicarious trauma*), results from workplace exposure to the suffering and trauma of other people [29–33]. *Emotional fatigue/exhaustion* is the perception that one's emotional resources have been completely expended [34]. Several studies involving nurses reported higher levels of psychological fatigue than physical fatigue over the course of a regular shift [22, 35] and comments shared by OTs with the authors at educational in-services seem to reflect this same pattern. This is not surprising, and the 2013 Canadian Standard commissioned by the Mental Health Commission of Canada, *Psychological health and safety in the workplace,* [12] clearly points out that stigma and lack of understanding about psychological fatigue in the workplace are prevalent and significant barriers to many healthcare workers' seeking help. It appears that psychological fatigue, although often overlooked, needs to be considered an integral aspect of all workplace fatigue health and safety investigations and management programs.

3.4. Sleep deficiency

Sleep deficiency is a hallmark feature in all domains of workplace fatigue. Coupled with the fact that the American Centre for Disease Control (CDC) called sleep deprivation a public health epidemic [36] to which healthcare providers are not immune, sleep deficiency, as both a consequence and a contributing factor in occupational therapists' workplace fatigue, warrants careful examination. On average, people need 7.5 to 8.5 hours of sleep per 24 hour period [35–37]. Six or fewer hours of sleep daily is considered to be insufficient [37, 38]. In 2007, researchers concluded that over 31% of US healthcare providers were sleep-deprived and, many, chronically fatigued [37].

The literature is rife with examples of the effect of sleep deficiency on workplace performance, personal health, and overall wellbeing. Short-term physical effects of sleep deficiency include involuntary falling asleep for short periods (micro-sleeps), reduced hand-eye coordination and visual perception, slower reaction times, increased errors in repetitive tasks, increased tension, and loss of appetite [28, 35, 38, 39]. Short- and long-term cognitive effects include difficulty concentrating, irritability and loss of empathy, poor judgment and decision-making, reduced capacity for effective interpersonal communication, reduced vigilance, and impaired memory [28, 38–40].

3.5. Fatigue, sleep deficiency, and ethical behaviour

While the physical, cognitive and performance consequences of sleep deficiency are generally well-known, research highlighting the relationship between lack of sleep and individuals' unethical behavior is emerging. This is a novel, but *extremely* relevant, finding for occupational therapists. For example, a study of 80 undergraduate business administration students found a statistically significant relationship in the female study participants between sleep deprivation and cheating [41]. A second study, reported in the same paper, involving 182 worker/supervisor pairs (workers' mean age-37.4 years) found that sleep deficiency has a significant negative relationship with supervisor-rated unethical behavior [41]. These findings may be particularly relevant, given that 35.5% of Canadian OTs are in their mid-thirties (mean age of the study participants) and that OT is a predominantly female profession [42]. The Canadian Association of Occupational Therapists (CAOT) *Code of Ethics* clearly states that ethical behavior and integrity are core expectations of professional practice [43]. However, sleep deficient workers with increased risk of impaired insight about unethical behaviors are reported to fall back on less cognitively demanding coping skills such as rationalization [41]. An example of an additional consequence of ongoing sleep deficiency appears to be an increased likelihood of prejudicial thinking and decisions based on racial stereotypes [44]. Researchers propose a "resource depletion" explanation such that when fatigue becomes chronic and the resource of sleep is depleted,

individuals are less able to repress lower order, prejudicial, thinking. Occupational therapists work in diverse and challenging situations and with patients from many cultures, social and ethnic backgrounds; a high level of complex ethical decision-making is more the norm than the exception. For OTs, research into the relationship between fatigue, ethical decision-making and prejudice is clearly warranted.

3.6. Increased risk to patients, co-workers, and self

As detailed previously, workplace fatigue contributes to, and is exacerbated by, sleep deficiency. Studies comparing work performance in healthy participants after being kept awake for long hours and after consuming alcohol found that being awake for 17 hours was akin to having a blood alcohol level of 0.05% while being awake for 24 hours was similar to a blood alcohol level of 0.10% [28, 38]. Over a one-week period, nightly sleep of only two hours less than the optimal sleep time can lead to a reduction in work performance equal to that of being awake for 24 consecutive hours [45]. Workplace fatigue is also costly: in 2012, it was estimated that fatigue cost US employers $116 billion per year in lost productivity, workplace errors, absenteeism, insurance and workers compensation claims, and worker attrition resulting from illness, injury or the need for less demanding work [45].

3.7. Fertility and health

Long-term health effects of fatigue are reported to include a heightened risk for cardiovascular diseases, diabetes, obesity, gastrointestinal disorders, anxiety and/or depression, and overall susceptibility to illness [28, 38, 40, 46]. Chronic workplace fatigue has also been linked to fertility problems for men and women, as well as increased risk to mother and fetus during pregnancy [47, 48]. This is particularly concerning given that 54.1% of Canadian OTs are under the age of 40 [42] and many are starting families. Workplace fatigue is also clearly associated with higher rates of non-working injury, divorce, domestic abuse, and substance misuse [46] and its impact on family life can be extensive.

3.8. Driving safety

Driving is a further example of a workplace fatigue-related issue extending far beyond the hours of employment. Driving while fatigued was frequently mentioned to the authors by OTs at the educational in-services and comments reflected that OTs drove while ruminating on the day and while anxious about unfinished work. Their comments expressed concerns about the safety of passengers (particularly children), pedestrians and other drivers while they were driving fatigued and in a state of emotional upheaval. Fatigued drivers are dangerous drivers: in a 2011 survey, 10% of nurses had experienced a vehicle crash, which they believed to be a consequence of fatigue, during work commutes [38].

3.9. Workplace culture, decision-making, autonomy and role

Workplace fatigue in healthcare settings is frequently attributed to factors such as inadequate staffing numbers, relentless and excessive workloads, an older, sicker and more obese patient population, and work environments that force workers to engage in risky practices, endangering patients and themselves [38, 39, 46, 49, 50]. The most commonly cited factor is shiftwork; however, shiftwork is not a usual component of OTs' employment. Resource issues are more common; specifically, understaffing and its subsequent effect on workload and the ability to fulfill all aspects of one's professional role. Occupational therapists in educational inservices stated that their high caseloads prevented them from doing more than assessing and consulting. They were frustrated about not having the resources to implement treatment and 'do something' about the problem they identified. They also mentioned team members who were too quick to push for discharge and feelings of isolation as the only occupational therapist on the team. Occupational therapists, like other health care workers, feel overwhelmed by a perception that they are expected to deliver more and better services with fewer resources [28, 34, 39, 40, 45, 50, 51]. Fatigue risk factors associated with resource scarcity, role ambiguity, and role conflict are highly relevant to OTs. Playing multiple roles in the workplace and a sense of 'always feeling stretched' are known to contribute to an accumulation of mental stress and high levels of fatigue [28, 51–53]. Research indicates that stress and worry, both of which are antecedents to fatigue, occur not only when there is an *actual* loss of resources, but also when workers *perceive* threats to necessary workplace resources. Generally, among healthcare workers, worry about workplace conditions is high [54].

Peer pressure and workplace culture are identified in the literature as contributing to a situation in which great value is placed on endurance; for example, an employee may gain standing among his or her peers by being willing to work very long hours regardless of fatigue [28, 40]. Additionally, healthcare workers do not always recognize their own levels of fatigue, or it may be dismissed as the norm or even seen as heroic; statements acknowledging fatigue are, at times, viewed as unreasonable and unsupportive [46]. A related concept is *work addiction:* " . . . a dysfunctional and compulsive behavior with deep causes and outcomes impacting all aspects of life . . . in our society, work addiction is too often seen as an acceptable, even a desirable trait" [55 : 6]. Although work addicts appear to find praise for the high quantity of their output to be exhilarating, this practice is physiologically unsustainable. In a culture of being required to work to extreme limits, in combination with a personal addiction to work, or a self-image highly linked to work, chronic fatigue is inevitable.

Work situations characterized by high job demands and low decision latitude can also be major sources of fatigue and emotional exhaustion due to continuous stress with inadequate opportunity for recovery [34, 54, 56]. Positive effects occur when supervisor and social support increase, and when employees have control over more aspects of their jobs. Increasing decision-making capabilities and work autonomy allows workers to exert more influence over the stress-provoking areas of their work life [54, 56]. Occupational therapists are trained to apply a high level of autonomous and collaborative clinical decision-making but, anecdotally, this does not appear to be the norm in many workplaces and the consequences require more rigorous study.

3.10. Technology

Technology also contributes to healthcare worker fatigue; pagers and smart phones have workers constantly/often "on-call", and increase workers' anticipation of preparedness, and likelihood that sleep and leisure activities will be interrupted [37]. Increasingly, electronic remote access to the workplace is expected, such that workers literally bring their laptops and work to bed with them [37]. The Government of Alberta's guideline, *Best practices for the assessment and control of psychological hazard* [57] goes into great detail about the impact of technological change on healthcare workers' experience of workplace fatigue and points out the very technology that has improved patient care has also contributed to extra workplace stress and fatigue in the form of what has become known as "technostress." The guidelines identify several contributing factors of technostress of particular relevance in the OT workplaces; including rapid technological change without sufficient training, lack of standardization across technologies, higher expectations for the volume of work that can be generated, expectations of multi-tasking, pressure to adopt new technology regardless of perceived need, and feelings of decreased control over one's own output. Additionally, but equally significant, are the stressors of machine error and software problems with insufficient technologically skilled support staff.

3.11. Lifestyle and other factors external to the workplace

Several factors outside of the workplace contribute to fatigue in healthcare workers. Sleep may be disrupted by life style choices, the use of prescription drugs, stimulants such as caffeine, eating large meals before sleeping, and sleep-related illnesses like sleep apnea [37, 38, 40]. Alcohol may induce sleep quickly but results in a fragmented and non-restorative sleep for many [28]. Persistent fatigue is also linked to smoking, being single (especially widowed or separated), and physical inactivity during leisure-time [37, 38, 58].

The literature is equivocal about an aging workforce as a contributing factor in workplace fatigue. In Canada, 46.1% of occupational therapists are over the age of 40 with an average age of nearly 39 years [42]. The fatigue risk of juggling responsibilities for work, children, aging parents and other community obligations cannot be minimized. A study of physiotherapists found that younger practitioners (ages 20 to 29) reported more stressors causing fatigue and burnout than did older practitioners [51]. This is supported by a nursing study [59] that found older nurses experience less fatigue, likely due in part to successful adaptation to the nursing profession, as well as having an established family support system. These researchers concluded that nurses face significant challenges in the first years after graduation in adapting to the work demands of nursing while overcoming inexperience and developing practical work/life skills such as time management. It is reasonable to expect this pattern would be found in the OT profession as well.

3.12. Restorative factors

Several factors were identified in the literature as being restorative to healthcare workers' wellbeing at work, but much research remains to be done. For example, studies of the role of the family are inconsistent. A study of 846 Australian full-time nurses suggested that being part of a family has potential benefits in moderating work-related stress for nurses [60]. Although unanticipated, the researchers found that being part of a family reduced the risk of work stress evolving into fatigue even though the family sometimes created considerable additional demands. These findings are, however, not consistent across studies in other contexts and countries (for example [61, 62]).

Smart et al. [32] suggest that compassion satisfaction (the ability to receive gratification or pleasure from care-giving, and the feelings of positively contributing to the work setting, colleagues, and society) may serve a protective function against compassion fatigue. They found higher levels of compassion satisfaction were linked to higher self-efficacy beliefs, as well as a sense of community and healthy coping mechanisms. Some researchers stress the advantages of multigenerational workplaces to address fatigue where older, more experienced workers contribute wisdom and expertise, while younger workers bring enthusiasm, energy and technological capabilities [50, 63]. They recommend restructuring the workplace to facilitate this interrelationship as a mechanism to improve efficiency, provide mentorship, infuse energy and new ideas, and foster mutual support and creativity [50]. Encouragingly, research exploring management of multigenerational occupational therapy workplaces has begun and can offer some preliminary lessons and a foundation for further study [64].

4. Discussion

Identifying factors related to workplace fatigue is, in its self, insufficient. We need to develop assessment tools and interventions that address occupational therapists' needs such that they can be meaningfully incorporated into organizational workplace health and safety programs. The final goal of this review is to provide information about evidence-based recommendations that occupational therapists and stakeholders can employ to guide development of these programs within the context of diverse OT workplaces. The usual practice in WHS risk management is to first identify hazards/risks in a structured manner, followed by developing, implementing, and evaluating a range of actions to control hazards/risks (commonly referred to as 'controls'). The hierarchy of controls starts with directly removing/eliminating the risk if possible, followed by engineering and designing controls that reduce exposure to the risk (such as environmental modifications, changes in work location and work redesign). Subsequently, administrative controls (such as policies, procedures, training and work accommodations) may be required [65]. This same process of stepwise controls can be employed to develop fatigue risk reduction and management plans in the workplaces of OTs and other healthcare providers. Key risks are discussed in more detail in the following subsection and summarized in the Resources list below.

4.1. Fatigue risk identification, prevention, and management

At the level of fatigue risk identification standardized fatigue assessment tools exit for both the organizational level (e.g. *Queensland Health Fatigue Risk Management System Resource Pack;* [see Resource]) and the level of the individual worker (e.g. the *Occupational Fatigue and Exhaustion Recovery Scale-OFER15* [59]). Many publications focus control recommendations at the risk elimination level, calling for governments and health authorities to provide adequate funding to increase the number of healthcare workers and expand faculty at the post-secondary level, so an adequate number of healthcare workers will be trained and enter practice [39, 46]. Balancing resource and demand is critically important, however, and fatigue risk management is recognized to be a shared responsibility. Simply adding more workers to the system will not eliminate the problem. Workers' lifestyle choices, organizational cultures, and professional ethos also contribute to the risk for, and experience of, workplace fatigue. Successful fatigue risk management programs must incorporate all components, going beyond a focus exclusively on resources. For example, mindfulness-based stress reduction programs delivered to healthcare providers on the job site are one innovative approach to workplace fatigue management [66].

At the level of administrative controls, there is a general call for healthcare organizations and accreditation bodies to develop policy standards that mitigate

and manage fatigue [35, 39, 46, 50]. Successful development of policies requires consultation among employers, workers, and health and safety personnel. At a minimum, policy development about fatigue should require the organization to identify and document causal factors, perform a risk assessment, control risks by changing those conditions that cause fatigue, and then monitor the work environment and amend the policy as needed [35, 39]. The *Queensland Health Fatigue Risk Management System Resource Pack* (see Resources) provides a planning guide for fatigue risk management programs that could be used as a template within the OT profession.

Other administrative level controls that include wellness education programs specifically addressing workplace fatigue are also needed in healthcare organizations [46]. This is complicated because of the strong tacit healthcare culture of caring for others, as opposed to focusing on one's own health needs. Sustained change requires evidence-based knowledge translation strategies with clear investment at all levels, from management to front-line workers. Generally, fatigue risk management is recognized as a shared responsibility between the organization and the healthcare worker. Organizations bear the responsibility of arranging work schedules that provide opportunities for sufficient rest, providing training to support fatigue management, and implementing procedures for monitoring and managing fatigue within the workplace [28, 45]. Organizations should routinely examine "close calls" and incidents to determine to what extent fatigue may have played a causal or contributing role [38, 45].

Occupational therapists share responsibility in managing fatigue, but have minimal training in this area and often lack knowledge about the importance of personal lifestyle factors (such as vicarious trauma, sleep deprivation, and environmental-induced stress [38]). Thus, practicing OTs have a responsibility to obtain training, implement recommendations, and be better equipped to adopt healthier lifestyle and self-management practices and routines [28, 32, 38, 39]. Occupational therapists and other healthcare providers should be aware that their ethical responsibility to maintain fitness to practice includes fatigue risk management and participating in organizational, professional and personal opportunities to contribute to reducing the risk of workplace fatigue [28, 39]. Accompanying the responsibility to self-monitor is the professional obligation to report cases of fatigue in co-workers in accordance with professional practice expectations [28, 46]. At a national level, the university training accreditation process can require curriculum content specific to OTs' workplace fatigue recognition and management and in that way help future OTs be proactive and take preventative measures. A critical difference could be made in therapists' efforts to develop and implement fatigue management strategies if provincial regulatory bodies embedded personal fatigue management as a core competency for practice. Regional OT organizations can also play an important role in raising members' awareness of workplace fatigue issues and responsibilities among their members. One innovative example is the detailed workplace fatigue education and resource website (http://www.otfatiguesaot.info/) developed by the Society of Alberta Occupational Therapists (SAOT) and sponsored by Alberta Government Human Services, Occupational Health and Safety Program. Additional resources available in the public domain that can guide OTs, policy makers and researchers to address the pressing concern of workplace fatigue are summarized in the Resources list.

5. Conclusion

Occupational therapists are only beginning to recognize and address the complex issue of fatigue in their own practice and workplaces. This review is intended to raise awareness of the issue, introduce the relevant evidence-base, and provide resources for stakeholders to move forward in developing workplace fatigue risk management programs that are responsive to the need of OTs in their diversity of work settings.

Acknowledgments

The authors would like to thank the Alberta Society of Occupational Therapists (SAOT) and the *Increasing Health and Safety Knowledge Base in Regulated Health Professionals* project (Alberta Human Services, Government of Alberta) for financial support to complete this selective review.

Conflict of interest

None to report.

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