

# **Occupational Stress, Quality of Life, and Resilience in Paediatric Audiologists: A Cross-Sectional Study**

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## Abstract

*Aim:* The aims of this study were to identify factors associated with compassion satisfaction, burnout, and resilience in paediatric audiologists, to determine whether compassion satisfaction and resilience correlate with burnout, and to ascertain whether compassion satisfaction and resilience predict burnout. *Method:* An online survey consisting of demographic questions, the AOSQ, the ProQuoL5, and the CD-RISC-10 was completed by 32 clinical paediatric audiologists from nine countries. *Results:* No demographic variables were associated with burnout, compassion satisfaction or resilience. Twenty-six stress variables were positively associated with burnout, one stress variable was negatively associated with compassion satisfaction, and four stress variables were negatively associated with resilience. Both compassion satisfaction and resilience negatively correlated with burnout. Compassion satisfaction significantly predicted burnout level ( $R = 0.533$ ,  $R^2 = 0.284$ ,  $F(2, 29) = 5.75$ ,  $p = 0.008$ ). Although the result was in the same direction, resilience did not significantly predict burnout level ( $p = 0.152$ ). Together, these variables accounted for 28.4% of the variance in burnout. *Conclusion:* Many factors influencing burnout, compassion satisfaction, and resilience in paediatric audiologists were identified. The need for sufficient support resources both within and without the workplace was highlighted. Further research is necessary to conclusively determine which factors contribute to burnout and compassion satisfaction in paediatric audiologists and constitute resilience resources in adversity.

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## **List of Abbreviations**

ProQuoL	Professional Quality of Life
AOSQ	Audiology Occupational Stress Questionnaire
CD-RISC	Connor-Davidson Resilience Scale
J D-C	Job Demand-Control
J D-C-S	Job Demand-Control-Support
J D-R	Job Demand-Resource
MBI	Maslach Burnout Inventory
NICU	Neonatal Intensive Care Unit
ICU	Intensive Care Unit
CFS	Chronic Fatigue Syndrome
VE	Vital Exhaustion

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# Chapter 1: Literature Review

## Introduction

Professional quality of life in the helping professions is influenced by both the positive and negative consequences of helping (Stamm, 2010). Negative consequences of helping develop from exposure to occupational stress (Figley, 2002). If exposed over long durations to work-related stress, paediatric audiologists, like other healthcare professionals, are at risk of compassion fatigue (Berger et al., 2015; Branch & Klinkenberg, 2015; Brännström et al., 2016; Meyer et al., 2015; Severn et al., 2012). Compassion fatigue stems from the experiences of secondary traumatic stress and burnout (Stamm, 2010). Healthcare professionals experiencing burnout can no longer contribute to their patients' wellbeing to nearly the same degree. They are likely to underachieve in their work and may even leave their jobs altogether. Burnout, and the psychophysiological stress that leads to it, can also contribute to significant, persistent health problems (Black, 2002; Cohen et al., 2007; Proietti et al., 2011; Sciacchitano et al., 2001). However, not all healthcare professionals that undergo times of prolonged stress do develop burnout (da Nóbrega & Barboza, 2014). Some maintain high levels of engagement and experience pleasure in their work, even in the face of stress (Bakker & Albrecht, 2018; Ruiz-Fernández et al., 2020; Van den Broeck et al., 2010). A mediating factor which allows an individual to maintain or regain homeostasis in stressful circumstances, resilience may be a primary means by which healthcare professionals adapt to challenging circumstances at work (Ablett & Jones, 2007; Bonanno, 2004; Connor & Davidson, 2003; Richardson, 2002; Tusaie & Dyer, 2004). This study seeks to identify the demographic and stress factors that influence quality of life and resilience in paediatric audiologists, as well as demonstrate whether compassion satisfaction and resilience predict burnout.

## **Professional Quality of Life**

Professional quality of life (ProQuoL) is defined as the “quality one feels in relation to their work as a helper” (Stamm, 2010). Those that help may be teachers, social workers, emergency responders, those involved in law and enforcement, and healthcare professionals. Professional quality of life encompasses compassion satisfaction and compassion fatigue—the positive and negative consequences of helping, respectively.

Compassion, an emotional desire to lessen the suffering of another (López et al., 2018), is an important trait in healthcare workers, as it is a necessary ingredient to effectively address and alleviate the distress of patients (Sinclair et al., 2016). Compassionate care involves good communication, sensitivity, and insight, and is positively associated with compassion satisfaction (Kim & Lee, 2020). However, compassion fatigue hinders the healthcare professional from providing good care for their patients and engaging empathetically with them (Figley, 2002). In an email exchange with Peter Huggard, a New Zealand researcher who co-authored ‘First Do No Harm’ with Beth Hudnall Stamm, Peter described compassion fatigue as a state of being that arises out of experiences of secondary traumatic stress and burnout (personal communication, August 4, 2021). Driven by fear, secondary traumatic stress is more likely to be found in helping professionals who are first responders or who work daily with people in exceptionally traumatic life circumstances, for example, critically ill patients or abuse survivors (Stamm, 2010). Secondary traumatic stress is a phenomenon that develops quickly, often in response to a single traumatic event in the life of a person/the people they work alongside (Figley, 1995). Burnout, on the other hand, manifests as exhaustion, feelings of hostility and depression; develops over a much longer period; and is known to affect all helping professions.

While this research project will focus specifically on compassion satisfaction and burnout in paediatric audiologists, it is worth taking a moment to consider the historical

context of compassion fatigue. Three researchers, Pearlmann (1990), Figley (1995), and Stamm (1997), published seminal works on the related concepts of vicarious traumatization, compassion fatigue, secondary traumatic stress, respectively. However, it was the work of Figley (1995) that really brought ‘the cost of caring’ into the limelight. In their textbook, compassion fatigue was considered synonymous with secondary traumatic stress disorder, a kind of ‘secondary victimization’ experienced by professionals who work alongside those who have been affected by traumatic events. This view was initially taken by Beth Hudnall Stamm, in version 3 of her ProQuoL questionnaire. Later, Figley (2002) also defined compassion fatigue as a type of caregiver burnout. The conflation of compassion fatigue, secondary traumatic stress, and burnout in earlier literature is confusing; however researchers have more recently begun to treat these constructs as related yet distinct (El-bar et al., 2013) and to empirically demonstrate the relationships between these constructs (Alkema et al., 2008; Cieslak et al., 2014). This is necessary because there are differences in etiology, prevalence, symptoms, and treatment efficacy for each of the three conditions (Meadors et al., 2010). After years of research in this area, Stamm (2010), in version 5 of her ProQuoL questionnaire, proposed that burnout and secondary traumatic stress are two discrete experiences together contributing to compassion fatigue.

### **Models of Occupational Stress**

Many fine models of occupational stress have been developed to understand this broadly experienced phenomenon. Two of the most influential models will be discussed in this paper. The job demand-control (J D-C) model focuses on the interaction between the demands of the job and the control a person has within their job, otherwise called decision latitude (Karasek, 1979). The main hypothesis of this model is that while psychological demands, such as high workloads, time pressures, difficult tasks, or challenging patients,

increase stress, having the freedom to manage and define one's work alleviates the effects of such demands. Karasek et al. (1998) later added the dimension of support to the model, realizing that workplace support also buffers job strain.

Siegrist's effort-reward imbalance (ERI) model, published in 1996, proposes that a lack of reciprocity between effort put into work and rewards gained from work leads to emotional distress and adverse health outcomes. In Siegrist's initial study, low reward situations, in conjunction with expectations of high effort were shown to predict new cardiovascular events in blue-collar men. Many studies since have supported the association between unfavourable effort-reward ratios and negative health outcomes (Tsutsumi & Kawakami, 2004). The ERI model stands out from other stress models in the fact it includes extrinsic and intrinsic factors in its description of the psychosocial work environment's effect on health (Siegrist & Li, 2016).

The J D-C and the ERI models of occupational stress are complementary: the work stressors (Tsutsumi et al., 2001) and poor health outcomes (Bosma et al., 1998) measured by each model are independent from each other. The complementary nature of these models means that together they better predict health outcomes than independently (Siegrist et al., 2002). Recently, Brännström et al. (2013) found it helpful to use both models to determine the characteristics of the psychosocial work environment among Swedish audiologists (Brännström et al., 2013).

A central tenet of the J D-C-S and ERI models is that equilibrium between job-related resources and job-related demands is necessary for individuals to cope well with work stress (Schaufeli & Taris, 2014). Thus, demands can be thought of as risk factors for stress and burnout, while resources can be thought of as protective factors against stress and burnout. Based on thorough empirical testing, van Vegchel et al. (2005) argued that demands, in and of themselves, are not negative, but will lead to adverse outcomes for healthcare

professionals if not balanced by appropriate resources, such as autonomy, applicable skill-sets, financial rewards, or esteem. The job demand-resource (J D-R) model will be discussed more in the context of burnout, since it was developed as a heuristic framework to understand burnout and its counterpart, work engagement.

### **Contributors to Occupational Stress**

High demand, low resource situations in the healthcare professions can be due to extrinsic factors and intrinsic factors. Extrinsic demand factors include high workloads (Ewen et al., 2021), time pressures (Manderino et al., 1994), necessity of taking risks (Sibeoni et al., 2019), delivering bad news (Gold & Gold, 2021), challenging relationships with patients and their families (Walcott-McQuigg & Ervin, 1992), or difficult patient circumstances (McLeod, 1997). Extrinsic resource factors include understaffing (Frisch et al., 1991), perceived lack of job control (Basu et al., 2017), inadequate pay (Ewen et al., 2021), or lack of professional support (Blood et al., 2002). Intrinsic demand factors may include unrealistic work aims or the inability of a health professional to see and meet their own needs. Intrinsic resource factors include a lack of competence or experience (Michie et al., 1996) or doubt about one's capabilities (Post & Weddington, 2000).

### **Occupational Stress in Audiologists**

The underlying causes of occupational stress in audiologists were not well known until recently. Addressing this lack, Severn and colleagues published a pioneering paper, which outlined various factors in the New Zealand audiological setting that contribute to occupational stress and affect professional quality of life (Severn et al., 2012). The questionnaire they developed to measure stress, the Audiological Occupational Stress Questionnaire (AOSQ), included both closed- and open-ended questions. Time pressures

were demonstrated to cause New Zealand audiologists the most stress. A factorial analysis of the closed-ended questions yielded five more stress factors: poor support and/or recognition from managers, difficult patient contact, clinical protocols, high levels of accountability to patients and supervisors, and an overload of administration duties or inadequate equipment. Public and paediatric audiologists experienced more stress than private audiologists in the above domains of management, accountability, and administration and equipment. The open-ended questions highlighted somewhat different stress factors: time pressures, difficulties providing a good level of service to patients, staffing issues, paperwork and administration, and unrealistic expectations about hearing aids from patients. In both public and private settings, staffing issues, patient contact, and paperwork and administration were concerns. Public audiologists also identified feelings of being undervalued as stressful, whereas private audiologists were more stressed about the level of service they could provide and unrealistic expectations from patients about their hearing aids. Overall, public and paediatric audiologists were more likely to be stressed than their private audiologist colleagues. In contrast to findings in other healthcare literature (Crowe, 2016; Jakimowicz et al., 2018), older audiologists were more likely to experience diminished compassion satisfaction, perhaps due to the work demands that accompany greater experience. The study results also yielded an unexpected positive correlation between burnout and compassion satisfaction.

Similar studies have been conducted since in India and Sweden, utilizing the AOSQ (Brännström et al., 2016; Ravi et al., 2015). Ravi et al. (2015) found that 75% of clinical and academic audiologists showed moderate levels of stress, with clinical audiologists experiencing more stress than academic. These researchers also identified that increasing experience had a significant effect on stress levels, perhaps due to aging and to higher work demands associated with greater experience.

The Brännström et al. (2016) study was prompted by an earlier study that demonstrated 86% of Swedish audiologists report unfavourable ERI ratios (Brännström et al., 2013). In addition to AOSQ variables, these researchers included variables of perceived effort, perceived rewards, coping strategies at work, and demographic variables. The results, gained from a sample population of audiologists four times the sample population in the Severn et al. study, indicated similar stressors affect Swedish audiologists, though personal health concerns and low job control were additionally found to affect stress levels. Higher perceived effort, higher perceived rewards, poorer coping strategies at work and younger age were also factors contributing to stress in Swedish audiologists.

With new-born hearing screening programmes in place in most developed countries worldwide (Patel & Feldman, 2011) and some developing countries (Ravi et al., 2018), a greater number of children are being diagnosed within the first few months of life. In some instances, hearing loss is due to congenital disease, delivery complications, hyperbilirubinemia, or ototoxic medication; in other instances, to inherited or spontaneous genetic mutations. Most families are expecting a normal, healthy child, so a hearing impairment diagnosis can be devastating and stressful for these families. Walking alongside these families through diagnosis and management may place high demands on the paediatric audiologist, not least because children may present greater diagnostic and management challenges than adults (Severn et al., 2012). However, it may be that the demands of paediatric work do not result in greater levels of stress and burnout among audiologists. The aspects of paediatric work that are most demanding may also be the most rewarding—for example, building close relationships with children and their families and working on a multidisciplinary team (Bowden et al., 2015; Dix et al., 2012; Gulati et al., 2014; Zander et al., 2010).

## **Introduction to Burnout**

Burnout is a negative psychological condition associated with long-term exposure to work-related stress (Maslach & Leiter, 2016; Payne, 2001) and is broadly characterized by exhaustion (Stamm, 2002). As burnout is a mental, emotional, and behavioural response over time to occupational stress, there is much overlap in the literature regarding stress and burnout. Burnout research, which began to emerge in the mid 1970's, has its roots in the helping professions. In these professions, the relationship between provider and recipient constitutes the primary aspect of the work, thus, burnout research has focused on the impact of stress within the social context of the workplace. Several dominant themes came out of the early research and form the basis of the preeminent measure of burnout today (Maslach et al., 2009; Shirom & Melamed, 2006): the Maslach Burnout Inventory (MBI). The MBI will not be used to measure burnout in this study, as the ProQuoL questionnaire provides a measure of both burnout and compassion satisfaction. However, because most of the burnout literature employs this model (Halbesleben & Demerouti, 2005), a very brief discussion of this model is justified.

The three dimensions of the MBI are: a) exhaustion, b) depersonalization, and c) reduced professional accomplishment (Maslach & Leiter, 2016). Although it has been argued by some that professional accomplishment is a separate construct from burnout (Schaufeli & Bakker, 2004; Schutte et al., 2000), all three dimensions will be reviewed. Overall, each of these three dimensions have been found to be affected differentially by individual and organizational factors (Lee & Ashforth, 1990).

Caring for others requires a significant ongoing commitment of personal resources, and exhaustion is a common outcome of healthcare work. Exhaustion has been described as “wearing out, loss of energy, depletion, debilitation, and fatigue” (Maslach & Leiter, 2016). It is the dimension most closely associated with work demands (Lee & Ashforth, 1993).

However, though some argue that burnout is equivalent to exhaustion (Felton, 1998; Kristensen et al., 2005; Shirom & Melamed, 2006), the majority view is that burnout is a multi-dimensional construct. The second dimension of burnout, depersonalization, has to do with a loss of positive feelings about one's work and towards one's client and a disengagement from one's work. Thirdly, burnout is associated with reduced professional accomplishment—a sense that one is no longer competent or effective in one's work. It appears that the social environment of the workplace primarily contributes to this dimension. Strained relationships at work will result in a lack of social support and positive peer or management feedback, both crucial for a healthy sense of self and accomplishment in the work sphere (Maslach & Leiter, 2016).

### **A Descriptive Model for Burnout**

The J D-R model was published as a heuristic framework for understanding the phenomenon of burnout (Demerouti et al., 2001), and later, its opposite counterpart, work engagement (Schaufeli & Bakker, 2004). Broadly applicable, this model describes the association between the general constructs of demands and resources, though its lack of specificity does have drawbacks. For example, this model lacks the capacity to explain why particular variables impact particular outcomes (Schaufeli & Taris, 2014). In these cases, previous models of stress and burnout are helpful.

Job demands are the physical, social or organizational aspects of work that drain a healthcare professional physically, mentally, and emotionally. Job resources, on the other hand, are the physical, social, or organizational aspects of work that help a health professional function well at work and support personal growth (Demerouti et al., 2001). The underlying hypothesis of the model is that job resources motivate an individual to 'put the hard yards in', which, in turn, reduces the intensity of work demands and aids goal

attainment. However, if job resources insufficiently balance the effects of work demands, an individual may be taxed beyond what they can bear physically and psychologically, resulting in the development of burnout. Furthermore, the J D-R model predicts that burnout mediates between job demands and adverse health and wellbeing outcomes.

## **Risk Factors for Burnout**

### *Healthcare professionals*

There is an abundance of research examining the antecedents to burnout. These antecedents can be loosely grouped into four categories: individual traits, demographic variables, organizational characteristics, and relational factors. Only those risk factors which are more directly relevant to this study will be mentioned below.

Conflicting results have been found in terms of age and gender, and burnout. This is likely because of other confounding variables, for example, years of experience, level of maturity, level of responsibility, or the predominance of certain genders in particular professions (Maslach et al., 2001). Since 2001, studies have shown non-significant relationships between age and burnout (Bruschini et al., 2018; da Silva et al., 2015), positive correlations between older age and burnout (Alkema et al., 2008; Mijakoski et al., 2015), and positive correlations between younger age and burnout (Buckley et al., 2020). While neither gender is more prone to burnout overall, women have been shown to be more susceptible to exhaustion, while men are more at risk of depersonalization (Dewa et al., 2014; Houkes et al., 2011; Montero-Marín et al., 2011). Men also seem less susceptible to reduced professional accomplishment, implying that men do not tend to doubt the quality of their work (Houkes et al., 2011).

Most burnout research has concentrated on workplace characteristics. Workload has often been implicated as a contributor to burnout and is closely associated with exhaustion

(Magnusson Hanson et al., 2008; Pustulka-Piwnik et al., 2014; Schaufeli, 2007; Shanafelt et al., 2009; Sibeoni et al., 2019). Some evidence suggests that total work hours do not predict burnout. Rather, burnout is more common when work hours do not fit the needs and goals of a healthcare professional, or those of their families (Barnett et al., 1999), or when time to rest is negatively impacted (Bellicoso et al., 2017; Söderström et al., 2012). A low level of control or influence in the work sphere is also known to predict exhaustion and burnout in healthcare workers (Bruschini et al., 2018; Schmitz et al., 2000; Wilski et al., 2015). This is not surprising, given that increases in job control can improve stress-related outcomes at work (Bond & Bunce, 2001).

Another strong theme among burnout research is the quality of social interactions in the workplace, Maslach et al. (2001) comment that burnout is more of a social phenomenon than an individual one. Perhaps this is largely because those in helping professions are constantly interacting with those in distress; thus, they have greater need for support resources. Supportive work environments are essential to the wellbeing of employees. In work environments characterized by conflict and aggression, burnout has been shown to be commonplace (Gascon et al., 2013; Payne, 2001; Savicki et al., 2003). Poor support from management is also known to predict exhaustion and depersonalization (Bruschini et al., 2018; Turnipseed, 1994), though it is more predictive of exhaustion in men than women (Magnusson Hanson et al., 2008). A lack of social support is also a contributor to burnout (Maslach et al., 2001), however, this kind of support appears to be more important for women (Magnusson Hanson et al., 2008) Conversely, teamwork has been shown to lower levels of exhaustion and depersonalization (Schaufeli & Bakker, 2004; Schaufeli et al., 2009), though this has been called into question by a more recent study from Mijakoski et al. (2018).

### *Audiology and Related Professional Groups*

There is a paucity of literature on contributors to burnout in audiologists, and certainly nothing specific to paediatric audiologists, though one would expect substantial overlap between contributors to occupational stress and to burnout. Four publications specifically consider burnout in audiologists (Brito-Marcelino et al., 2020). Unfortunately, one of these publications is a dissertation written in Portuguese, with no English translation currently available. Findings from the other three papers are as follows. A cross-sectional study in South Africa noted that audiologists and speech-language pathologists were at risk of burnout, but especially of exhaustion and reduced professional accomplishment (Swidler & Ross, 1993). In these professions, those working in hospital settings and dealing with excessive red tape, complex cases, and heavy work demands were most likely to experience burnout. More recently, a New Zealand study found that burnout was more likely in audiologists with increasing age (Severn et al., 2012). Blood et al. (2007) conducted a study on audiologists working in school settings in the United States. Their research showed significant differences in all three burnout dimensions between audiologists working in urban, suburban and rural locations. Moreover, frequent and positive social interactions between colleagues were correlated with higher personal accomplishment, whereas a lack of the same was correlated with higher exhaustion.

It is unlikely that paediatric audiologists are at as high risk of burnout as healthcare professionals in front-line specialities. Burnout has been found to be more prevalent among oncologists, emergency medicine, NICU staff, and ICU staff (De Hert, 2020; Mukherjee et al., 2019), presumably because professionals in these specialities care for critically ill and seriously injured patients. Their work is often distressing, with unexpected circumstances, patients in life-and-death situations, and complex decisions to be made under time pressure.

However, working in any helping profession does carry risk of burnout. Paediatric audiologists are usually involved for many years in the treatment and rehabilitation of their patients, forming enduring relationships with their patient and the patient's family. The audiologist may face significant failures in helping their patients achieve optimal outcomes, may struggle to deal with the long-term emotional demands of caring for their patients, and may face behavioural issues from their patients' families—all triggers for burnout (Maytum et al., 2004). Paediatric audiologists are likely to work as part of a multidisciplinary team to meet the often complex needs of their patients. These needs may include ongoing middle ear infections, severe hearing loss, speech delay or disorders, cochlear implantation, bimodal hearing, auditory processing disorders, and associated congenital health problems. While multidisciplinary practice is essential to provide correct diagnoses and quality care, effective communication between the different healthcare professionals involved costs time, a resource that audiologists are consistently short on (Brännström et al., 2016; Severn et al., 2012). Paediatric audiologists also often work in hospital settings, known to contribute to greater levels of stress in audiologists than private settings (Severn et al., 2012). Finally, paediatric audiologists may be at particular risk for burnout due to the uniquely challenging needs children have (Robins et al., 2009), for example, correctly diagnosing a patient who cannot communicate verbally and who has little understanding of what is going on.

### **Outcomes of Burnout**

Burnout and the workplace factors that contribute to its development are to be reckoned with. Burnout has been found to contribute to poor physical health, and vice versa (Ahola & Hakanen, 2014). Among the health consequences of burnout that have been investigated to date, cardiovascular disease is prominent (Salvagioni et al., 2017). Melamed et al. (2006) identified the following possible mediating factors between burnout and

cardiovascular diseases: dysregulation of the hypothalamic-pituitary-adrenal axis, inflammation, sleep disorders, reduced immunity, changes in blood coagulation, changes in fibrinolysis, and poor health behaviours, such as smoking and lack of physical activity.

Some authors argue that burnout equates to exhaustion (Kristensen et al., 2005; Shirom et al., 2005). From this perspective, commonality exists between burnout and the clinical diagnoses of chronic fatigue syndrome (CFS) and vital exhaustion (VE). There is good evidence that VE is associated with cardiac malfunction (Cohen et al., 2017). There is also evidence that CFS is associated with increased cytokine release (Chao et al., 1991), a precursor to many pathological disorders (Ramani et al., 2015); and dysregulation of the hypothalamic-pituitary-adrenal axis (Demitrack & Crofford, 1998), which is crucial for stress management (Dunlavey, 2018). Others agree that exhaustion, while not the only component of burnout, is most clearly linked to poor health outcomes (Maslach et al., 2001). Exhaustion has been found to prompt headaches, tiredness, colds/influenza, chronic fatigue, hypertension, muscle and joint pain, and sleep disturbances (Bruce et al., 2005; Honkonen et al., 2006; Maslach et al., 2001; Moss et al., 2016; Ornek & Melek, 2020; Schulz et al., 2011; Suárez-Soler et al., 2013).

Research on the physiological processes underlying work-related health issues is still emerging. Some suggest that heightened inflammatory processes may mediate prolonged workplace stress (assumed to be the precursor to burnout) and resulting health issues (Grossi et al., 2003; Toker et al., 2005). In fact, burnout is associated with low-grade inflammation in women (Toker et al., 2005). A similar hypothesis is that the autonomic nervous system and the hypothalamic-pituitary-adrenal axis become exhausted from the ongoing symptoms of burnout. This ultimately results in a disordered immune system, metabolic dysfunction, and an unhealthy excitation of heart rate and blood pressure (Danhof-Pont et al., 2011).

The nature of the association between burnout and mental health is a matter of open discussion (Maslach & Leiter, 2016). Certain authors have questioned whether burnout is specifically work-induced and have suggested that burnout is essentially a redundant construct (Bianchi & Brisson, 2017; Dyrbye et al., 2011; Gauche et al., 2017). Indeed, the work context has been stated as the defining feature of burnout. According to Shirom (2005): “Conceptually, burnout is distinct [from depression] in that it is dependent on the quality of the social environment at work”. If this distinction becomes empirically untenable, what is left to distinguish burnout from depression? However, other authors have acknowledged that while burnout and depression are overlapping constructs, they are conceptually different (Schaufeli & Buunk, 2003; Toker et al., 2005). Maslach and Leiter (2016) state that overlap should be expected, since the instruments for measuring burnout and depression both centre around the concept of fatigue.

Ahola and Hakanen (2007) found a reciprocal relationship between burnout and depression. Significantly, they demonstrated that burnout fully mediated the relationship between job strain and depression. Various findings support this reciprocal relationship between burnout and depression. For example, a study conducted on Finnish forestry workers showed that burnout predicted uptake of antidepressant medications within 8 years after the data on burnout among participants was collected (Toppinen-Tanner et al., 2009). A similar finding came to light in a study among Caribbean nurses: burnout was the sole predictor of depression (Baba et al., 1999). Conversely, a study conducted in a teaching hospital in Brazil found that depressive symptoms predicted the development of burnout in their staff (de Oliveira Vasconcelos Filho et al., 2016).

The development of burnout may not just impact the health and wellbeing of the paediatric audiologist. Their patients may also suffer the consequences. Among other things, burnout manifests as apathy, withdrawal behaviours, reduced concentration, lack of energy,

and frustration or anger. Thus, patients and their families may be on the receiving end of poor quality communication, medical mistakes, and care that lacks positive engagement and compassion (Firth-Cozens & Cornwell, 2009). Both exhaustion and depersonalization are closely associated with mistakes in medical care (Fahrenkopf et al., 2008; Shanafelt et al., 2010; Shanafelt et al., 2002; Suñer-Soler et al., 2014) and lower quality of care (Aiken et al., 2002; Bagnasco et al., 2020; Dyrbye et al., 2008; Weigl et al., 2015).

Finally, burnout in employees carries a cost to the organization they work for. One or more of the dimensions of burnout are associated with three separate components of low job satisfaction: absenteeism (Borritz et al., 2006; Duijts et al., 2007; Soler et al., 2008), intention to leave the job (Schaufeli & Bakker, 2004; Suñer-Soler et al., 2014), and turnover (Leiter & Maslach, 2009; Soler et al., 2008). Indeed, burnout has been shown to be a predictor of sick-leave lasting more than three days (Toppinen-Tanner et al., 2009), and a direct correlation has been shown between countries with the greatest number of health professionals considering leaving their jobs and greatest number of health professionals who were burned out (Grau Martín et al., 2009).

In addition, burnout is related to a decrease in productivity, creativity and effectiveness at work (Dewa et al., 2014; Maslach & Leiter, 2016), though not all studies have found a negative relationship between burnout and job performance. Keijsers et al. (1995) noted that burnout was inversely associated with Dutch nurses' self-perceptions of their performance at work. However, their job appraisals revealed otherwise—burnout was positively associated with job performance. Burnout in one individual can also have a ripple effect, leading to disruption of work and conflict in the workplace (Bakker et al., 2005; González-Morales et al., 2012).

## **Protective Factors Against Burnout**

While burnout is a significant and ongoing issue among healthcare professionals, there is no reason to despair. A good deal of healthcare research points to protective factors against burnout. Occurrence of burnout appears to be lower in work environments with greater autonomy (Yoshida & Sandall, 2013), flexibility in work schedules (Cull et al., 2019), good communication and teamwork (Helfrich et al., 2014; Hernández-Marrero et al., 2015; Li et al., 2014; Martins Pereira et al., 2011), good leadership (Albendín-García et al., 2021), adequate staffing (Boamah et al., 2017), and adequate workplace support (Huang et al., 2020; Wood et al., 2020). At an individual level, self-care habits, knowledge of one's capabilities and limits, and realistic expectations in one's work play important roles in protecting health professionals against burnout (Alkema et al., 2008; Maytum et al., 2004; Sibeoni et al., 2019). Active or problem-focused coping strategies, such as seeking support, positive re-appraisal, and planful problem solving, also protect against burnout (Chang & Chan, 2015; Jenaro et al., 2007; Lambert et al., 2004). Finally, interventions aimed at increasing clinical skills in paediatric nurses have been found to decrease exhaustion and depersonalization (Cohen & Gagin, 2005), while a lack of education and clinical competency is associated with higher levels of burnout (Koivula et al., 2000; Soroush et al., 2016). Thus, it stands to reason that further education and upskilling would play a preventative role against burnout in paediatric audiologists too.

## **Compassion Satisfaction and Related Concepts of Wellbeing**

While the relationships between work engagement, professional satisfaction, and compassion satisfaction have not been clearly defined in the literature (Hooper et al., 2010; Smart et al., 2014), these are the three positive outcomes of helping which are generally measured. Some empirical evidence indicates work engagement and compassion satisfaction are related constructs (Sawatzky et al., 2015; van den Berg, 2013), though this has not yet been shown for professional satisfaction and compassion satisfaction (Roney & Acri, 2018).

Work engagement is a positive state of mind that is influenced by job resources, whether physical, psychological, social, or organizational (Bakker & Albrecht, 2018; Schaufeli & Taris, 2014). It is characterized by high levels of vigour, dedication, and absorption in one's work (Bakker & Albrecht, 2018). Similarly, professional satisfaction is the attitude one has towards one's job (Brief, 1998; Weiss, 2002). Opportunities for growth, teamwork, work benefits and rewards, and empathetic supervisors are some factors that establish professional satisfaction (Currie & Carr Hill, 2012; de Oliveira Vasconcelos Filho et al., 2016). For speech-language therapists working in schools in the United States, working with children and the availability of an experienced mentor were two factors contributing to staying in the job (Edgar & Rosa-Lugo, 2007). Indeed, staff retention among nurses appears to be high in work environments that foster professional satisfaction (Armstrong-Stassen & Stassen, 2013; Yarbrough et al., 2016), and there is no reason to believe it would be otherwise for paediatric audiologists. Among audiologists, professional satisfaction decreases with age and is higher in private than public practices (Saccone & Steiger, 2012). Similarly, Severn et al. (2012) found that older audiologists experienced lower compassion satisfaction and audiologists in private settings experienced greater compassion satisfaction than public audiologists.

Compassion satisfaction, the capacity to find pleasure and satisfaction in one's work *as a helper* (Stamm, 2010), includes feelings of fulfilment, joy, invigoration, inspiration, gratitude and hope (Sacco & Copel, 2018). Compassion satisfaction holds a negative association with burnout (El-bar et al., 2013; Slocum-Gori et al., 2013; Zhang et al., 2018). Though there is limited evidence that audiologists can experience burnout and compassion satisfaction concurrently (Severn et al., 2012), this is not at all typical in the healthcare professions (Stamm, 2010).

Historically, research has focused on negative states over positive states (Myers, 2000), though the focus is shifting from human malfunction towards human wellbeing (Seligman & Csikszentmihalyi, 2000). This explains why the literature pertaining to compassion satisfaction in paediatric healthcare providers is sparse (Kase et al., 2019). In saying this, several antecedents to compassion satisfaction have been identified: older age (Hunsaker et al., 2015), greater years of experience (Craig & Sprang, 2010), greater level of responsibility (El-bar et al., 2013), a sense of calling to one's work (Tremblay & Messervey, 2011), peer and managerial support (Hunsaker et al., 2015; Li et al., 2014), provision of evidence-based care (Craig & Sprang, 2010), and spiritual and emotional self-care practices (Alkema et al., 2008; Radey & Figley, 2007).

There is a paradox imbedded within the healthcare professions: the work may come at great cost to the provider but also offers significant reward. The sense that one is positively contributing to the lives of others or society at large is huge, as compassion is a central commitment for many, if not most, healthcare professionals (Radey & Figley, 2007). Compassion satisfaction appears to compensate for the high demands of caring, that is, to act as a protective factor against burnout (Hooper et al., 2010; Pérez-Chacón et al., 2021).

## **Defining Resilience**

Resilience is a frequently misunderstood phenomenon; indeed, several different definitions exist in the literature (Luthar & Cicchetti, 2000). Resilience is alternatively defined as a personality trait, as a process, and as protective factors contributing to a positive outcome (Adamson et al., 2014). Like personality traits, resilience can be enhanced or developed in an individual (Cleary et al., 2018). However, defining resilience as a personality trait seems too narrow, since resilience is grounded in an individual's biology, psychology, and environment (Campbell-Sills & Stein, 2007) and appears to consist of interactions between these factors (Herrman et al., 2011). Moreover, it is argued that resilience is not restricted to some individuals but can develop in any individual placed in circumstances that jeopardize their wellbeing (Masten & Fowler, 2001; McGee, 2006).

Resilience seems best described as a process in which effective coping strategies and positive attitudes evolve to overcome adversity (Adamson et al., 2014; Jensen et al., 2008; Panter-Brick & Leckman, 2013; Southwick & Charney, 2012; Zander et al., 2010). This would imply that resilience is more than just 'getting by'. Rather, resilience is associated with positive adaption (Wagnild & Young, 1993), development of internal resources (Fertleman & Carroll, 2013), hardiness (Connor & Davidson, 2003), personal growth (Taku, 2014) and wellbeing (Luthar & Brown, 2007).

## **Contributing Factors to Resilience**

Many factors contribute to resilience, including an individual's biology, family, culture, life experiences, worldview, workplace environment, training, and self-care practices (Connor & Davidson, 2003; Rice & Liu, 2016; Skovholt & Trotter-Mathison, 2016).

Organizational resources which enable the development of resilience include quality of staff,

multidisciplinary practice, good communication, teamwork, and mentorship (Cusack et al., 2016; Hurley & Kirwan, 2020; Jensen et al., 2008). Supportive professional relationships (Jensen et al., 2008) and a high degree of autonomy in one's work are also key aspects of resilience (Hurley & Kirwan, 2020; Keeton et al., 2007). Beyond the practice context, developing an awareness of one's capabilities and limits, building up relationships outside of work, and honouring one's own needs are all important keys to dealing with high demands of healthcare work (Jensen et al., 2008).

### **Resilience and Professional Quality of Life**

Resilience in healthcare professionals has been much discussed in the recent literature, as it has been noted that the ability to maintain one's wellbeing during stressful circumstance is more common than originally thought (Bonanno, 2004). It is interesting to note the similarities between factors contributing to resilience and factors protecting against burnout (autonomy, teamwork and communication, workplace support, self-care, and self-knowledge). This underscores the inverse relationship between resilience and burnout. More than that, resiliency has been shown to play a role in reducing the effects of stress (Arrogante & Aparicio-Zaldivar, 2017; Guler & Yoruk, 2021; Hylton Rushton et al., 2015; Shatté et al., 2017; Tusaie & Dyer, 2004). Resilience also correlates with increased quality of life in physicians (Rahimi et al., 2014; Warren et al., 2013) and nurses (Berger et al., 2015).

### **Need For and Objectives of this Study**

The research on professional quality of life and resilience in paediatric audiologists is non-existent in the literature. This study has three aims. Firstly, the relationships between contributors to occupational stress and compassion satisfaction, burnout, and resilience will

be explored. Secondly, the question whether correlational relationships exist between compassion satisfaction and resilience, and burnout, will be satisfied. Thirdly, the extent to which compassion satisfaction and resilience predict burnout will be explored. Understanding the factors that enhance professional wellbeing and reduce risk of burnout is important for paediatric audiologist, the organizations they work for, and most importantly, the people they serve.

## **Chapter 2: Materials and Methods**

### **Study Design**

This quantitative, cross-sectional study examined the relationships between occupational stress, burnout, compassion satisfaction, and resilience. Ethical approval was gained from the University of Canterbury Ethics Committee. The study survey was piloted among postgraduate psychology students at the University of Canterbury. Minor grammatical and wording changes were made to the demographic questionnaire and information sheet after feedback. An invitation to complete the survey was sent electronically to 12 audiological associations and societies in Africa, Asia, Europe, North America, and Australasia. Informed consent was gained from participants, who were notified of the estimated time to complete the survey, of who would access and utilize the data, and of the overall purpose of the study. Participants were also notified that all survey data would remain anonymous and be stored in password-protected electronic formats at the University of Canterbury for 5 years before being destroyed, as per the University of Canterbury Human Research Ethics Committee protocols. Furthermore, participants were given the email addresses of the research students and supervisors who would access the data. Participants were then directed to an open survey on the Qualtrics platform. Participants could modify their responses by means of a back button. If all forced questions were answered, the survey was defined as completed. However, completion was not mandatory. If participants completed the survey, they could provide their email address in a separate link to enter the draw for one of four US\$50 Amazon vouchers.

The survey was composed of demographic questions, the Audiological Stress Questionnaire (AOSQ), the Professional Quality of Life Version 5 (ProQuoL5) questionnaire, and the Connor-Davidson Resilience Scale (CD-RISC): 97-98 questions in total. It remained

live from July 9, 2021 until September 14, 2021. No follow-up invitations to complete the survey were sent to any of the 12 audiological associations or societies.

## **Participants**

Fully qualified, clinical audiologists were recruited by means of an advertisement placed in their audiological society's or association's newsletter. All participants for this research were required to work at least fifty percent of the time with children. Of 129 participants who completed the survey, 32 participant audiologists met this requirement. All eligible participants for this study had unique IP addresses. On this basis, it was assumed that all eligible participants were unique individuals.

## **Measures**

The demographics questionnaire included 19 questions total, of which 12 were relevant to this study. However, data was incomplete for the questions regarding ethnicity, income amount, and income currency, as response was not mandatory for these questions. Responses to another two questions could be combined into one variable. Ultimately, only 8 demographic variables were included in this research: gender, year of birth, country of work, type of work, years of clinical experience, hours worked per week, employment type, and income type.

The AOSQ (Severn et al., 2012) asks to what extent paediatric audiologists experience a number of stressors. Thirty-six questions on a 7-point Likert scale with ranges of 1 (never stressful) to 7 (extremely stressful) pertain to stress factors previously identified in the healthcare literature. Question number 8 was not used in this research as Severn et al.

(2012) identified high correlation factor loading. The AOSQ also contains 5 open-ended questions; however, these questions were not utilized in this quantitative research.

Cronbach's alpha for the current study sample was 0.955.

The ProQuoL5 (Stamm, 2010) measured quality of life among participants. The ProQuoL5 contains 30 questions regarding compassion satisfaction, burnout, and secondary traumatic stress on a 5-point Likert scale with ranges from 1 (never) to 5 (very often). On the compassion satisfaction subscale, scores between 23 and 41 indicate moderate levels of compassion satisfaction, and scores 42 or greater indicate high levels (Stamm, 2010). On the burnout subscale, scores of 22 or less indicate low risk of burnout and scores between 23 and 41 indicate moderate risk (Stamm, 2010). The subscale of secondary traumatic stress was not utilized in this research. Cronbach's alpha for the current study sample was 0.754 for the burnout scale and 0.887 for the compassion satisfaction scale.

The CD-RISC was initially published as a 25-item scale to measure resilience, with higher scores indicating greater resilience (Connor & Davidson, 2003). A 10-item scale was published later and was utilized in this research. All 10 items show minimal redundancy and scores correlate highly with the scores from the 25-item version (Campbell-Sills & Stein, 2007). Cronbach's alpha for the current study sample was 0.809.

## **Statistical Analysis**

Relevant scores from the ProQuoL questionnaire were reverse scored and all data from completed questionnaires was transferred to Jamovi for analysis. Descriptive statistics were computed from the demographic data. Relationships between occupational stress variables, burnout, compassion satisfaction, and resilience were explored using Spearman rho correlation tests, as both burnout and compassion satisfaction scores included outliers.

Relationships between compassion satisfaction and burnout, and resilience and burnout were investigated also using Spearman rho correlation tests. A linear regression demonstrated whether compassion satisfaction and resilience predict burnout. A coefficient with a p-value of less than 0.05 was considered statistically significant.

## Chapter 3: Results

### Demographics

The mean age of 32 paediatric audiologists was  $38.2 \text{ years} \pm 12.0$ , with a range of 22 – 68. Most were female (81.3%). The mean years of experience was  $14.7 \pm 11.1$ , with a range of 2 – 40. The mean hours worked per week was  $37.3 \pm 7.98$ , with a range of 13 – 46. New Zealand audiologists were disproportionately represented. 50% of participants worked about half the time with children and 50% spent more than half their work hours with children. 65.6% of participants worked in the public sector, 28.1% of participants in the private sector, 3.1% were on leave, and 3.1% did not specify. 93.8% of participants were salaried, 3.1% were waged, and 3.1% did not specify. No demographic variables were significantly correlated to burnout, compassion satisfaction, or resilience.

**Table 1.** Characteristics of Paediatric Audiologists

<i>Characteristics</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Mean (SD)</i>	<i>Range</i>
<i>Age</i>			38.2 (12.0)	22-68
21-30	10	31.3%		
31-40	11	34.4%		
41-50	4	12.5%		
51-60	5	15.6%		
61-70	2	6.3%		
<i>Sex</i>				
Female	26	81.3%		
Male	2	6.3%		
Unknown	4	12.5%		
<i>Country of work</i>				
United Kingdom	4	12.5%		
Israel	2	6.3%		
India	1	3.1%		
Singapore	1	3.1%		
Malaysia	1	3.1%		
South Africa	3	9.4%		
United States of America	4	12.5%		
Canada	1	3.1%		
New Zealand	15	46.9%		

<i>Type of work</i>			
50/50 split adults and children	16	50.0%	
> 50% with children	16	50.0%	
<i>Years of experience</i>		14.7 (11.1)	2-40
1 - 10	15	46.9%	
11 - 20	9	28.1%	
21 - 30	3	9.4%	
31 - 40	5	15.6%	
<i>Hours worked per week</i>		37.3 (7.98)	13-46
10+	2	6.3%	
20+	2	6.3%	
30+	3	9.4%	
40+	25	78.1%	
<i>Employment type</i>			
Private	9	28.1%	
Public	21	65.6%	
On leave	1	3.1%	
Not specified	1	3.1%	
<i>Income type</i>			
Wage	1	3.1%	
Salary	30	93.8%	
Not specified	1	3.1%	

## Relationships Between AOSQ Variables and Key Study Variables

Twenty-six of the 36 AOSQ variables were positively associated with burnout. The mean burnout score was 23.0 (SD = 4.40), with a range of 17-37. Most participants were at low risk of burnout (56.3%). No participants were at high risk of burnout (score > 41).

**Table 2.** Relationships Between AOSQ Variables and Burnout.

<i>Variable</i>	<i>Spearman's rho</i>	<i>p-value</i>
<i>Weak correlation</i>		
Paperwork and administration	0.455	0.046
Inadequate equipment	0.355	0.046
Diagnostics	0.355	0.005
Time with patients	0.482	0.005
Number of patients	0.425	0.015
Feeling like always on the job	0.461	0.008

Catching illness from patients	0.422	0.016
Occupational health condition	0.455	0.009
Multi-disciplinary approach	0.416	0.018
Dealing with supervisors	0.495	0.004
Inconsistent leadership	0.377	0.033
Staff shortages	0.469	0.007
<i>Moderate correlation</i>		
Patient/family expectations	0.545	0.001
Accountability	0.514	0.003
Eating well at work	0.551	0.001
Managing social life	0.640	<0.001
Insufficient social time	0.575	<0.001
Lack of social support	0.503	0.003
Limitations to social life	0.641	<0.001
Making ends meet	0.575	<0.001
Dealing with co-workers	0.526	0.002
Proving oneself	0.549	0.001
Unequal responsibilities	0.570	<0.001
Negatives overemphasized	0.517	0.002
<i>Strong correlation</i>		
Fatigue	0.724	<0.001
Keeping fit	0.731	<0.001

Moreover, the overall stress variable, also scored on a 7-point Likert scale, strongly and positively correlated with burnout.

**Table 3.** Relationship Between Overall Stress Level and Burnout.

<i>Variable</i>	<i>Spearman's rho</i>	<i>p-value</i>
Overall stress level	0.778	<0.001

One AOSQ variable was negatively associated with compassion satisfaction. The mean compassion satisfaction score was 40.9 (SD = 4.84), with a range of 29-49. Most participants (59.4%) had moderate levels of compassion satisfaction. No audiologists had low levels of compassion satisfaction (score < 23).

**Table 4.** Relationships Between AOSQ Variables and Compassion Satisfaction.

<i>Variable</i>	<i>Spearman's rho</i>	<i>p-value</i>
Making ends meet	-0.479	0.006

All four AOSQ variables related to social life and support were negatively associated with resilience score. The mean resilience score was 27.9 (SD = 4.14), with a range of 21-38.

**Table 5.** Relationships Between AOSQ Variables and Resilience.

<i>Variable</i>	<i>Spearman's rho</i>	<i>p-value</i>
Social life	-0.402	0.022
Insufficient social time	-0.474	0.006
Lack social support	-0.395	0.025
Limitations on social life	-0.601	<0.001

### **Correlational and Predictive Relationships between Key Study Variables**

Compassion satisfaction showed a significant, negative association to burnout ( $r = -0.417, p = 0.017$ ), as did resilience ( $r = -0.451, p = 0.010$ ). Thus, it was expected that both would also predict burnout. As the sample size was small ( $n = 32$ ), only the variables of compassion satisfaction and resilience were included in the regression analysis. Analysis indicated that compassion satisfaction negatively and significantly predicted burnout level ( $R = 0.533, R^2 = 0.284, F(2, 29) = 5.75, p = 0.008$ ). However, although the result was in the same direction, resilience did not significantly predict burnout level ( $p = 0.152$ ). Together, these variables accounted for 28.4% of the variance in burnout levels.

## **Chapter 4: Discussion**

### **Overview**

This study documented the occupational stress variables associated with burnout, compassion satisfaction, and resilience, as well as the relationships between compassion satisfaction and resilience, and burnout. Twenty-six stress factors were found to be positively associated with burnout, one stress factor was found to be negatively associated with compassion satisfaction, and four stress factors were found to be negatively associated with resilience. While both compassion satisfaction and resilience negatively correlated with burnout, the regression analysis revealed that compassion satisfaction, but not resilience, significantly predicted burnout in paediatric audiologists. As far the primary author is aware, this is the first study considering occupational stress, quality of life variables, and resilience in paediatric audiologists.

### **Demographic and AOSQ Variables**

No demographic variables were significantly correlated with burnout, compassion satisfaction, and resilience. While the research suggests that demographic variables alone may not significantly influence burnout levels in healthcare workers (Stamm, 2010), it is surprising that no demographic variables were correlated with compassion satisfaction. Both greater years of experience and older age are associated with greater compassion satisfaction (Craig & Sprang, 2010; Hunsaker et al., 2015). On the other hand, resilience appears to be affected primarily by organizational factors, relational factors, and the internal resources of the individual. Relationships between resilience and demographic variables such as age, gender, employment type, or income are inconsistent (Davidson, 2018).

## **Burnout and AOSQ Variables**

Burnout is a psychophysiological condition that develops over the course of one or more years from exposure to stress (Maslach et al., 2001). While recovery from burnout is certainly possible, it has been found to be a relatively stable condition, no matter the sample population, length of follow-up study, or cultural context (Poulin & Walter, 1993; Shirom et al., 2005). This underscores the serious nature of burnout. The risk of burnout in the healthcare sector is generally reported in the moderate-to-high range (Maslach & Leiter, 2016). However, paediatric audiologists were not found to be at high risk of burnout in this study. This finding is in accord with Severn et al. (2012), where New Zealand audiologists were at comparatively low risk of burnout compared to other healthcare professions. One reason for this may be favourable working conditions for these audiologists. Another reason may be the reward of paediatric work. Unique opportunities exist in paediatric work to build close relationships with children and their families; to make a crucial difference to life and learning outcomes for children; and to work closely with healthcare professionals in other specialties, due to the complexity of care many of these children need. “Getting it right” for children and their families brings great satisfaction (Bowden et al., 2015; Dix et al., 2012; Gulati et al., 2014; Taylor & Aldridge, 2017; Zander et al., 2010). The “protective effect” working with children has against stress and burnout has previously been demonstrated in the nursing literature. Neuman et al. (2018) found that nurses who tended to both paediatric and adult patients had lower exhaustion than those who care for adult patients only. Along the same lines, Roney and Acri (2018) demonstrated that paediatric nurses experienced greater job satisfaction than published norms for nurses. The fact that no participants in this study were at high risk of burnout suggests that reward of paediatric audiological work may ultimately outweigh the cost.

Meeting patient and family expectations was one stress factor in this study that was associated with burnout score. Parental expectations of the paediatric audiologist may be amplified given the responsibility they hold for their children, given their children have most of their life ahead to live, and given the significant impact hearing impairment can have on the quality of life for their child. Although health circumstances differ, Taylor et al. (2017) identified meeting parent expectations as a stressor for healthcare professionals working in a paediatric hospice environment. Personal encounters with patients and their families are also known to be one of the most stressful elements of paediatric work (Bowden et al., 2015).

Many paediatric audiologists have likely experienced new risk factors to their wellbeing during this pandemic, not least, contracting COVID-19 from colleagues or patients. This may partially explain why the AOSQ variable of 'fear of getting sick from patients' was positively associated with burnout score in this study. Corroborating this, studies from the first SARS outbreak demonstrated fear of contracting or transmitting illness as a contributing factor to decline in healthcare professionals' mental wellbeing (Bai et al., 2004; Maunder et al., 2003). During the COVID-19 pandemic, it has also been demonstrated that the mental wellbeing of women is more easily affected than that of men (Lai et al., 2020). This is worth noting given the high percentage of women in this study.

Another important finding was the association between the AOSQ variables related to control and influence in the workplace, and burnout. Both the need to be accountable for doing one's job and feeling like one must prove oneself to management were positively associated with burnout score. Previous research has similarly demonstrated that a lack of individual control and influence in the workplace contributes to increased susceptibility to stress (Muhonen & Torkelson, 2004) and the development of burnout (Bruschini et al., 2018; Schmitz et al., 2000; Wilski et al., 2015). Furthermore, according to the J D-C model of occupational stress, a lack of autonomy in the workplace serves to magnify the effects of

stressors such as high workloads, time pressures, difficult tasks, or challenging patients (Karasek, 1979).

Paediatric audiologists reported higher burnout scores in the face of challenging relationships with supervisors and co-workers, inconsistent leadership from management, negatives overemphasized by leaders, and unequal sharing of responsibilities among co-workers. All these factors imply conflict in the workplace and a lack of healthy peer and managerial support. The literature is clear that workplaces characterized by conflict and lacking social support and support from management are liable to be atmospheres that contribute significantly to burnout in their employees (Bruschini et al., 2018; Maslach et al., 2001; Payne, 2001; Turnipseed, 1994).

The AOSQ variables of paperwork and administration, time with patients, number of patients, multi-disciplinary approach, staff shortages, and feeling like one is always on the job were all positively correlated with burnout score. These findings identify a crucial issue in the audiological setting: a lack of time to complete expected work. Previous research has already demonstrated that unrealistic time demands contribute to stress and burnout (Lim et al., 2011; Naruse et al., 2012; Sibeoni et al., 2019). Severn et al. (2012) also found that stress associated with time demands accounted for the greatest proportion of variance in both the closed- and open-ended questions in their survey completed by New Zealand audiologists.

According to the J D-R model of burnout, job resources such as social support are key to coping well with the demands of work (Demerouti et al., 2001). This has also been demonstrated empirically (Lee et al., 2021; Ruisoto et al., 2021; Vander Elst et al., 2016). Sufficient rest and rejuvenation outside work are also important (Bellicoso et al., 2017; Söderström et al., 2012). Not infrequently, audiological organizations are short-staffed, or audiologists must manage unrealistic caseloads. In these situations, time to build and

participate in support networks at work and time to rest and rejuvenate during and after work will be impaired. This may result in a heavy toll on the paediatric audiologist's physical, mental, and emotional energy. The strong correlation between fatigue and burnout in this study suggests that paediatric audiologists may not have access to sufficient resources in the workplace, may have unrealistic time demands placed on them during work hours, or may not have enough time to rest outside of work.

Positive support networks within the workplace are crucial for a healthcare professional's wellbeing and engagement in their work (Bishop, 2013; Cheng et al., 2000; Fiabane et al., 2013; Strömngren et al., 2016; Wald, 2020; Zurlo et al., 2018). Research on the workplace effects of social support outside work is somewhat lacking in the healthcare literature; however, limited evidence suggests that positive support networks outside the workplace also play an important role in maintaining professional quality of life (Brady, 2017) and wellbeing (Wong et al., 2021; Zurlo et al., 2018). This position is validated by the current study regarding paediatric audiologists. Positive relationships were found between burnout score and the AOSQ variables of limited time available to spend with family and friends, lack of understanding from family and friends about one's work, limitations to whom one could spend time with outside of work, and difficulty managing one's social life outside of work.

The above correlations between burnout and AOSQ variables regarding social life outside of work, as well as the correlations between burnout score and the AOSQ variables of eating healthily at work and time to keep fit, may suggest work-life conflict. When work unduly intrudes in the personal life of a healthcare professional, they may suffer from physical and mental illbeing (Cooper et al., 1989; Van Der Heijden et al., 2008) and be at increased risk of burnout (Dyrbye et al., 2012; Feeks et al., 2020; Häusler et al., 2018; Lee et al., 2021; Nitzsche et al., 2013; Wright et al., 2014). Women may be more likely to

experience conflict between work commitments and home life, given their mothering role (Gribben & Semple, 2021). Furthermore, tension between work and home commitments appears to be a significant contributor to burnout in women (Ray & Miller, 1994). It is important to note the disproportionate effect of professional demands on women compared with men, given the high proportion of women in the audiological profession.

### **Compassion Satisfaction and AOSQ Variables**

While stress can lead to the development of burnout, burnout is certainly not a necessary consequence of stress (da Nóbrega & Barboza, 2014). Most of the literature points to the fact that given access to sufficient and appropriate resources, healthcare professionals will be able to deal effectively with ongoing work stress (Demerouti et al., 2001; Schaufeli & Bakker, 2004). According to the J D-R model, job resources, which are both extrinsically and intrinsically motivating (Bakker et al., 2014; Van den Broeck et al., 2010), are one of two primary means by which healthcare professionals can deal effectively with workplace demands—the other being personal resources, such as resiliency. Healthcare professionals may even experience high levels of subjective wellbeing during times of stress (Ruiz-Fernández et al., 2020). Somewhat surprisingly, no AOSQ variable related to workplace resources was associated with compassion satisfaction in this study, despite previous research showing the importance of workplace support and self-care habits for the maintenance of compassion satisfaction (Alkema et al., 2008; Harr, 2013; Hunsaker et al., 2015; Li et al., 2014; Radey & Figley, 2007).

The only AOSQ variable associated with compassion satisfaction was making ends meet. After much searching, the primary author concluded not a single paper in the healthcare literature has demonstrated an association between compassion satisfaction and income.

This may be due, in part, to many papers not including an income variable in their demographic questionnaires. This finding is not without broader support in the healthcare literature though. A survey by da Silveira Massait et al. (2015) found that job satisfaction, a similar construct to compassion satisfaction, is associated with appreciation for primary healthcare workers in Brazil. The payment one receives is certainly an indication of how much one's employer values one's work. Furthermore, Atif et al. (2015) demonstrated a significant association between job satisfaction and income among Pakistani doctors, while Lu et al. (2016) showed a significant association between job dissatisfaction among healthcare workers in Guangdong province in China and the wage and benefits they received. Finally, Kelly et al. (2015) found that for acute care nurses, receiving meaningful recognition was a significant predictor of compassion satisfaction. A good salary or income is one type of meaningful recognition for healthcare workers. In summary, the correlation between income and compassion satisfaction appears to be a singular finding among healthcare professionals, let alone paediatric audiologists. It remains to be seen whether this finding is repeatable in a larger sample of paediatric audiologists.

### **Resilience and AOSQ Variables**

Given the upheaval and adversity experienced by healthcare professionals during the COVID-19 pandemic, research on factors associated with resilience in paediatric audiologists is especially timely. Moreover, because resilience is something that can be learned and enhanced (Matheson et al., 2016; McAllister & McKinnon, 2009), demonstrating factors associated with resilience in paediatric audiologists is a crucial first step to improving resilience in this healthcare sector. In this study, the AOSQ variables of limited time available to spend with family and friends, lack of understanding from family and friends about one's

work, limitations to whom one could spend time with outside of work, and difficulty managing one's social life outside of work held a negative association with resilience. Unexpectedly, no workplace factors were associated with resilience. However, this study demonstrates the impact work-life balance and adequate social support outside the workplace have on the ability of paediatric audiologists to cope well with occupational stress. Several studies have previously demonstrated the importance of family support (Lim et al., 2011; Lo, 2002), and of supportive relationships outside of work generally (Jensen et al., 2008), as key coping mechanisms in the face of workplace adversity. Furthermore, Bahar et al. (2020) recommend that managing one's social life is key to building psychological resilience, while Jensen et al. (2008) underscore the importance of maintaining healthy priorities, including honouring oneself.

### **Predictors of Burnout**

Based on published literature, it was hypothesized that both compassion satisfaction and resilience would predict burnout. Negative associations between compassion satisfaction and burnout scores have been noted in paediatric surgeons (Sarosi et al., 2021), family physicians (El-bar et al., 2013), and student nurses (Mason & Nel, 2012). Indeed, the majority of healthcare research on the topic shows negative associations between compassion satisfaction and burnout (Stamm, 2010). Resilience is also known to be negatively associated with burnout (Cooke et al., 2013; Taku, 2014). This association has become increasingly apparent during the COVID-19 pandemic (Meynaar et al., 2021; Pedro Ferreira, 2021). Moreover, Garcia et al. (2014) argue that taking steps to improve resilience of paediatricians could be useful in halting the progress of burnout syndrome. This seems justified given positive adaption is associated with reduced physician burnout (Garrosa et al., 2010; Lee et

al., 2013). Hardiness, a related concept to resilience, is also negatively associated with burnout (McGowan & Murray, 2016; Sciacchitano et al., 2001), has been shown to reduce the effects of stress (Vagni et al., 2021), and has been found to moderate the relationship between workplace stress and exhaustion (Mazzetti et al., 2020).

However, only compassion satisfaction significantly predicted burnout, though the association between resilience and burnout was in the same direction. Resilience may not have significantly predicted burnout for several reasons. The sample size of this study may have been too small to demonstrate the hypothesized relationship. The questions in the CD-RISC and burnout scale in the ProQuoL may not have accurately represented the day-to-day occupational settings and experiences of paediatric audiologists; thus, these scales may have failed to accurately measure resilience and/or burnout in this group. Finally, it is possible there is no good evidence that resilience predicts burnout in paediatric audiologists. Further research is necessary to clarify this point.

## **Limitations**

The results of this study are not without limitations and require tentative interpretation and application. While advertisements for the study were placed in 12 audiological associations' and societies' newsletters across the globe, only 32 eligible participants responded. Several factors may have contributed to the low response. Firstly, the survey was live during high summer in northern hemisphere countries, when many health professionals are on holiday. Secondly, due to an administration error, the survey did not go live in certain countries until much later than July 9, 2021. This meant a proportion of the potential respondents had less time to complete the survey and may have missed their chance. And finally, the survey was live during the COVID-19 pandemic. Paediatric audiologists might have been under unusual stress at work and lacked the time or energy to complete the survey.

In addition to this, a significant proportion of the eligible participants worked in New Zealand (46.9%). Confounding variables, such as the difference in education among New Zealand paediatric audiologists as opposed to paediatric audiologists who trained and work in other countries, may have affected the study findings. Given the low response and the preponderance of participants working in the New Zealand audiological setting, it is unlikely that the study findings accurately summarize the experiences of paediatric audiologists globally. If the survey had been live for several more months, it is likely a larger, more global sample could have been obtained. This would have positively impacted the generalizability of the study results. However, due to time limits imposed by the Master's degree which the primary author was undertaking, the survey could not remain live longer than the given time frame.

Secondly, the small participant group increased the likelihood that the correlation coefficients did not accurately represent the true population correlation coefficients. Again, if the survey had been live for several more months, it is probable that a larger sample could have been obtained. This would have increased the likelihood that non-spurious correlations were found. Until further studies with larger sample populations are conducted and the results of this study are confirmed, the correlations demonstrated in this study should be taken with caution.

Thirdly, the cross-sectional study design of this study does not allow any conclusions regarding causality to be drawn. To conclusively demonstrate whether compassion satisfaction and/or resilience mitigate risk of burnout, future longitudinal studies are warranted.

Finally, while a self-report methodology is both cost and time effective, there are limitations inherent within this methodology. It is possible participants might not accurately

reflect the level of stress they are experiencing, due to a desire to be perceived as “in control” or “coping fine”. This error is induced by the phenomenon known as social desirability. Ganster et al. (1983) have noted that social desirability can produce false associations between variables or act to hide real associations between variables. It is also known that the judgements people make about themselves and their situations are fluid and impacted by their mood at the time of self-report (Mayer et al., 1992; Schwarz & Clore, 1983). A person’s mood has also been found to affect judgements of other people and memories of them (Forgas & Bower, 1987) and to partially mediate between certain personality traits and a person’s appraisal of how they would cope with a stressful situation (Hemenover, 2001). Moreover, it is possible the reverse-coded items in the ProQuoL measure may have introduced measurement error if some participants failed to note the wording of those question. Although reverse-coded items are intended to cause the participants to fully engage rather than respond automatically, sometimes unintentional response pattern bias is introduced due to participants answering reverse-coded items in a similar manner to other items (Podsakoff et al., 2003).

### **Implications for Further Research**

Overall, this study identified a wide scope of stress factors associated with burnout. Future research should involve a much larger sample group to enable detailed analyses and to reach solid conclusions. A qualitative approach is also recommended to provide in-depth insights into the factors influencing risk of burnout among paediatric audiologists.

Various stress variables associated with burnout in this study suggest the presence of work-life conflict for paediatric audiologists. Women working in healthcare professions are known to be at increased risk of work-life conflict, not least because of they may have

important commitments in the home as mothers. It is suggested that further research specifically consider the phenomena of work-life conflict among female paediatric audiologists.

There is a need generally for more research on the positive aspects of working in a helping profession. The need is especially great for audiologists. Studies considering constructs such as compassion satisfaction and resilience in audiologists are extremely limited. It is recommended that further research seeks to demonstrate more conclusively the factors contributing to compassion satisfaction and resilience in paediatric audiologists. Personal factors contributing to resilience were not touched on in this study, primarily due to the short, 10-question resilience questionnaire that was utilized. However, questionnaires in general provide limited scope to explore personal factors. Thus, qualitative research demonstrating the effect of personal factors on resilience in paediatric audiologists would be worthwhile. Further research should also ascertain whether resilience plays a mediating role between occupational stress and burnout. Finally, based on the results of this study, exploring the impact of a healthy work-life balance on resilience levels among paediatric audiologists is also recommended. If such research became available, interventions to increase compassion satisfaction and resilience in paediatric audiologists could be developed. These interventions would likely go some way to reduce the risk of burnout and associated outcomes, such as depression, ill-health, sub-standard patient care, low productivity at work, and job turnover.

In summary, future research among paediatric audiologists considering the stress-burnout phenomenon, compassion satisfaction, and resilience should employ larger sample sizes and multiple, complementary methods of data collection and analysis.

## **Conclusion**

It is clear in the literature that health professionals can actively work to achieve satisfaction in their work as a helper and to develop resilience in the face of stress and adversity. This study provides limited evidence that paediatric audiologists may be able to safeguard their resilience by seeking understanding and support from family and friends and by managing their social life well. However, organizational support is also crucial, if paediatric audiologists are to thrive in the workplace. Audiological organizations and public health organizations offering audiological care should create a work environment that reduces the effects of stress and fosters the positive outcomes of helping. Indeed, to do so stands in the best interests of the organization and the patients they serve to do so. Desirable work environments are known to increase staff retention and improve patient care (Friese et al., 2015; McClure & Hinshaw, 2002), while suboptimal work environments have the opposite effect (Keith et al., 2021; Milisen et al., 2006; Weigl et al., 2015). Moreover, job attrition carries heavy financial, social, and experience-based costs for the organization. Based on the results of this study, it is recommended that leaders of audiological organizations strive to create workplace environments where paediatric audiologists are adequately supported by management and peers, given an appropriate level of autonomy, and treated with respect and fairness. In a world of rising costs and pressures outside work, ensuring each employee has adequate time, resources, and reward for the work expected from them is also important. Ensuring these things could include filling vacant staff roles as soon as possible, employing skilled staff and sufficient support staff, capping caseloads, investing in smooth administration systems and modern diagnostic equipment, promoting teamwork and mentorship, allowing staff flexible working hours and regular time off, and offering a favourable salary or hourly wage. Furthermore, effort should be applied to understanding and supporting the specific needs of each employee outside work. Then, and only then, can it be

expected that the positive aspects of helping will be maximized and negative aspects minimized for paediatric audiologists. In turn, this will bring reward both to the organization the paediatric audiologist works for and to their patients and their families.

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**HUMAN ETHICS COMMITTEE**

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Ref: HEC 2021/19/LR

7 July 2021

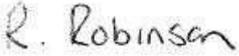
Georgia Moore, Jessica Brown, Kate Giddens and Rachael van Wichen  
School of Psychology, Speech and Hearing  
UNIVERSITY OF CANTERBURY

Dear Georgia, Jessica, Kate, and Rachael,

Thank you for submitting your low-risk application to the Human Ethics Committee for the research proposal titled “The Resilient Practitioner: Application to Audiology Students and Practitioners”. I am pleased to advise that this application has been reviewed and approved. Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 18<sup>th</sup>, 21<sup>st</sup>, and 29<sup>th</sup> June 2021.

With best wishes for your project.

Yours sincerely

  
pp.

Professor Geoffrey Rodgers  
*Deputy Chair, Human Ethics Committee*