



University of
**Southern
Queensland**

REPLICATION AND REFINEMENT OF CHIQ REFLECTION TOOL

A Thesis submitted by

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ABSTRACT

Childhood trauma, also referred to as cumulative harm, can have enduring and significant effects on individuals. Research to date has elucidated how important it is to recognise and understand the prevalence of trauma and the implications it can have on the lifespan. Cumulative harm inevitably shapes various aspects of an individual's life, including career choice. Current research regarding influences and motivations to enter nursing professions is limited. The healthcare system depends heavily on nurses to provide essential care and support to patients. Without nurses, the healthcare system would cease to exist. Understanding these motivations is crucial for developing effective strategies to address the current nursing shortage. The primary objective of this research was to test the structural validity of the Cumulative Harm Impact Questionnaire (CHIQ). An additional aim was to examine if the CHIQ was a structurally valid measure when replicated in a nursing population. As part of a further test of structural validity it was argued that the CHIQ will correlate with trauma and measures of career readiness. Based on the previous research with other helping populations, it was hypothesised that cumulative harm would influence career choice for nursing professionals and nurses in training. Additionally, it was hypothesised that the CHIQ will show structural validity by comparing the structure of the scale to correlate with the Post Traumatic Growth Inventory (PTGI), The Utrecht Work Engagement Scale (UWES), Work as Meaning Inventory (WAMI) and Brief Calling Scale (BCS). The results of the current study identified that while some of the subscale items of the CHIQ are structurally valid measures, others require further development. Furthermore, the study revealed that cumulative harm can influence career choice for nursing professionals and nurses in training, providing valuable insights to guide future efforts in recruitment and retention.

CERTIFICATION OF THESIS

I Ashlea Dallas declare that the Thesis entitled *Replication and Refinement of CHIQ Reflection Tool* is not more than 20,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references, and footnotes. The thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

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CHAPTER 1: INTRODUCTION

1.1 Cumulative Harm

The effects of several adverse circumstances in a child and youth's life is referred to as cumulative harm (Bromfield et al., 2007). Experiencing early trauma can contribute to adverse outcomes later in life. More specifically, trauma accumulated throughout childhood and youth may affect the developmental trajectories and career choices of individuals (Bryce et al., 2022). Cumulative harm has been predominantly labelled as an Australian term, whereas, internationally, this may be referred to as complex trauma. The term complex trauma may be used to elucidate the long-term effects of the accretion of childhood adversity (Collier & Bryce, 2021). Cumulative harm can be defined by "effects of multiple adverse circumstances and events in a child's life the impacts of which can be profound and exponential, and diminish a child's sense of safety, stability and wellbeing" (Miller 2007 p.1). Research to date has elucidated how important it is to recognise and understand the prevalence of abuse and repetitive trauma and the implications it can have on the lifespan (Broadley, 2014; Bromfield et al., 2007; Bryce et al., 2022).

1.2 Cumulative Harm and Nurses

Cumulative harm experiences may influence an individual's decision to pursue a career in nursing, in order to re-write their trauma narratives and find meaning in their past experiences (Bryce et al., 2022). Nurses who have experienced cumulative harm may feel driven to provide care and support to those in need, as they can empathise with patients and understand their suffering (Perry et al., 2011). This emotional insight allows nurses to provide emotional support as well as medical care, which can be vital to patient recovery. By helping and caring for others, individuals may feel motivated to transform their past adversities into something positive,

directing their empathy and resilience into the wellbeing of their patients. A career in nursing may allow individuals to process their own trauma and promote healing by helping others (Crane & Ward, 2016). As a result, nurses may find meaning and purpose in their past adversities, increasing their strength and personal growth (Bryce et al., 2022; Bryce et al., 2023). Nurses having a personal connection to their work can increase motivation and overall work engagement, therefore increasing job satisfaction, retention, professional growth, and improving patient care (Waltz et al., 2020).

1.3 Importance of the Present Study

The Cumulative Harm Impact Questionnaire (CHIQ) tool Bryce et al. (2022) created provides a self-reflection mechanism for professionals to clarify the presence of cumulative harm and its influence on career decision making and vocational behaviours. The primary objective of this research was to test the structural validity of CHIQ. An additional aim was to examine if the CHIQ was a structurally valid measure when replicated in a nursing population. Nursing research is important for educational and clinical purposes, as it develops in depth knowledge about health and the advancement of health over the lifespan, care of individuals with various health concerns, and ability to allow individuals to respond effectively to health issues that arise (Institute of Nursing, 1983). The role of nursing and nursing practice has evolved significantly throughout the 21st century. Nurses work in a multiplicity of settings, including although not limited to, the classroom, hospitals, doctor surgeries, business sectors, in home healthcare, laboratory, aged care, and the community health sector (Dafny et al., 2023). All of these roles share a common focus on providing care for individuals across the lifespan. The principal role of a registered nurse is to provide optimal care to patients on the basis established through research

(Tingen et al., 2009). In summary, nursing research is an ever-growing field, where professionals can offer a wide range of expertise and knowledge to advance the science of nursing care. This research study will examine several key concepts, including cumulative harm and its connection to trauma, the influence of childhood experiences on career paths, career choice and relevant career theories, as well as the impact of cumulative harm and trauma on career decisions. This study will also explore the relationship between cumulative harm and career development, particularly within helping professions such as nursing. Key topics will include refinement and reapplication of the Cumulative Harm Impact Questionnaire (CHIQ) in a nursing sample, the significance of nursing as a profession, the importance of a strong nursing workforce, and trauma responses within the nursing field.

1.4 Personal Contribution

This research study reflects personal experiences, as cumulative harm in my youth influenced me to pursue a career in mental health and inspired me to complete a Bachelor of Psychology, and now a Master of Research with psychology specialisation), with the end goal of becoming a psychologist. Without having experienced cumulative harm and trauma in my youth, I would not have pursued a career in psychology. I firmly believe that individuals who have experienced trauma often seek to make meaning of their experiences by pursuing careers in helping professions, such as psychology, social work, and nursing professions. Individuals may be intrinsically motivated to help others through times of need, especially if individuals have gone through similar experiences in their youth. This specific research is very important and interesting to me, and I believe results will show that cumulative harm influences career choice in nursing professionals.

CHAPTER 2: LITERATURE REVIEW

2.1 Cumulative Harm

Previous research has frequently focused on childhood trauma, specifically on physical, sexual, and emotional trauma (Liebschutz et al., 2018; Rowe et al., 2024). Cumulative harm can be defined as multiple exposures or various types of traumas experienced (Martin et al., 2013; Morris et al., 2017). Experiencing multiple traumatic events can have a more profound impact on individuals than a single instance of trauma, leading to an increased likelihood of chronic psychological and physiological issues (Anda et al., 2006; Briere et al., 2008; Martin et al., 2013; Morris et al., 2017; Rowe et al., 2024). Every individual is unique, and it is important to recognise that people tend to cope with stressful life events differently. This can depend on individuals' ability to handle challenges life throws at them, and how individuals can deal with the hardships they endure throughout their life course successfully (Bandura, 2011; Benight & Bandura, 2004; Nass et al., 2024). Moreover, individuals who endure cumulative harm may be more prone to experiencing complex and severe symptoms (Bolduc et al., 2018; Hodges et al., 2013; Martin et al., 2013).

Childhood mistreatment stands as a significant worldwide issue (Théorêt et al., 2024). Cumulative harm may hinder an individual's ability to adapt to essential developmental tasks throughout their lifespan, increasing the likelihood of developing harmful behaviours and psychological disorders in the future (Jaffee, 2017). Théorêt et al. (2024) reports that individuals who endured childhood trauma have often experienced situations where they had to complete parental responsibilities prematurely or grew up in households lacking adequate emotional role models. In these settings, emotional expressions such as anger, fear, and sadness may have been disregarded or punished instead of being acknowledged (Cabecinha-Alati et al.,

2020; Jaffee, 2017). Subsequently, having a limited number of emotional role models in childhood may result in individuals struggling to manage their own emotions, leading to difficulties managing and coping with stress and adversities in adulthood.

2.2 Adverse Ramifications of Cumulative Harm

During adolescence, health risks and behaviours may emerge, including substance misuse, sexualised behaviours, self-injury, and suicidal behaviour (Layne et al., 2014). Adverse childhood experiences may influence child and adolescent development through various ways including brain development, psychosocial effects, and neuroendocrinology (Bremner, 2003; Lupien et al., 2009). Ford et al. (2010) found cumulative harm exposure in adolescents increased the risk for both misconduct and cognitive impairment. This is alarming as trauma and cumulative harm experiences can disrupt crucial developmental milestones for children and youth. These disruptions can cascade into lifelong negative psychological consequences (Layne et al., 2014). Cumulative harm and trauma can result in psychological distress such as symptoms of depression, anxiety, and post-traumatic stress disorder (PTSD) (Al Jowf et al., 2022; Cougle et al., 2010; Clark et al., 2010).

2.3 Cumulative Harm and its Relationship to Trauma

Cumulative harm refers to the accumulation of negative experiences or stressors over time, which can have a substantial influence on an individual's wellbeing and resilience (Nurius et al., 2015). Trauma can be referred to as a wound that injures individuals emotionally, psychologically, physiologically (Chen et al., 2020). Specifically, trauma is a strong emotional and psychological reaction to a distressing event or an accumulation of events. Trauma can impact an individual's ability to deal with challenges throughout the life course (Aldwin, 2010). Childhood trauma may be associated with increased risk of diabetes, heart disease,

autoimmune disorders, and in some cases death before age 75 (Brown et al., 2009). Trauma and prolonged stress can hinder individual's behaviour and ability to engage with services, especially if the patient has a history of trauma (Fleishman et al., 2019). The healthcare system is populated with individuals who have previously experienced trauma, both those receiving care and providing care. Trauma, work related stress, and burnout is exceedingly high among emergency department, hospice, oncology, and paediatric nurses (Beck, 2011). Burnout and secondary stress can be influenced by working with patients with an extensive trauma history (Missouridou, 2017; van Mol et al., 2015).

Both cumulative harm and trauma can have significant negative impacts on a person's mental, emotional, and physical wellbeing. Cumulative harm results from the gradual build-up of adversities, while trauma can stem from a single traumatic event. Cumulative harm and traumatic life events can increase symptoms of anxiety, depression, or PTSD, and instigate unhelpful beliefs and harmful coping mechanisms (e.g., substance use or self-harm behaviours; Humphreys et al., 2020; Magin et al., 2024). Depression, anxiety, and PTSD are all common responses to trauma and may not be reflective of pre-traumatic problems (Fung et al., 2022; Vibhakar et al., 2019). Consequently, these responses often extend beyond mental health. As cumulative harm and trauma accumulate over time, they can play a significant role in shaping individuals career choices and pathways (Bryce et al., 2022; Bryce et al., 2023).

2.4 Career Choice

Since the 20th century, career development and choice has been studied. Occupation choice noticeably affects each individual's lifestyle, as it can be associated with physical wellbeing and mental health (Hackett & Betz, 1995). Prominent career choice theories recognise several early influences on career

development and choice, including orientation, gender role, parental and peer interactions, personality, and educational experiences (Eccles, 2011). Holland's (1985) theory of careers hypothesises individual's interests, values, and occupational demands can influence career satisfaction and success (Hackett & Lent, 1992). Social factors affecting career choice and behaviour have been incorporated within the psychological and interactional theories of career development. Krumboltz et al. (1976) stated that social learning theory recognises various factors influencing career development, such as education, family, and the environment. Research suggests that individuals may desire to work in helping professions due to personal psychopathology (Tillett, 2003). Yu et al. (2024) found that childhood adversity moderated the impact of job stress. The stress generation hypothesis proposes that dependent stressors (a stressful event that may be influenced by an individual's behaviour) versus an independent stressor (an event that happens regardless of the individual's influence) can affect people differently (Santee et al., 2023). Consequently, there may be variations in how cumulative harm influences dependent and independent stressors (Janusek et al., 2017; Pries et al., 2020; Simons et al., 2019; Yu et al., 2024).

Evidently, individuals in helping professions may experience higher rates of depression, anxiety, suicidal ideation, thoughts of harm to self, and substance use (Guthrie & Black, 1997). Staff morbidity may result from the combination of work stress and mental health difficulties. Interestingly, many helping professionals may unconsciously have a special bond to their work (Tillett, 2003). This can be due to 'helping profession syndrome'. Research suggests that 'helping profession syndrome' influences individuals to choose and pursue careers in helping professions as a way to cope with their own vulnerabilities or adversities

(Gunasekaran et al., 2022). Previous studies investigated career choice in nursing and found gender, culture, personal experiences, perception, and a desire to help others as mediating factors that contributed to career choice (Price et al., 2013). Current nursing literature offers limited insight into career decision making and lacks an understanding of contextual factors that influence people to become a nurse. Future research is required to examine students' motivations in relation to career choice, educational outcomes, and professional turnover (Coomber & Louise Barriball, 2007; McLaughlin et al., 2010; Jirwe & Rudman, 2012). Therefore, providing further rationale for this present study.

2.5 Career Choice and Career Theories

A foundational theorist (Super, 1980) stipulated a thorough framework for understanding how people create and manage their careers over their lifespan. Super (1980) described career development as a lifelong process influenced by self-concept, social factors, personal characteristics, and life experiences which continuously develop through five stages across the life span. These included the growth stage (childhood), exploration stage (adolescence), establishment stage (young adulthood), maintenance stage (middle adulthood), and decline stage (late adulthood). Super (1980) acknowledged the significance of self-concept in career development and suggested that people tend to prefer careers that affiliate with their self-concept and acquired life experience. This theory provides an overarching framework for understanding career development throughout individual's lifespan (Super, 1980). Super's theory does not address cumulative harm or lived experience of trauma within its framework. Although, Super's theory could be adjusted to understand how experiences of cumulative harm may affect individuals career choices and interests.

Social cognitive career theory (SCCT) (Lent et al., 1994) explores how individuals' career choices, interests, and performance are influenced by the interplay of self-efficacy beliefs, contextual factors, outcome expectations, and personal goals (Banerjee et al., 2024). This theory integrates principles of self-efficacy, goal setting, and outcome expectations to describe how people acquire occupational interests, make career selections, and succeed in their career (Wang et al., 2022). SCCT incorporates three important variables including (1) self-efficacy, (2) outcome expectations, and (3) personal goals. These components are considered as essential foundations of career development and represent crucial factors through which individuals construct their career narratives. According to SCCT, occupational and academic development can be influenced by self-efficacy, outcome expectations, ability, and performance goals. Specifically, self-efficacy plays a vital role in determining how individuals believe in themselves to achieve a certain goal (Lent et al., 2002). SCCT consists of five interrelated factors. The first three focus on elements of career interest, performance and choice (Lent et al., 1994). The fourth factor focuses on individual's overall wellbeing and their career fulfilment (Lent & Brown, 2006; Lent et al., 2008). Lastly, the fifth factor focuses on how individuals manage challenges and developmental tasks (Lent et al., 2013). All factors contribute to understanding individuals' perspective on career development and behaviour (Lent & Brown, 2019). Furthermore, a limitation of SCCT is that it does not reflect lived experience of cumulative harm. Although, SCCT may be extended to recognise the impact of cumulative harm on career development. Cumulative harm can significantly influence the core constructs of SCCT, and as a result this may influence individuals' career choices.

Savickas' career construction theory (CCT; 2013) theory provides a framework for understanding how individuals construct their career identities and narratives through interaction with their environment, cultural contexts, and life experiences. CCT highlights the importance of meaning-making in career decision making processes and emphasises the significance of personal narratives shaped by peoples lived experiences of cumulative harm (Bryce et al., 2023; Savickas, 2020). Savickas (2013) articulates that career paths are a representation of individuals values, lived experiences, and their life story. CCT suggests that cumulative harm experiences may influence how individuals shape their career paths as exposure to trauma may hinder their sense of identity and values which may inevitably affect future career decisions (Savickas, 2013). As articulated above, a significant limitation of Super (1980) and SCCT (Lent et al., 2002) is that both theories do not reflect lived experience of cumulative harm or trauma. Savickas theory addresses this limitation by elucidating how individuals can adapt with lived experience of cumulative harm.

2.6 Career Development and Importance

Meaningful work in terms of career development, is work that gives individuals a sense of purpose and satisfaction (Rothausen & Henderson, 2018). Meaningful work aligns with an individual's interests, values, and strengths. Personal growth and career success is likely to occur when individuals are interested in and value their work (Ahmed et al., 2018). Meaningful work is important because it contributes to individual's happiness and sense of purpose, whilst motivating people to be productive and dedicated to their career. This also can reduce work stress and burnout due to people finding meaning in their work and continuously progressing in their careers (Allan et al., 2016). Additionally, work engagement refers to how dedicated a person is to their career (Salmela-Aro & Upadyaya, 2018). Individuals

who are engaged in their career tend to be passionate about their work (Bakker & Albrecht, 2018). This may lead to increased job satisfaction, better performance, and higher productivity (Bakker, 2022; Kašpárková et al., 2018; Lee et al., 2016).

Post Traumatic Growth (PTG) refers to the personal growth and positive psychological changes individuals may experience after facing and overcoming cumulative harm or traumatic experiences (Bryngersdottir & Halldorsdottir, 2021; Henson et al., 2020). These adverse experiences can shape and influence individuals' career paths in a positive way. By learning to cope with previous traumatic experiences, individuals can develop coping skills, and increase their resilience, which can benefit their professional growth and success (Calhoun & Tedeschi, 2014). Furthermore, research suggests that individuals who are drawn to their careers have higher job satisfaction and success (Hennekam, 2016). Work calling is associated with feeling a personal connection or purpose to a particular occupation. Work calling is important for career development as it gives individuals' a strong sense of purpose and motivation. When people are drawn to their careers, they tend to be more passionate and committed, which leads to better productivity (Erum et al., 2020). Consequently, work calling helps shape a meaningful and successful career path.

2.7 Childhood Influences on Career

Childhood influences on career are of the uttermost importance, as these influences shape career narratives and an individual's life course. Family is considered as one of the most important influences on child career development. From a young age, children start to construct career identifies based on people and the world around them (Liu & McMhaon, 2016). Career decision making is a complex decision that inevitably shapes an individual's future. Research suggests that student's perception, family support, and gender difference are significant factors that

influence individual's choice in pursuing a career in a healthcare profession (Almutary and Al-Moteri, 2020; Kawamoto et al., 2016; Liaw et al., 2017; Neilson & McNally, 2013).

2.8 Impact of Cumulative Harm and Trauma on Career Choice

Trauma is something that can be inescapable and horrific for many individuals (van der Kolk, 2000). Individuals differ in how they respond, and process trauma (Boden et al., 2013). Unresolved childhood trauma often leads to symptoms of PTSD, impacting cognitive and social development (Felding et al., 2021; Fung et al., 2022). Research by Neilio et al. (2022) explored how past adversities can correlate with career development and wellbeing. Findings report that individuals with adverse childhood experiences may bring these past challenges into their professional environments. The life course perspective suggests that early life stressors can have a profound impact on psychological, physical, and social outcomes throughout an individual's life (Yu et al., 2024). These stressors or adverse experiences may shape health trajectories and developmental pathways over time. Furthermore, the life course perspective emphasises how early experiences, social contexts, and significant life events interact to shape an individual's career choice (Paat, 2015).

The impact that cumulative harm and trauma can have on career choice is significant, as individuals who experience traumatic events may consciously or unconsciously make career choices that allow them to make sense of their trauma, or to turn negative experiences into something meaningful (Haynie & Shepherd, 2011; Kim & Smith, 2021). Helping others through similar challenges can create a sense of purpose and allow individuals to heal from their own trauma experiences (Bryce et al., 2022). Certain professions may allow individuals to re-write their own trauma

narratives, although entering fields that are associated with personal trauma may be triggering or lead to burnout (Butler et al., 2017; Rauvola et al., 2019).

2.9 Cumulative Harm and Career Influence

Cumulative harm and adverse childhood experiences may affect various aspects of an individual's life (Bryce et al., 2021). People who have experienced childhood adversities may seek out careers that can provide security and stability, often these careers allow individuals to make sense of their traumas and can help others navigate life's challenges (Savickas, 2013). Preliminary research indicates that individuals who have cumulative harm experiences are influenced to enter helping professions. Specifically, research by Fussell and Bonney (1990) found psychotherapists (compared to physicists) reported previous adverse childhood experiences and emotional deprivation. Similarly, research by Murphy and Halgin (1995) found individuals who had experienced psychological distress, or witnessed a family member experiencing any emotional adversity, were more inclined to become a clinical psychologist. A study by Bouchard and Rainbow (2021) reported that numerous students who had experienced traumatic childhood events were influenced to study a Doctor of Nursing practice. Moreover, Racusin et al. (1981) reported that 50% of psychotherapists ($n = 7$), revealed maltreatment, negligence, or household dysfunction in childhood. Comparably, Pope and Feldman-Summers (1992) found that 33.1% of clinical and counselling psychologists disclosed previous childhood abuse. Research by Nikčević et al. (2007) reported psychology students were exposed to childhood abuse and household dysfunction, compared to students outside of helping professions. Interestingly, psychology students aspiring to work in the clinical field reported higher rates of negligence and sexual violence, compared to business students and psychology students with no clinical aspirations (Nikčević et

al., 2007). Due to the small sample size, this research may not be generalised to the helping profession workforce.

Research indicates the ways professionals construct their identities are important as identities shape how individuals understand themselves and how they are able respond to other people and the world around them (Swann et al., 2010). A systematic literature review by Bryce et al. (2023) found that nurses who had experienced adversities or trauma were moderately influenced to study and pursue a career in nursing. Consequently, indicating that nurses may exhibit certain responses to childhood adversity (Yu et al., 2024). A recent study by Koçak et al., (2022) found that individuals were motivated to choose a career path that reflects previous childhood experiences. This includes adversity and trauma endured throughout childhood. Similarly, Bryce et al. (2022) discovered helping professionals with previous experiences of cumulative harm reauthored their life narratives by pursuing careers to help others, in order to make sense of their own traumatic experiences. These findings highlight the need for trauma informed approaches to career counselling and development, which expand this scope to an understanding of cumulative harm and childhood trauma as a motivator of career choice (Bryce et al., 2021). Furthermore, the findings from Bryce et al. (2022) support the need for a narrative approach that promotes the reauthoring process professionals with a lived experience of cumulative harm engage in to reframe their experiences, to achieve positive career outcomes.

2.10 Cumulative Harm and Helping Professions

Careers in helping professions are focused on supporting individual's general wellbeing and addressing challenges in their physical, emotional, and psychological welfare (Graf et al., 2014). Individuals who have early experiences of trauma or

adversities may find a career in nursing or other helping professions appealing (Phillips, 1997). Research by Eisold (2005) argued that helping vocations may provide individuals with a chance for a therapeutic experience and to acknowledge gaps in their self-concept and potentially meet unmet needs (Gabbard, 1995; Guttman & Daniels, 2001).

Phillips (1997) explored ($n = 212$) the psychodynamic concepts of 'reparation' and 'compulsive caring' as potential motivations for a career in nursing. A significant proportion of the students had reported to experience previous cumulative harm compared to other students outside of helping professions. As a result of family circumstances, some students reported having to be responsible to care for others and themselves (Phillips, 1997). Elliot and Guy (1993) explored adverse childhood experiences among female therapists and compared the results to women working in other professions. The results revealed those therapists had experienced higher instances of sexual abuse, physical violence, death of a relative, parental alcoholism, and psychiatric hospitalisation of a family member, than women working in other professions. Evidence suggests helping professionals often acknowledge distress in childhood, and may enter the field to meet needs not adequately met in childhood (Elliot & Guy, 1993). A limitation of this study is the potential for selection bias, as a result the sample may not accurately represent the broader population due to how the participants were chosen for this study. Interestingly, 78% of the sample received an average of 167 hours of therapy to work through their childhood trauma. Subsequently implying that mental health professionals may have experienced cumulative harm. As articulated above, this research is dated, and therefore may not be reflective of the current society. Consequently, highlighting rationale for this

current study, as it is important to re-open this research and gain a new and updated perspective of cumulative harm and its influence on helping professions.

Recent research by Braunstein-Bercovitz et al. (2014) established childhood emotional maltreatment and career choice in helping professions are linked. According to Braunstein-Bercovitz, et al. (2014) childhood adversities can be internalised, and can influence education and career choice in helping professions. Furthermore, Reilly and D'Amico (2008) found some women ($n = 12$) who had experienced childhood abuse entered helping professions to alter their personal experiences and allow individuals to make meaning of their trauma. A further quantitative study could be undertaken to see if these concepts are generalisable. It is important to note that there is limited recent research in this area. Although, Braunstein-Bercovitz et al. (2014) and Reilly and D'Amico (2008) found a link between adverse childhood experiences and career choice, this link was found in a sample of mental health and higher education workers. Therefore, this present study will contribute innovative and valuable information to the field of cumulative harm and its influence on pursuing a career in nursing.

2.11 Cumulative Harm Impact Questionnaire

The Cumulative Harm Impact Questionnaire (CHIQ) tool Bryce et al. (2022) created provides a self-reflection mechanism for practising and pre- service professionals to clarify the presence of cumulative harm and its influence on career decision making and vocational behaviours. The model aims to ensure helping professionals with a lived experience of cumulative harm are aware of the relationship between their life and career narratives and manage the maladaptive traits resultant of their childhood adversity (Bryce et al., 2022). The CHIQ tool contributes valuable knowledge on the relationship between cumulative harm and

vocational identity and behaviour to inform career development (Bryce et al., 2022). Replication and refinement of an original study is important as it can provide greater validity to the findings, therefore making the data more generalised to a population. Moreover, it is important to refine the CHIQ tool, while ensuring that it continues to hold structural validity. The statistical analyses conducted in the previous study by Bryce et al. (2022) indicate that the CHIQ structural model was tested and found to be acceptable, although an additional investigation is required to ensure the CHIQ model is acceptable in a different sample. Furthermore, there is limited literature available regarding effects of cumulative harm and the influence it has on career choice in helping professions, specifically in a sample of nurses and nurses in training. Consequently, it is essential to investigate this, to gain a better understanding of what draws individuals to pursue careers in nursing.

2.12 Nursing as a Profession

Nursing is the largest and one of the most pivotal helping professions. The healthcare system relies on the availability of a nursing workforce, as nurses are one of the largest groups of healthcare providers (Price et al., 2013). Different nursing specialties tend to attract distinct personality types. For instance, emergency nurses often exhibit a 'tougher' and 'more robust' demeanour, which is likely a response to the demanding nature of their work environment. Midwives, on the other hand, are strong advocates for women's wellness, preferring not to refer to individuals as patients since they are healthy. Paediatric and oncology nurses, known for their roles, are often among the most compassionate and gentle professionals in the field. Nurses are required to apply their acquired knowledge, traits, and skills to numerous circumstances and be able to constantly adapt their skills to various situations (Fukada, 2018). Nursing competency can be defined as a nurse's ability to

effectively demonstrate personal traits and skills required to fulfill their professional responsibilities (Takase & Teroka, 2011). Most nurses utilise these attributes in clinical settings to provide effective, safe, and specialised care to their patient (Scott et al., 2013).

Alharbi et al. (2019) articulated that nurses in intensive and emergency units often experience emotional distress from witnessing patients ongoing struggle or suffering. This distress may be due to the nurse's inability to relieve their patients suffering or pain. Grant and Kinman (2014) identified working in healthcare professions can be emotionally draining, and as a result workers are leaving professions such as nursing for careers that are less distressing (Laschinger, 2011). Nurses encounter a range of stressors, as the profession requires a clinical skill set, 24-hour care, teamwork, and emotional labour (Phillips, 1996). Work is often emotionally demanding, as it requires continuous attentiveness to the work which can be draining. Research indicates that helping professionals can face psychological distress when working in high-risk environments, as there is substantial pressure put on the nurses. An example of a high-pressure situation may be various emergency circumstances or times during pandemics (Alharbi et al., 2020). Aiken et al. (2012) reported 42% of nurses felt burned out due to prolonged stressors in their work environments. This may be due to nurses managing ongoing complexity, fatigue, exhaustion, exposure to illness, emotional involvement, and workplace bullying (Flaubert et al., 2021; van Heugten, 2012). Additionally, the conflicting demands of being an evolving professional may be distressing at times (Pearcey & Elliott 2004). New graduate nurses face several challenges when transitioning to the workforce, including caring for individuals with complex conditions, performance anxiety,

increased number of patients with multiple comorbidities, and generational diversity (Hofler & Thomas, 2016).

The choice of nursing as a career may be influenced by numerous factors. Research suggests that individuals choose to enter the nursing profession to support others, help people, and make a meaningful impact to patients' lives (Mackintosh, 2006). Chronicity can influence a career in nursing by motivating individuals through personal experiences of chronic illness and having a strong desire to help others (Eley et al., 2012; Kersten et al., 1991; Stevens & Walker, 1993). Personal experiences of trauma may influence individuals to pursue careers in nursing as a way to make meaning of their own cumulative harm experiences, help others, and re-write their own trauma narratives (Balan & Balan, 2023; Choi et al., 2021; Marcinowicz et al., 2016). Professional learning can shape career choice by validating individual's personal experiences with trauma, increasing their self-efficacy, and allowing individuals to find meaning and fulfillment in their career (Agoes Salim et al., 2023; Spouse, 2002; Webster-Wright, 2009). Helping others may motivate individuals to choose nursing as a career by fulfilling their intrinsic need to have a purposeful and meaningful career (Macdiarmid et al., 2021).

Emotive motivations can also play a significant role in shaping career choice (Fineman, 2003; Jung et al., 2015). Emotive motivations for becoming a nurse often develop from a strong sense of empathy for others (Moudatsou et al., 2020; Xu et al., 2023). Personal experiences with illness or caregiving can also influence individuals to pursue a nursing career, as a way to make a positive and meaningful impact (Price et al., 2013). A career in nursing can be fulfilling, as nurses significantly contribute to patients' health and wellbeing (Bouws et al., 2020; Liaw et al., 2016). Taken together, these variables may motivate the choice of nursing as a career. Individuals who feel

a calling to a specific profession may be driven by a desire to help others and find meaning in their work. Vocation may influence a career in a nursing profession by providing individuals with a sense of purpose and increased level of intrinsic motivation to ensure adequate clinical care (Afsar et al., 2019; Kallio et al., 2022; Raatikainen, 1997). Personal growth may influence individuals to choose nursing as a career in order to transform their own cumulative harm experiences into compassionate patient care (McBride, 2019; Kersten et al., 1991). Individuals who have experienced trauma or other adverse circumstances may have a personal understanding of pain or distress, and this may motivate them to help others in need (Li et al., 2024).

Research has indicated that trauma may negatively affect individual's self-worth (Melamed et al., 2024). Conversely, cumulative harm experiences may also influence individuals into helping professions, in order to find their sense of purpose and self-worth by caring for others (Bryce et al., 2022; Galuska et al., 2018). Overcoming trauma may increase individual's self-worth and resilience, in turn, making nursing a rewarding career choice (Cope et al., 2016). A sense of value may drive individuals to pursue a career in a helping profession, such as nursing, in order to make a positive and meaningful impact, align with their own values of care, and to have fulfilling career dedicated to improving patients' health outcomes (Bang et al., 2011; Horton et al., 2007; Lai et al., 2008). Alignment of interests may influence individuals to pursue a career in nursing by aligning their passion for helping others and overarching interest in healthcare (Jirwe & Rudman, 2012; Richard & Bin, 2023). Individuals with a personal interest in their career may find their work more enjoyable and rewarding (Ai & Mahmud., 2020). Therefore, aligning personal interests with career choice may enhance motivation, productivity, and job satisfaction

(Nyamwange, 2016). Advocacy and altruism are core aspects of nursing careers, influencing job satisfaction, retention, patient care, and professional identity. These values are essential to the nursing workforce, potentially increasing both nurses' personal fulfillment and the quality of care they deliver (Chenoweth et al., 2013; Nasrabadi et al., 2015; Wath & Wyk, 2019). As demonstrated above, previous research has indicated that various factors may influence careers in nursing. However, the previous literature is outdated. More recent studies are needed to determine whether these factors continue to influence a career in nursing.

According to Jackson et al. (2020) nurses are typically drawn to their profession from a desire to help people in recovering and maintaining their ideal health. Additionally, a desire to care for others inspired nursing students in the United Kingdom to study nursing (Crick et al., 2014). In a qualitative study exploring healthcare students' decisions to pursue nursing as a career, Liaw et al. (2016) identified that previous experiences, job stability, and personal values were predominant factors that influenced their decision. A recent cross-sectional study by Almutary and Al-Moteri, (2020) found motivational factors such as working with patients, and making a social contribution influenced participants ($n = 395$) into a career in healthcare (specifically in nursing, medical laboratory, physiotherapy and radiology). McKenna et al. (2017) found in a sample of Australian Students, with a strong desire to provide care for others, help people in need, and prior exposure to the nursing profession through family or personal circumstances, influenced their decision to enter the nursing profession. In a comprehensive review, Wu et al. (2015) explored factors influencing healthcare students' career decisions and found extrinsic and intrinsic motivations. Students demonstrated a strong commitment to altruism, driven by the desire to help others. Moreover, research by Hinds and Harley (2001)

reported that individual's perceptions of nurses focused on an idealised image that emphasised care and helping others. Additional factors that may influence a career in a nursing profession are prior healthcare experiences, personal interactions with nurses, and professional identity (Day et al., 2005; Hakvoort et al., 2022; Philippa et al., 2021).

2.13 Importance of Nursing Workforce

The nursing workforce plays a crucial role in delivering high-quality patient care, ensuring patient safety, and enhancing health outcomes (Boamah, 2018; Boyd et al., 2019; Sherwood & Shaffer, 2014). The increasing importance of nurses has led to a growing demand for their services. The importance of registered nurses, enrolled nurses, and assistants in nursing is expected to increase in the future. Improving healthcare will require the provision of holistic care, improved care coordination, and enhanced management of chronic disease (Bohmer, 2013). This is problematic due to a current nursing shortage being acknowledged world-wide. Due to nurses representing a large portion of the healthcare system, the shortage will have adverse effects in the quality of care and service (Almutary & Al-Moteri, 2020). Without nurses, the healthcare system would cease to exist. With the ageing population, there is a constant need for primary, acute, and aged care services (Boyd et al., 2019). To ensure a sustainable healthcare system for Australia, it is essential to focus on workforce planning and improvements in regard to retaining nurses and staff wellbeing (Roche et al., 2015).

Research by Wilmar Schaufeli refers to work engagement as a fulfilling and positive connection to work, characterised by vigour, dedication, and absorption (Schaufeli & Salanova, 2008). Schaufeli and Bakker (2004) describe work engagement as the opposite of burnout, emphasising that engaged employees are

passionate and motivated, increasing performance and job satisfaction. This is important, as engaged nurses are able to provide high quality care, and have lower rates of burnout, and therefore improving retention (Singh et al., 2024).

Consequently, leading to better patient outcomes. By fostering work engagement, healthcare organisations can ensure staff are motivated, in turn reducing the chance of errors and enhancing overall patient safety and care (Schaufeli & Bakker, 2004).

Boyd et al. (2019) reported that Australia has a retention issue, and this must be rectified to ensure the nursing workforce does not collapse. Work environment is a significant factor influencing the psychological and psychosocial health of healthcare professionals (Tomo & De Simone, 2017). Burnout is prominent among nurses, as they are the frontline of the healthcare system (Munnangi et al., 2018). Australia is projected to face a deficit of 109,490 nurses by 2025, marking a 28% gap from the estimated demand for the nursing workforce (Boyd et al., 2019; Mason, 2013). This nursing shortage is also a significant problem on a global scale as well. Globally, there is an increased demand for registered nurses, and due to the current turnover rate, staff wellbeing and satisfaction is of paramount importance (Salvant et al., 2020). Further research by Aiken (2007) states that in the United States, in order to keep up with the consistent job growth in the nursing workforce, 1.1 million nurses are required to replace retiring nurses and fill new positions. Specifically, this results in 110,000 nurses needing to graduate and commence work each year, for a period of 10 years to avoid the possibility of a nursing shortage. One limitation is finding qualified nursing faculty to mentor this increasing number of nursing students (Saintsing et al., 2011). In 2011, the Institute of Medicine recommended increasing enrolment in nursing programs in order to produce more qualified nurses. This would enable healthcare services to care for the complex needs of the ageing population

and mitigate the threat posed by an ageing health workforce soon to retire. The current ageing faculty, limited number of applicants, and low income are all factors that may contribute to this nursing shortage (Sims, 2009).

Prolonged exposure to stressful environments can have long term detrimental effects to nurses' health and wellbeing. It is important to recognise the ongoing effects of caring for others, in order to intervene and prevent burnout and staff turnover. Burnout is a state of emotional, physical, and mental exhaustion caused by various work circumstances or prolonged stress (Edú-Valsania et al., 2022). Burnout can be harmful to healthcare professionals and their patients, as it can negatively effective the quality of care provided by nurses. Research has found that organisational support for helping professionals can decrease burnout, therefore, increasing job satisfaction, emotional wellbeing, and turnover (Marjanovic et al., 2007; Niu et al., 2019). Additionally, research has found that there is a negative relationship between burnout and empathy among nurses (Wilkinson et al., 2017). This can be problematic, because if nurses are burnt-out, this can reduce their ability to respond to patients empathetically, therefore hindering patients' quality of care. Improving personal accomplishment is crucial to maintain job satisfaction and decrease depersonalisation in nurses. Recognition of personal accomplishment can ensure nurses remain satisfied with their work, and this may decrease emotional exhaustion and burnout. Munnangi et al. (2018) suggested increasing pay and recognising quality of work may reduce nurse turnover.

Nurses form the largest occupational group of the health workforce (Cope et al., 2016). It is important to recognise the growing shortage of nurses globally, with nursing recruitment and retention recognised as priorities worldwide (Ashkenazi et al., 2017; Halperin & Mashiach-Eizenberg, 2014; Sela-Vilensky et al., 2020). In

comparison to other helping professions, nursing education has one of the highest recruitment targets due to the significant and ever-increasing demand for nursing professionals (Liaw et al., 2017). Consequently, there is a continuous need for reliable and successful recruitment strategies in the field. Understanding the motivations of people pursuing a career in a nursing, is crucial for improving recruitment strategies (McKenna et al., 2023).

Despite the growing need for nurses, the nursing workforce continues to battle and ever-growing shortage, which is influenced by the retirement of an ageing workforce, high job stress, lack of clinical educators, and turnover (AACN, 2019). Baby boomers represent a significant portion of the population. As baby boomer generation (i.e., those born between 1945 – 1961) age, there may be an increased need for them to access healthcare services (Rice et al., 2010). Also, there is currently a large percentage of nurses who belong to the baby boomer generation that may be close to retiring. Researchers have highlighted that the retirement of baby boomer nurses, coupled with the increasing levels of chronic illness among populations is detrimental to the nursing workforce. This is expected to intensify the nursing shortage, and may lead to a loss of clinical knowledge and experience (Auerbach et al., 2017; Buerhaus et al., 2017; Fackler, 2019); Gan, 2020). Currently, there are not enough Gen Z nurses to replace the baby boomer generation, inevitably intensifying the current nursing shortage (Schofield & Beard, 2005). This places more pressure on several healthcare systems globally, who may already be struggling with the nursing shortage. With a significant portion of the nursing workforce retiring and a limited number of nurses filling these roles, the healthcare system is about to face an increase in staffing shortages, leading to greater

workloads for existing nurses, higher turnover rates, and this may lead to an inadequate standard of patient care (MacPhee et al., 2017).

The global nursing shortage stems from several key factors, including the ageing population, increased healthcare needs, limited education, and workplace stress (Duvall & Andrews, 2010). These factors collectively contribute to a shortfall in qualified nursing professionals worldwide, impacting the healthcare system and patient care. The shortage has significant implications for healthcare systems, including compromised patient care, increased workload for existing nurses, and challenges to maintain quality healthcare services (Humphries et al., 2014; Leung et al., 2019; Twigg et al., 2010). To alleviate the nursing shortage, recommendations such as expanding nursing education programs, improving working conditions, increasing compensation for nurses, and implementing policies to retain experienced nursing professionals may help alleviate the nursing shortage (Alluhidan et al., 2020; Hill, 2010; Marć et al., 2019; Niskala et al., 2020; Shamsi & Peyravi, 2020). Due to an increase in Australia's population, acute, primary, and aged care facilities may occasionally be at capacity (Boyd et al., 2019). Consequently, nurse retention must be rectified due to its crucial role in maintaining continuity of care and ensuring quality healthcare services (Nei et al., 2015). Young individuals may be drawn to health professions for numerous reasons, including family influence, interests, sense of value, financial compensation, altruism, emotive motivations, and autonomy (Fernandes et al., 2022; Vo et al., 2022; Wu et al., 2015). Vocational psychologists, Gottfredson (1981) and Super (1980) signified that the developmental stages significantly influence career choices from childhood to adulthood. Exposure to healthcare settings, including having a family member receive care or witnessing a healthcare professional at work influenced students to pursue careers in healthcare

(Muncan et al., 2016; Yeager & Cheever, 2007). Taken together, individuals may see noble and reputable behaviour from healthcare workers and want to remodel the behaviour and make a career narrative out of it to give back to society.

2.14 Importance of Nursing Research

Research in nursing plays a critical role in advancing the field, guiding policy decisions, promoting evidence-based practice, improving patient outcomes, and meeting the changing needs of diverse patient populations (Boswell & Cannon, 2022; Hayward et al., 2016; Williams et al., 2016). Without nurses, the whole healthcare system would collapse. That is why it is vital to understand what influences individuals to pursue careers in nursing. Research in nursing significantly impacts both current and future nursing practices, which can have clinical and professional implications, therefore it is a crucial part of the educational process (Tingen et al., 2009). As articulated above, there is limited research regarding cumulative harm and career influence for helping professions, although most research specifically targets professions such as psychology, mental health professionals, and therapists (Seeger, 2023). There must be a new, well-designed research study, with a sufficient sample size to generalise the data. Future research needs to have larger sample sizes and specifically target the nursing workforce, to gain new knowledge and be representative of the population. Therefore, emphasising the importance of this current research study. It is important to note that there is very limited literature regarding cumulative harm and its influence on career choice, specifically for nurses and nurses in training, reiterating the importance of this current research study. Please refer to appendix A and B for a more in-depth explanation of the impact this research will have.

2.15 Potential Impact of Cumulative Harm on Working Nurses

Cumulative harm can significantly impact nurses in numerous ways.

Cumulative harm may lead to mental health issues including anxiety, stress, and burnout, as well as physical health problems or chronic conditions (D'Andrea et al., 2011; Lian et al., 2024; Suliman et al., 2009). This emotional strain can hinder job performance, reduce job satisfaction, and increase turnover (Fasbender et al., 2019). Nurses may struggle to carry out tasks effectively or pursue professional development due to the toll of cumulative harm, which may negatively affect the quality of patient care (Tang et al., 2017; Vázquez-Calatayud et al., 2021; Yu et al., 2022).

Additionally, cumulative harm can diminish a nurse's ability to cope with various stressors, making them vulnerable to future challenges (Hart et al., 2014; Missouridou, 2017). Nurses may withdraw from their work due to emotional fatigue, as a result of experiencing cumulative harm. This may compromise their judgment and diminish their capacity to make ethical decisions in patient care (Hughes, 2021; Gustafsson & Hemberg, 2021). Consequently, this could have adverse effects on the health outcomes for patients.

Nurses who have experienced childhood trauma or cumulative harm, may be more susceptible to burn out. Due to the complexity of burnout, protective factors need to be in place to help remediate psychological burden. Social support is a fundamental component of maintaining good mental health and wellbeing (Miller & DiMatteo, 2013). Research by Reed-Fitzke et al. (2023) found that people who have experienced trauma, may have limited mental health or social support. Additionally, these individuals may be vulnerable and have distorted perceptions of psychological demands (Sampasa-Kanyinga et al., 2018). Therefore, it is crucial that health

professionals are aware of their cumulative harm, in order to protect themselves from certain triggers and psychological harm.

Quality of life can be affected by stressful and traumatic experiences. Personal history of healthcare workers can influence their professional quality of life (Xie et al., 2021). Targym and Nemeroff (2019) report stress in childhood that is related to adversities or trauma can instigate lifelong consequences. Recently, Mercer et al (2023) reported individuals working in mental health disclosed previous childhood adversities, compared to individuals outside of mental health professions. Persistent exposure to traumatic events or stressors at work can negatively affect health professionals (Spaan et al., 2024). Alarming, 70% of nurses working in inpatient and acute psychiatry experience verbal and physical violence at work, exposing them to workplace trauma, which can have determinantal and lasting psychological implications (Babiarczyk et al., 2020; Dafny et al., 2023; Hilton et al., 2021; Newman et al., 2021).

A qualitative study by Dafny and Beccaria (2020) investigated nurses' ($n = 23$) opinions of violence (including physical and verbal violence) perpetrated by patients and visitors. Findings revealed instances of physical and verbal violence, including punching, biting, scratching, kicking and threats of using weapons (including knives), occurring on a daily basis. Participants articulated that violence is increasing in the workplace, and there is limited support available. This violence may have lasting consequences in nurses' professional and personal lives (Dafny et al., 2021). Additionally, during clinical practice nurses are exposed to high levels of violence and aggression (Hopkins et al., 2014). Without appropriate support, this may hinder nurses' retention, work performance, and job satisfaction (Watson et al., 2020). The nursing workforce may be at risk, therefore it is essential to find strategies to prevent

workplace violence (Ayasreh & Khalaf, 2020; Dafny et al., 2023). Itzhaki et al. (2018) reported that 89% of mental health nurses were exposed to physical or verbal violence. Similarly, a systematic literature review by Mento et al. (2020) found many helping professionals experienced a form of workplace violence. Psychological, physical, and sexual abuse is more prevalent in psychiatric and emergency departments (Mento et al. 2020). Furthermore, Niu et al. (2019) also reported workers in acute psychiatry experienced frequent verbal (82%) and physical aggression (56%). Healthcare workers often exhibit higher incidence levels of childhood trauma compared to other professions (Bloemendaal et al., 2024). To date however, there is limited research known about the prevalence of cumulative harm in a nursing workforce.

Decision making is essential to nursing practice, and at times can be a complex process (Nibbelink & Brewer, 2018). Nurses face the challenge of balancing multiple, sometimes contradictory, factors when addressing patient and family needs. This complexity is increased by the workload of caring for multiple patients at once. Decision making for nurses in these environments can be emotionally demanding and exhausting. Further understanding of nurses' decision making processes and clinical judgment may provide valuable insights in how to better support nurses and other helping professionals (Nibbelink & Brewer, 2018).

2.16 Trauma Responses in Nursing

Secondary traumatic stress (STS) is predominant among oncology nurses, paediatric nurses, mental health nurses, midwifery, and emergency departments (Missouridou, 2017). Nurses often need to make critical decisions in a high stress environment. Clinical staff often are faced with insufficient information, limited time, worrying family members, and other additional factors that can hinder the process of

caring for a patient. Consequently, this increases the likelihood of errors to be made. Studies in cognitive psychology have aimed to explore decision making processes in high stress environments, particularly in the context of caring for patients with trauma (Madani et al., 2018).

Nurses may feel deeply overwhelmed when they are exposed to traumatic situations. Emotional responses may develop and elucidate the presence of masked trauma, which may result in overinvolvement or the adoption of maladaptive roles (Missouridou, 2017). Researchers Dominguez-Gomez and Rutledge (2009) and Meadors and Lamson (2008) explain that STS, compassion fatigue, and vicarious trauma are the terms used to refer to the emotional strain nurses experience when caring for traumatised patients. Nurses are frequently exposed to grief, pain, chronic illness, and loss, which may be difficult to cope with at times. Nurses who have unresolved trauma can be vulnerable to re-experiencing trauma through the lived experiences of their patients. This is important to note, as cumulative harm can occur or continue to occur in adulthood. A study by Maeler et al. (2007) on PTSD found nurses dealing with end of life care, verbal abuse, trauma related injuries, and not being able to save a patient's life, to all to be triggers of STS. Similarly, in a qualitative study by Maytum et al. (2004) nurses ($n = 20$) specialising in caring for young people with chronic conditions were interviewed to understand their personal experiences with burnout and compassion fatigue. Results revealed that compassion fatigue is a common issue among nurses. The participants of this study disclosed that their awareness and past experiences enabled them to create effective coping mechanisms to manage compassion fatigue and avoid burnout.

Oncology nurses frequently encounter emotionally demanding situations at work, which increases the risk of experiencing STS (Quinal et al., 2009). PTSD and

STS are similar, although STS can be triggered by indirect exposure of caring for individuals with cumulative trauma. Precipitating factors such as repeated exposure to patient suffering and end of life issues can result in the development of STS in nurses. Presenting symptoms may include difficulty sleeping, irritability, emotional dysregulation, avoidance of tasks, and engaging in reckless behaviour (Morrison & Joy, 2016). Research by Meadors and Lamson (2008) reports that secondary traumatisation can be related to overidentification with the patient's experience, subsequently resulting in the professional to experience similar levels of traumatisation to that of the patient. This can be determinantal to nurses mental health and can significantly contribute to burnout. Furthermore, a study by Abendroth and Flannery (2006) indicated that workers at high risk for compassion fatigue prioritised their patients' wellbeing over their own.

2.17 The Current Study

Survey research is a practical approach with several benefits. For instance, it aims to describe and explore different variables and constructs of interests (Ponto, 2015). Survey research involves various techniques for recruiting participants and collecting data. The benefits of survey research include utilising a large population and making the results more accurate with greater statistical power (Jones et al., 2013). The main goal of sampling in research is to obtain a sample size that accurately represents the population (Ponto, 2015). The current study involves a cross-sectional survey, which will be delivered to registered nurses and individuals studying to become a registered nurse, in their respective country, as registered nurse qualifications and training vary across the world. This instrument will be delivered via Prolific (<https://www.prolific.co/>). Prolific is an online platform available to researchers, for reliable, efficient, and high-quality data collection. Questions of

this survey included: “My career choice helps me make meaning of my cumulative harm”, and “I have been intrinsically motivated by my cumulative harm.” Participants indicated their response on a 5-point Likert scale of 1 (strongly disagree) to 5 (strongly agree). The Cumulative Harm Impact Questionnaire (CHIQ) contains 11 subscale items including chronicity, meaning making, professional learning, help others, emotive motivations, vocation, growth, self, sense of value, alignment of interests, and advocacy/altruism. To determine whether the CHIQ is a structurally measure, the structure of the scale will be compared to pre-existing, well validated measures including The Post Traumatic Growth Inventory (Tedeschi & Calhoun, 1996), The Utrecht Work Engagement Scale (Schaufeli et al., 2006), The Work as Meaning Inventory (Steger et al., 2012), and The Brief Calling Scale (Dik et al, 2012), to determine whether the CHIQ is a structurally valid measure and accurately assesses constructs it intends to measure.

2.18 Constructs of the Cumulative Harm Impact Questionnaire

2.18.1 *Chronicity*

Chronicity refers to the longstanding nature of psychological symptoms, such as the lasting effects of trauma (Schuyler & Catania, 2022). Chronicity is an important component in measuring cumulative harm, as it assesses the long-term impact of harmful experiences, and the enduring affects it can have on individuals mental and physical health (Marin et al., 2011). Assessing chronicity can provide valuable insights that enhances understanding and support for individuals dealing with prolonged distress. Due to the complexity of chronicity and how chronicity specifically assesses longstanding distress, it is expected chronicity would have a relationship with post traumatic growth, while having a minimal or no relationship with work engagement, work meaning, and calling.

2.18.2 Meaning Making

Meaning making is important for coping with trauma or cumulative harm experiences, as it can help individuals re-write their trauma narratives. Meaning making is a key component of personal growth and resilience, allowing individuals to heal from their adverse experiences (Ryff, 2014). Meaning making drives individuals to pursue careers in nursing, stemming from a strong desire to help others, providing individuals with a sense of purpose, allowing for growth and increasing overall job satisfaction (Lee, 2015). This construct is anticipated to correlate with work engagement, work meaning, and calling, as research states that individuals pursue meaningful careers to reshape their trauma experiences (Bryce et al., 2022).

2.18.3 Professional Learning

Professional learning refers to the ongoing process of learning new skills and enhancing an individual's knowledge in a professional setting (Webster-Wright, 2009). Professional learning is crucial, as it depicts how individuals can recognise, and effectively respond to trauma or cumulative harm experiences, particularly in nursing or healthcare settings. For some, professional learning may be remedial as it provides individuals with knowledge and coping strategies to understand and make sense of their own adversities (Delany et al., 2015). This can also increase motivation and work engagement, as these skills can then be applied to help others, in turn making meaning of their trauma experiences. Therefore, professional learning is expected to correlate with all validation scales.

2.18.4 Help Others

Helping others involves offering assistance or support to improve other individuals' wellbeing (Gabriel et al., 2018). This is an important construct, as it can enhance individuals' sense of purpose and identity especially in roles such as

nursing, while promoting empathy and contributing to the overall health of others.

Previous research has found that some individuals have a strong desire to help others as a way to find meaning in their own trauma experiences, which can promote healing and increase personal growth (Steger & Park, 2012). Individuals who have endured cumulative harm, are able to empathise with others, and therefore may be more inclined to help others who are struggling. A fundamental aspect of nursing is helping others. As a result, it is expected that this construct will correlate with all validation scales.

2.18.5 *Emotive Motivations*

Emotive motivations refer to the emotional drivers behind an individual's behaviours and decisions. These motivations can stem from feelings of sadness, and often play an important role in how individuals are able to respond to others and the world around them. Emotive motivations may influence people to pursue a career in nursing, as emotions including compassion, empathy, and a strong desire to help others can make nursing a fulfilling career path (Nesje, 2014). Emotive motivations are important for nurses, as these motivations enhance patient care, empathy, and help nurses maintain a strong sense of purpose and dedication throughout their career (Gómez-Salgado et al., 2019). Taken together, it is expected that this construct will correlate strongly with work meaning, and work engagement, due to the research depicted above. Additionally, it is also expected for emotive motivations to correlate with calling and post traumatic growth.

2.18.6 *Vocation*

Vocation refers to a strong feeling of calling towards a particular career. Specifically, vocation is related to a strong sense of purpose, and aligns with an individual's values, interests, and dedication towards a specific career (Dik et al.,

2019). Vocation is important for nurses as it provides a sense of commitment and purpose to their work, this is vital in nursing professions due the emotionally draining work required. As research states, when nurses work aligns with their personal interests and values, it can enhance job satisfaction and retention (Yarbrough et al., 2017). As vocation is a fundamental component in nursing professions, it is anticipated that this construct will correlate with all of the validation scales. It may be inferred from previous literature that vocation will correlate strongly with work engagement and work meaning.

2.18.7 Growth

Growth refers to psychological and emotional development, which may result from experiencing or overcoming trauma (Eve & Kangas, 2015). Nurses who have endured cumulative harm, may often have greater empathy and understanding of their patient's hardship. Growth can enhance resilience and drive individuals to seek careers that align with their personal values, in order to allow them to make a positive and meaningful impact (Seibert et al., 2016). Therefore, growth is expected to correlate with all validation scales, especially work meaning.

2.18.8 Self

Self refers to an individual's understanding of their values, strengths, beliefs, and identity (Sharma, 2013). How nurses view themselves in relation to their role, and responsibilities is vital. When nurses have a positive sense of self, they are more likely to feel capable in their abilities, which can increase their performance, engagement, and work ethic, leading to enhanced patient care (García-Sierra et al., 2015). A strong sense of self can lead to increased self-efficacy, therefore enhancing nurses' ability to connect with patients and handle challenges effectively (Abdal et al., 2015). Overall, creating a meaningful and fulfilling career path. Therefore, self is

expected to correlate with all validation scales, particularly with work engagement and work meaning.

2.18.9 *Sense of Value*

Sense of value refers to the connection between an individual's interests and beliefs, and their chosen career path. When a career resonates with an individual's beliefs and values, it can lead to higher motivation levels, fulfilment, and job satisfaction (Holopainen & Suslova, 2019). This is essential for nurses, as it drives their commitment to patient care (Boamah et al., 2017). Consequently, it is expected that sense of value will correlate with all validation measures. Specifically, sense of value is anticipated to correlate strongly with work meaning, as research depicts that individuals are more likely to find their jobs fulfilling when their roles align with personal beliefs and values (Ballout, 2007).

2.18.10 *Alignment of Interests*

Alignment of interests is essential in career development and success. When nurses are interested in their careers, they are highly motivated and engaged, which can increase job satisfaction and retention (Laschinger, 2011). It is important that nurses are interested in their careers, as their work engagement can directly impact the quality of patient care (Ghazawy et al., 2019). Research states that by aligning career choice with personal interests, it can lead to improved performance and greater sense of fulfilment (Dik et al., 2009). Consequently, interests is expected to correlate with all validation scales, particularly with work meaning.

2.18.11 *Advocacy and Altruism*

Individuals develop altruism and empathy through their experiences of cumulative harm, which can influence career choice and development. Advocacy and altruism are important components of nursing, as they ensure patients receive

compassionate care and their needs are prioritised (Grant & Reed, 2024; Wath & Wyk, 2019). Therefore, it is expected advocacy/altruism will correlate with all validation scales, especially post traumatic growth and work meaning.

2.19 Important Constructs for Career Development

Post traumatic growth, work engagement, work meaning, and calling are all important factors for career development. These components contribute to a successful and long-term career, while allowing individuals to make sense of their trauma or cumulative harm experiences.

2.19.1 *Post Traumatic Growth*

Post traumatic growth refers to the positive psychological changes that can occur after individuals experience or overcome trauma (Jayawickreme & Blackie, 2014). Individuals who have experienced post traumatic growth often report changes including greater appreciation for life, a strong sense of resilience, and strong commitment to helping others navigate their own life challenges (Calhoun & Tedeschi, 2014). Individuals who have faced cumulative harm may find that these experiences motivate them to seek meaning in their lives and enhance their understanding of themselves and the world around them (Staub & Vollhardt, 2008; Wong, 2013). As a result, individuals may integrate their trauma into a redefined sense of self and purpose. This can guide individuals towards fulfilling and meaningful careers.

2.19.2 *Work Engagement*

Work engagement is defined as a positive, fulfilling psychological state characterised by three core dimensions including vigour, dedication, and absorption (Bakker et al., 2008). Research states that individuals who are engaged in their work, demonstrate resilience, a strong sense of purpose, and are motivated to complete

their tasks (Brooks et al., 2012; Resnick, 2018). As a result, work engagement contributes to job satisfaction and employee retention, as engaged individuals are more likely to feel valued and acknowledged in their roles. Cumulative harm may allow individuals to engage with their work, as a way to remediate past experiences and create a sense of purpose, helping individuals to overcome their trauma (Bryce et al., 2023). Conversely, previous experiences of cumulative harm may negatively affect work engagement, as individuals who have endured prolonged or longstanding symptoms of depression or stress may feel burnt out or fatigued in their professional roles (Mason et al., 2014; Mossburg & Dennison Himmelfarb, 2018). Overall, work engagement is important as it plays a crucial role in job performance and overall career development and success.

2.19.3 Work Meaning

Work meaning refers to the sense of purpose and fulfillment that individuals derive from their professional roles (Rosso et al., 2010). Work meaning often stems from a commitment to an individual's personal values and goals and can encourage personal and professional development. Completing meaningful work is important and can benefit both the employee and the workplace. Work meaning can enhance motivation and engagement, contributing to increased job satisfaction, productivity, motivation, and overall retention (Steger, 2016). Importantly, work meaning is closely linked to previous experiences of cumulative harm, as individuals who have faced trauma or previous adverse experiences may seek careers in helping professions as a way to make meaning of their past experiences and promote healing (Bryce et al., 2022; Dik et al., 2014; Farnworth & Getha-Taylor, 2022). Conversely, previous cumulative harm experiences may diminish the perceived meaning of work, making it

difficult for some individuals to find fulfilment and motivation in their careers (Dutton & Roberts, 2009).

2.19.4 *Calling*

Calling in the context of career calling, refers to a strong drive or sense of purpose that motivates an individual to pursue a specific profession (Ehrhardt & Ensher, 2020). Calling to a specific career may resonate with an individual's passions, values, and interests. This is important, as it can enhance overall motivation and engagement to an individual's work, while increasing personal and professional development (Li & Yang, 2018). Previous experiences of cumulative harm may influence an individual's perception of career calling by shaping their beliefs, values, and motivations (Schafer et al., 2011). Individuals who have adverse childhood experiences may seek a career that offers a sense of purpose and fulfilment, to re-write their own trauma narratives or make meaning to their trauma experiences (Bryce et al., 2022). Conversely, unresolved cumulative harm may lead to individuals feeling disconnected to their career callings, hindering their ability to carry out meaningful careers (Carnes, 2019; Maslach & Leiter, 2022). Taken together, cumulative harm can either motivate individuals to seek their career calling, or it may create a barrier that hinders their search for a calling, reiterating the importance of this research.

CHAPTER 3: METHOD

3.1 Value of Replication in Research

Replicating existing research is a fundamental process to verify results, ensure reliability, and build confidence in research findings (Cypress, 2017; Ledford & Gast, 2018). Replication involves repeating a research study, to determine if the original research findings can be applied to different populations and circumstances (Tuval-Mashiach, 2021). Successful replication demonstrates that findings can be generalised to the public and therefore are robust and correct (Nosek & Errington, 2020). Replication studies are important to filter out false positives, increase generalisability of findings, provide robust evidence of the effect size, and identify factors that influence consistent results with various studies (Dau et al., 2021). Researchers argue that replication in research is crucial to verify if previous findings are reproducible and therefore accurate. This can also mitigate experimenter bias (Plucker & Makel, 2021). Replications are therefore vital for theoretical development through confirmation and disconfirmation of results. Consequently, providing strong rationale for a refinement and reapplication of the CHIQ reflection tool, specifically targeting a sample of nurses and nurses in training.

3.2 Aims and Objectives of Research

Bryce et al. (2022) found that trauma and cumulative harm can impact career choice in helping professions. Results suggest individuals are influenced to pursue careers in helping professions to make meaning of trauma, find value in previous traumatic experiences, and to remediate the cumulative harm individuals have endured (Bryce et al., 2022). The CHIQ provides a self-reflection tool for professionals to elucidate the presence of cumulative harm and its influence on career decision making and vocational behaviours (Bryce et al., 2022). This present

study will expand on Study 3 of Bryce's' research by administering the CHIQ to nursing professionals, that is nurses and nurses in training. Conducting this research will help to answer a gap in the literature regarding cumulative harm and its influence on pursuing a career in nursing (Refer to Appendix A & B). Due to minimal research on this topic, there is a limited understanding of the factors that influence individual's decisions to choose nursing as a career (Price, 2009). It is crucial to understand how future nurses decide to pursue a career in nursing. Given the precarious nursing shortage globally, it is vital to improve strategies to enhance the recruitment, socialisation, and retention of nurses (Price et al., 2013). This could offer valuable insights into improving personal satisfaction and contentment for nurses. This study may also facilitate the adaptation of both the content and delivery method for self-reflection tools. This may lead to a higher engagement with self-reflection tools, consequently providing professionals with a way to develop self-regulation and increase personal development by understanding their personal experience with cumulative harm and the influence it has on career narratives.

This study will test the structural validity of the CHIQ. An additional aim is to respond to the overarching research question of 'Is the CHIQ a structurally valid measure when replicated in a different sample?' Specifically, the structural validity of the CHIQ will be replicated in a nursing population. As part of a further test of structural validity it will be argued that the CHIQ will correlate with trauma and measures of career readiness. Based on the previous research with other helping populations, it is hypothesised that cumulative harm will influence career choice for nursing professionals and nurses in training. Additionally, it is hypothesised that the cumulative harm impact questionnaire will show structural validity by comparing the structure of the scale to correlate with the Post Traumatic Growth Inventory (PTGI),

The Utrecht Work Engagement Scale, Work as Meaning Inventory and Brief Calling Scale (BCS).

3.3 Participants

This study involved 258 participants all who were either studying to be a registered nurse or who held a current qualification of a registered nurse (in their respective country). The participants ranged from age 19 to 65, (mean age was 29.61). 0.4% ($n = 1$) were removed from the study due to incomplete or missing data.

3.4 Procedure

Survey research can provide insight into participants experiences and perceptions. An advantage to survey research is that it can be collected effectively and concisely (Alderman & Salem, 2010). Cross sectional surveys include the gathering of data, at a specific point in time (Doering et al., 2019; Spector, 2019). Cross sectional surveys provide researchers with an opportunity to evaluate and assess relationships between variables (Rindfleisch et al., 2008). The instrument, Cumulative Harm Impact Questionnaire (CHIQ) was delivered via prolific, which is an online research platform for fast, reliable, and high-quality data collection (see, <https://www.prolific.com/>) whilst accounting for 'bots' and inaccurate data. Prolific have detailed and reliable policies in relation to anonymity and confidentiality to ensure every participant's privacy is protected and stored securely. It is important to note that Prolific have additional policies in place, ensuring that individuals contact details will not be provided to other organisations, a third party, or Prolific, for other future purposes unrelated to this particular study.

Prolific's algorithms continuously monitor and manage the participant pool with 25 different checks, to ensure the quality of responses stay high. Prolific provide incentivised invitations to individuals who meet the criteria, specifically, an incentive

of AUD \$18-\$24 per hour for completing this survey, that took approximately 30 minutes to complete. Recruitment criteria included employment as a registered nurse, or to be studying to be a registered nurse, in each participants respective country. For several research studies, collecting data that is representative of entire population is impossible. Therefore, sampling in survey research is preferred, as it can obtain an adequate sample that is representative of the population of interest (Walters, 2021). In this current study, the sample comprised of practicing and preservice registered nurses world-wide.

As this research specifically looked at cumulative harm and career influence, it was important to acknowledge the potential for traumatisation in individuals who have experienced cumulative harm. To alleviate this, this research study targeted a sample of people who were already aware of their trauma, and who have acknowledged their experience, in order to not reveal trauma in unaware participants. Additionally, support services were provided to all participants to ensure individuals were supported throughout this process. Specifically, these included Lifeline crisis line on 13 11 14, MH CALL on 1300 642 255, eheadspace for online and phone support <https://headspace.org.au/online-and-phone-support/connect-with-us/> (Australia), National Suicide Prevention Lifeline (United States), Samaritans (United Kingdom), community clinics (Canada), South African Depression and Anxiety Group (South Africa), SOS Voz Amga (Portugal), and participants were advised to consult their General Practitioner (GP) for additional support.

3.5 Validity

Instrument validity refers to the degree to which an instrument (e.g., survey) accurately measures what it is intended to measure (Burton & Mazerolle, 2011). It is important because it ensures the reliability and accuracy of the data collected,

therefore reassuring the instruments results. Structural validity is a subset of construct validity that focuses on the degree to which the scores of an instrument reflect the extent of the construct being measured (Clark & Watson, 2019). Structural validity is important because it ensures that the instrument accurately reflects the theoretical construct it aims to measure. This validates that the tool is measuring the intended aspects of the constructs, providing more accurate and reliable results (Byrne, 2001). Taken together, instrument validity ensures that the measurement tool is accurate and effective in measuring the intended concept, while structural validity specifically looks at how well the tool's structure aligns with the theoretical construct it aims to measure. This is often determined through factor analysis (Cook & Beckman, 2006). Structural validity for confirmatory factor analysis (CFA) checks if the data supports the expected relationships between the observed variables and their underlying constructs (Brown & Moore, 2012). It ensures that the measurement model accurately reflects the theoretical structure, validating the reliability and accuracy of the instrument (Awang et al., 2015).

3.6 Validation Scales

Four existing scales were used to analyse and compare data gathered in the CHIQ questionnaire. These scales tested factor structure and structural validity.

These scales are:

- The Post Traumatic Growth Inventory (PTGI), is a well validated instrument for measuring the positive outcomes in people who have experienced traumatic events (Tedeschi & Calhoun, 1996). This scale is effective for assessing how individuals coping with trauma are able to reconstruct their perceptions of themselves, others, and the meaning of events (Tedeschi & Calhoun, 1996).

The PTGI contains 21 items rated on a 6-point Likert scale, where 0

represented 'I did not experience this change' and 5 represented 'I experienced this change to a very great degree'. This measure includes 5 subscales; with 5 items measuring the construct New Possibilities, 7 items measuring the construct Relating to Others, 4 items measuring the construct Personal Strength, 3 items measuring the construct Appreciation of Life and 2 items measuring the construct Spiritual Change. The PTGI has excellent internal consistency ($\alpha = .90$), and acceptable test-retest reliability ($r = .71$). A sample item includes 'I established a new path for my life'.

- The Utrecht Work Engagement Scale (Schaufeli et al., 2006) evaluates work engagement using three scales: vigour, dedication, and absorption. This measure will be used to compare data related to the effects of cumulative harm on career choices. The internal consistency of the overall scale is acceptable $\geq .70$; Nunnally & Bernstein, 1994). It is important to note that the internal consistency of the three scales were also acceptable. A sample item includes 'When I get up in the morning, I feel like going to work'.
- The Work as Meaning Inventory (WAMI; Steger et al., 2012) is designed to evaluate the concept of meaningful work. This scale consists of 10 items, divided into three subscales: positive meaning (4 items), meaning making through work (3 items), and greater good motivations (3 items). Sample items for each subscale include 'I have found a meaningful career', 'My work helps me make sense of the world around me', and 'The work I do serves a greater purpose'. Responses are rated on a 7-point Likert scale ranging from strongly disagree to strongly agree. According to Steger et al. (2012), the overall scale demonstrates excellent internal consistency ($\alpha = .93$), and good reliability for the individual subscales ($\alpha = .89$ for positive meaning; $\alpha = .82$ for meaning

making through work; $\alpha = .83$ for greater good motivations; Akın et al. 2013).

Additionally, Steger et al. (2012) reported that the WAMI correlated with career commitment and job satisfaction.

- The Brief Calling Scale (BCS; Dik et al, 2012) is a concise tool comprising of 4 items, designed to evaluate the extent to which individuals feel they perceive that they have a calling, or are seeking one. The scale includes two subscales. The calling subscale measures the sense of having a calling. The subscale has good internal consistency ($\alpha = .86$). An example item includes 'I have a calling to a particular kind of work'. The calling-seeking subscale measures the degree to which individuals are searching for a calling. The subscale has excellent internal consistency ($\alpha = .92$). An example item includes 'I am trying to figure out my calling in my career'. Participants respond on a 5-point scale with 1 = Not at all true of me to 5 = Totally true of me. Previous research has demonstrated that the BCS is a valid and reliable measure (Dik et al., 2012; Dik et al., 2008; Duffy & Sedlacek, 2007).

It was hypothesised that the cumulative harm impact questionnaire will show structural validity by comparing the structure of the scale to correlate with the Post Traumatic Growth Inventory (PTGI), Utrecht Work Engagement Scale (UWES), Work as Meaning Inventory (WAMI) and Brief Calling Scale (BCS).

3.7 Data Screening and Analysis

The outcomes of data analysis are significantly reliant on the ways in which the outliers and missing values are processed, therefore this was a crucial process to complete before analysing the data (Kwak & Kim, 2017). Six cases were removed due to missing data. Raw data were cleaned. The analysis included, descriptive statistics, examining reliability, testing fit indices, exploring the factor structure of the

11 subscales, and investigating the relationship with the 11 subscales with the 4 validation scales including Post Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2006), Work and Meaning Inventory (WAMI; Steger et al., 2012), and Brief Calling Scale (BCS; Dik et al, 2012). All data analysis of reliability and correlations were conducted in SPSS, model fit was conducted in AMOS. According to the recommendations by Hu and Bentler (1999), a good fitting model has a $\chi^2/df < 3$, goodness of fit .95, and a RMSEA , .05. Subscale items most relevant to nursing were utilised in this study.

3.8 Confirmatory Factor Analysis

CFA aims to validate a theoretical model by examining how well it fits with empirical data and evaluates the fit between observed variables and hypothesised constructs (Alavi et al., 2020). CFA has two main objectives, first, to evaluate how effectively a particular model fits the data, and second, to estimate the factor loadings, factor variances and covariances, and the residual error variances of the observed variables (Hox, 2021). CFA helps researchers understand the underlying structure of the data and ensuring the validity and reliability of measurement instruments. CFA is crucial for validating theoretical constructs, ensuring they are accurately represented by observed variables (Tavakol & Wetzel, 2020). This improves the reliability of measurement tools. CFA also tests relationships between variables and their underlying concepts, making research findings more trustworthy. CFA is important as it refines tools by identifying poorly fitting items, assessing construct validity, and controlling for measurement error (Sureshchandar, 2021). Essentially, CFA strengthens research hypothesis by testing and confirming relationships between variables and underlying constructs, leading to more reliable

research results (Kääriäinen et al., 2011). Taken together, CFA validates the structure of a set of observed variables, ensuring they accurately represent the underlying theoretical constructs, and improving the reliability and validity of research findings.

Goodness-of-fit (GoF) is an important part of applying CFA to empirical data (McNeish & Wolf, 2021). GoF measures how well a statistical model matches observed data, by indicating how closely the predicted values from the model align with the actual data points. GoF is measured using various model fit indices that compare the observed data to the data expected from the model (Marsh et al., 2005). A ratio of greater than 0.95 is considered a good fit. Model fit indices can be used with either thresholds or hypothesis testing to determine whether to accept or reject the proposed model (Sarmiento & Costa, 2019).

Chi-square (χ^2) and Root Mean Square Error of Approximation (RMSEA) indicate how well the model fits the data (Gao et al., 2019). Chi-square is a statistical test used to determine whether there is a significant difference between observed and expected frequencies in categorical data (Franke et al., 2011). Chi-square measures how closely the observed data aligns with the expected outcomes predicted by the model or hypothesis. The ratio of χ^2 divided by degrees of freedom (df) is favoured (Wheaton et al., 1978). A good fit is determined if $\chi^2 / df < 3$. Additionally, RMSEA measures how well a model fits the population covariance matrix (Maydeu-Olivares et al., 2017). Lower values indicate a better fit, specifically, < 0.05 indicates a good fit (Kenny et al., 2014). Taken together, chi-square test helps assess whether there is a significant discrepancy between the observed and the expected data, and RMSEA evaluates how well a statistical model fits the population

data, with lower values indicating a better fit. All the above statistical analyses were used in the present study.

3.9 Confirmatory Factor Analyses

The structural validity of the CHIQ was replicated in a nursing population using Analysis of a Moment Structures (AMOS) and SPSS software. Subscales included Chronicity, Meaning Making, Professional Learning, Help Others, Emotive Motivations, Vocation, Growth, Self, Sense of Value, Alignment of Interests, and Advocacy/Altruism. All of the subscales were classified as having 'Poor, Fair or Good' model-data fit. This specification was based on GFI and RMSEA meeting the minimum threshold for fit, as well as a Chi-Square result greater than 0.05. CFA was not performed for Emotive Motivations, Vocation, and Sense of Value, as AMOS could not be used due to insufficient degrees of freedom. As a result, Cronbach's Alpha was calculated for these subscales.

CHAPTER 4: RESULTS

4.3.1 *Structural Model of Chronicity*

All estimates of the chronicity subscale were significant. There was a common error variance between item 2 and item 7, and item 1 and item 3. In terms of Model fit results indicated a poor to fair fitting model of $\chi^2/df = 3.579$, conversely the goodness of fit of chronicity was a good fit of .955, and RMSEA results indicated a poor to fair fit of .100. Overall, chronicity was a poor fitting model, and requires further development.

4.3.2 *Structural Model of Meaning Making*

All estimates of the meaning making subscale were significant. Meaning making item 1 was not explained by the overall construct. In terms of Model fit, meaning making indicated an excellent fitting model of $\chi^2/df = 1.631$. The Goodness of fit was good, with a fit of .993. Additionally, RMSEA indicated a good fitting model of .050. Overall, the meaning making subscale was a good fitting model. This subscale may require further development.

4.3.3 *Structural Model of Professional Learning*

All estimates of the professional learning subscale were significant. Error variance was correlated between item 1 and item 2. The model fit was poor with a fit of $\chi^2/df = 4.664$. Goodness of fit was fair to poor with a fit of .940. RMSEA indicated a poor fit of .119. Overall, the professional learning subscale was a poor fitting model. The standardised model needs further development.

4.3.4 *Structural Model of Help Others*

All estimates of the help others subscale were significant. By correlating the error variance, item 2 and item 3 did not improve. Model fit indicated a poor fitting model of $\chi^2/df = 5.086$. The goodness of fit indicated a fair fit of .950. Conversely,

the RMSEA was poor with a fit of .126. Overall, the help others subscale was a poor fitting model and requires further development.

4.3.5 Structural Model of Emotive Motivations

Emotive Motivations could not calculate model fit, as it only consisted of three items. Therefore, AMOS could not be used due to insufficient degrees of freedom.

4.3.6 Structural Model of Vocation

Vocation could not calculate model fit, as it only consisted of three items. Therefore, AMOS could not be used due to insufficient degrees of freedom.

4.3.7 Structural Model of Growth

Modification indices indicated that error 1 and 2 should be correlated. All estimates of the growth subscale were significant. Model fit indicated a good fit of $\chi^2 / df = 2.833$. Goodness of fit was also a good fit of .998. Additionally, RMSEA indicated a fair fit of 0.84. Overall, this was a fair fitting model. It is recommended to drop item 1 and item 5 due to not being well estimated by the model.

4.3.8 Structural Model of Self

Modification indices indicated that error 1 and 2 should be correlated. All estimates of the self subscale were significant. During data analysis there was an attempt to improve fit by correlating the error variance between item 3 and item 4. Model fit indicated a good fit of $\chi^2 / df = 2.239$. Goodness of fit was also good with a fit of .996. RMSEA indicated a fair fit of .069. Overall, the self subscale was a good fitting model.

4.3.9 Structural Model of Sense of Value

Sense of Value could not calculate model fit, as it only consisted of three items. Therefore, AMOS could not be used due to insufficient degrees of freedom.

4.3.10 Structural Model of Alignment of Interests

For the alignment of interests subscale, Item 1 was not significant. Item 2, item 3, and item 4 were significant on this subscale. Model fit indicated a good fit of $\chi^2 / df = 2.718$. Goodness of fit was also a good fit of .990. RMSEA indicated a fair fit of .082. Overall, this is a good fitting model.

4.3.11 Structural Model of Advocacy/Altruism

All estimates of the advocacy/altruism subscale were significant. During data analysis, item 2 was deleted to improve the fit, as it was originally a poor fitting model. All fit indices were good. Specifically, model fit indicated a good fit of $\chi^2 / df = 2.098$. Goodness of fit was a good fit of .992. RMSEA was also a good fit of 0.65. Overall, this is a good fitting model.

4.4 Participant Breakdown

This study consisted of predominantly female participants. Specifically, this study was comprised of 82.6% females ($n = 213$), 14.7% male ($n = 38$), 1.9% non-binary ($n = 5$), and 0.4% preferred to not specify their gender ($n = 1$). 52.3% were registered nurses ($n = 135$) and 47.3% were student nurses ($n = 122$). 40.3% of participants worked full time (more than 35 hours per week; $n = 104$), 15.9% of participants worked part time (less than 35 hours per week: $n = 41$), 39.1% of participants were not employed whilst completing their nursing studies ($n = 101$), and 4.3% of participants were not employed but were qualified registered nurses ($n = 11$). Majority of participants were from United States, United Kingdom, South Africa, Portugal, Canada, and Australia. Years worked ranged from 0 to 40 years. Majority of participants ($n = 106$) had worked as a nurse for under one year, ($n = 38$) had worked as a nurse for one year, ($n = 28$) had worked as a nurse for two years, ($n = 15$) had

worked as a nurse for three years, ($n = 13$) had worked as a nurse for four years, and ($n = 51$) had worked as a nurse between four and 40 years).

4.5 Reliability Statistics

Cronbach's alpha is the most frequently used measure of reliability (Bonett & Wright, 2014). Cronbach's alpha reliability can range between 0 and 1, with factors closer to 1 resulting in greater internal consistency. George and Mallery (2003) report the following guide to assessing Cronbach's alpha: $\alpha > 0.9$ (Excellent), > 0.8 (Good), > 0.7 (Acceptable), > 0.6 (Questionable), > 0.5 (Poor), and < 0.5 (Unacceptable). The reliability statistics for the CHIQ and validation scales are presented in Table 1. Using an acceptable threshold all items were considered acceptable, with the exception of the calling scale.

Chronicity, Meaning Making, Professional Learning, Help Others, Self, Value, PTGI and UWES, were shown to have excellent internal consistency. Excellent internal consistency confirms that these subscale items are measuring the same underlying construct, demonstrating reliable and meaningful results. Emotive Motivations, Vocation, Advocacy/Altruism, and WAMI, were shown to have good internal consistency, although further refinement may lead to greater clarity and reliability. Growth and Interest were shown to have acceptable internal consistency. Acceptable consistency suggests that these items are reliable, although would benefit from additional refinement. Conversely, the BCS had unacceptable internal consistency. Unacceptable internal consistency demonstrates that the items in the scale do not consistently measure the same construct, leading to inaccurate and unreliable results. This may be because the sample population consisted of students and nurses who had already been working in the field. Therefore, the participants are at different stages of their career, and may feel differently about calling. Future

research could rectify this by using stratified sampling, and dividing the sample population to assess whether calling is different for students compared to nurses already working in the profession. Taken together, the internal consistency indicates that the CHIQ is effectively measuring the intended constructs and showing consistent relationships among variables.

Table 1*Descriptive and Reliability Statistics for CHIQ*

Subscale	<i>M</i>	<i>SD</i>	Cronbach's Alpha (α)
Chronicity	2.71	1.19	.947
Meaning Making	2.19	1.05	.919
Professional Learning	2.87	1.04	.935
Help Others	3.02	1.09	.934
Emotive Motivations	4.06	0.93	.882
Vocation	3.68	0.97	.801
Growth	2.94	0.77	.758
Self	3.15	1.14	.913
Value	4.10	0.82	.911
Interests	3.41	0.91	.778
Advocacy/Altruism	3.91	0.85	.815
Post Growth	3.93	1.20	.963
Work Engagement	5.03	0.98	.924
Work Meaning	4.06	0.71	.898
Calling	3.11	0.82	.529

Note. This table demonstrates mean, standard deviations and internal consistency for all subscale items from CHIQ. Value = Sense of value; Interests = Alignment of interests; Post Growth = Post traumatic growth inventory, Work engagement = Utrecht work engagement scale; Work meaning = Work and meaning inventory; Calling = The brief calling scale.

4.6 Correlations of CHIQ with Validation Scales

The correlation between the CHIQ and other constructs was evaluated in the total sample ($n = 258$). Correlations between CHIQ and PTGI, UWES, WAMI, and BCS were overall moderate, with all significance levels at the 0.01 level (2-tailed) or 0.05 level (2-tailed). Correlations showed the items within the CHIQ that were associated with the several constructs each existing scale measured. Please refer to the Table 2 for correlations between constructs of the CHIQ and the validation scales.

Using Pearson's Correlation Chronicity was positively correlated with PTGI, with a small effect size. There was no relationship between Chronicity and UWES, WAMI, and BCS. Meaning Making positively correlated with PTGI and BCS, both with small effect sizes. There was no relationship between Meaning Making and UWES and WAMI. Professional learning positively correlated with all validation scales with a small effect size for UWES, WAMI, and BCS and a medium effect size for PTGI. Help Others positively correlated with all validation scales, with a small effect size for UWES, WAMI, and BCS and a medium effect size for PTGI. Emotive Motives positively correlated with all validation scales, with a small effect size for PTGI, a medium effect size for BCS, and a large effect size for UWES and WAMI. Vocation positively correlated with all validation scales, with a small effect size for PTGI, a medium effect size for BCS, and a large effect size for UWES and WAMI. Growth positively correlated with all validation scales, with a small effect size for UWES, WAMI, and BCS, and a medium effect size for PTGI. Self positively correlated with PTGI and BCS, with a medium effect size for PTGI and a small effect size for BCS. There was no relationship between Self and UWES and WAMI. Values positively correlated with all validation scales, with a small effect size for PTGI and

BCS, and a large effect size for UWES and WAMI. Interests positively correlated with all validation scales, with a small effect size for UWES, WAMI, and BCS, and a large effect size for PTGI. Advocacy positively correlated with all validation scales, with a small effect size for UWES and BCS, and a medium effect size for PTGI and WAMI.

Table 2*Correlation Table for CHIQ*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Chronicity	-														
2 Meaning Making	.552**	-													
3 Professional Learning	.471**	.653**	-												
4 Help Others	.576**	.602**	.717**	-											
5 Emotive Motivations	-0.021	.156*	.221**	.224**	-										
6 Vocation	-0.013	.173**	.237**	.241**	.771**	-									
7 Growth	.504**	.549**	.693**	.713**	.158*	.197**	-								
8 Self	.626**	.552**	.656**	.776**	0.055	0.094	.748**	-							
9 Values	0.022	0.052	.262**	.222**	.566**	.523**	.266**	.162**	-						
10 Interests	.613**	.525**	.649**	.755**	.217**	.231**	.689**	.819**	.295**	-					
11 Advocacy/Altruism	.455**	.421**	.536**	.631**	.328**	.280**	.567**	.585**	.446**	.659**	-				
12 Post Growth	.239**	.273**	.324**	.325**	.223**	.238**	.345**	.313**	.272**	.325**	.334**	-			
13 Work Engagement	-0.056	0.090	.197**	.154*	.625**	.587**	.172**	0.041	.523**	.145*	.256**	.347**	-		
14 Work Meaning	-0.016	0.109	.222**	.168**	.670**	.644**	.180**	0.081	.635**	.241**	.356**	.325**	.675**	-	
15 Calling	0.085	.222**	.207**	.224**	.375**	.487**	.197**	.179**	.264**	.240**	.260**	.341**	.384**	.432**	-

Note. $n = 258$, with the exception of the calling subscale which was $n = 257$. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). Value

= Sense of value; Interests = Alignment of interests; Post Growth = Post traumatic growth inventory, Work engagement = Utrecht work engagement scale; Work meaning = Work and meaning inventory; Calling = The brief calling scale.

CHAPTER 5: DISCUSSION

5.1 Main Findings

The aim of this present study was to test the structural validity of the CHIQ in a nursing population and to respond to the overarching research question of *'Is the CHIQ a structurally valid measure when replicated in a different sample?'*. The results of the current study identified that while some of the subscale items of the CHIQ are structurally valid measures, others require further development. Additionally, results suggest that individuals who have experienced cumulative harm are motivated to pursue careers in nursing professions. Findings of the present study were consistent with previous literature, although there is limited research on this topic. Previous literature suggests that helping professions, such as nursing, allow individuals to make sense of their trauma and can help others navigate life's challenges (Balan & Balan, 2023; Choi et al., 2021; Mackintosh, 2006; Prater & McEwen, 2006; Price et al., 2013). Previous literature predominately investigated previous traumatic experiences in psychologists, psychotherapists, mental health workers, and higher education workers (Bryce et al., 2022; Fussell & Bonney, 1990; Murphy et al., 1995; Nikčević et al., 2007; Pope & Feldman-Summers, 1992; Racusin et al., 1981). Findings from these previous studies indicate that previous childhood abuse, childhood adverse experiences, psychological distress, traumatic events, maltreatment, and sexual violence can influence individuals to pursue careers in helping professions. A desire to help others and make meaning of their trauma were also strong motivators for pursuing a career in nursing. This study provides new insights into cumulative harm experiences in nurses specifically, and motivations to enter the nursing profession.

The results of this present study are consistent with similar studies looking at other professions such as psychology and social work (Bryce et al., 2022). This study is valuable, as it has proven that the CHIQ can be used to capture cumulative harm in nurses cross culturally, regardless of their stage of career. This is evident as the present study captured data of practicing professionals and nursing students. Overall, this study confirmed the CHIQ upholds structural validity, when utilised in a nursing population. The identification of a significant relationship suggests the need for further investigation and additional research. The four validation measures indicate that external validity was found. A crucial component in research is to ensure that the findings are applicable and meaningful beyond the sample used in the study. Findings of this present study may suggest that these results can be generalised across other populations. This study has provided contemporary and valuable literature to the field. This is important, as there is an ongoing world-wide nursing shortage which must be rectified. Having recent and accurate findings can help provide insight on how to resolve the nursing shortage by supporting staff and how to continue to create a sustainable workforce.

5.2 The CHIQ as a Model

The statistical analyses conducted in the current study demonstrate that the CHIQ model successfully predicts most of the items it contains. Overall, the study's correlations support the structural validity of the CHIQ, demonstrating that it effectively and accurately measures similar constructs to established, well-validated, and reliable measurement tools. The model illustrates the theoretical principles of various theories such as social cognitive career theory (SCCT; Lent et al., 1994), and career construction theory (CCT; Savickas, 2013), which have been identified consistently throughout this research. Previous research suggests that how

professionals shape their identities is crucial, as it can influence their interactions with others and their environment (Day, 2018; Vähäsantanen, 2022; Williams, 2010). The strongest correlations within the CHIQ model were located across help others, vocation, growth, self, and interests, which addresses the relationship between cumulative harm and career decisions. These findings are supported by SCCT and CCT. SCCT (Lent et al., 1994) emphasises how individual's vocational choices are influenced by the interplay of personal goals, self-efficacy, and outcome expectations, which are shaped by interactions between the environment, personal experiences, and individual traits. Specifically, SCCT elucidates that career choices are shaped by self-assurance, personal interests, desire to help others, in turn fostering personal and vocational growth, and guiding individuals to fulfil meaningful careers. The way individuals understand and interpret their experiences creates a narrative that evolves throughout their career development. Similarly, CCT (Savickas, 2013) emphasises that individuals actively construct their careers through their personal life narratives, in order to make sense of their past, present, or future career decisions. CCT emphasises the importance of self-reflection in shaping an individual's career choice. Therefore, allowing them to make meaning and purpose in their professional lives. Research indicates that how individuals shape their professional identity is crucial (Barbarà-i-Molinero et al., 2017; Cruess et al., 2019; Johnson et al., 2012). This can influence how individuals see themselves and how they interact with their surroundings. Overall, the findings demonstrate that the CHIQ model successfully examines the relationships between the constructs and the proposed factors. Future research could focus on further refinement of the CHIQ, as its current length may limit participant engagement, potentially affecting the accuracy of the results. By refining the tool, it could enhance its reliability, ensuring more accurate

data collection. This would strengthen the CHIQ's effectiveness in academic and professional settings, allowing for more precise and meaningful insights into vocational identity and career development.

5.3 CHIQ Correlations and Validations with Existing Measures

The correlations indicate the validity of the CHIQ across the constructs tested using existing scales which assessed the impact of trauma on career decision making processes. These included Post Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2006), Work and Meaning Inventory (WAMI; Steger et al., 2012), and Brief Calling Scale (BCS; Dik et al., 2012). As hypothesised, the CHIQ correlated with trauma and measures of career readiness.

5.3.1 *Post Traumatic Growth Inventory*

The PTGI is a commonly utilised tool assessing the positive psychological changes that occur as a result of experiencing trauma (Silva et al., 2018). The CHIQ positively correlated with all items of the PTGI, demonstrating that the CHIQ accurately measures similar concepts of post traumatic growth, therefore exhibiting structural validity and supporting the research hypotheses. Results identified that a moderate to weak correlation existed between PTGI and various items of the CHIQ including help others, growth, self, values, interests, and advocacy/altruism. These constructs reflect the multidimensional nature of post traumatic growth, and therefore validate research findings from this study. These moderate to weak relationships suggest that although there is a level of association between variables, the relationship is not strong enough to make definitive assumptions. Moreover, a weak correlation existed between PTGI and several of the items of the CHIQ including chronicity, meaning making, professional learning, emotive motivations, and

vocation. This was expected, as previous literature demonstrates the complexity of post traumatic growth, and how it can vary significantly between individuals. These findings were consistent with previous literature (Maitlis, 2020; Park et al., 2012; Vis & Marie Boynton, 2008). Weak correlations indicate while there is an apparent relationship, some constructs may require further development to enhance the structural validity of the CHIQ. The PTGI provides valuable insights into how individuals who have endured trauma can rebuild their perceptions of others, themselves, and the significance of their experiences (Shakespeare-Finch et al., 2013). The positive correlations between the CHIQ and the PTGI enhance the validity of the CHIQ. This indicates that the CHIQ effectively measures how cumulative harm affects identity development and career decision making.

5.3.2 *Utrecht Work Engagement Scale*

The UWES evaluates work engagement by assessing three key dimensions including vigour, dedication, and absorption, by focusing on employees' psychological state and their level of engagement towards their work (Seppälä et al., 2008). The CHIQ positively correlated with majority of items of the UWES, demonstrating that the CHIQ accurately measured similar concepts of work engagement, indicating structural validity. A strong correlation was found between UWES and a construct of the CHIQ, emotive motivations, suggesting that higher levels of engagement are associated increased commitment and dedication to an individual's work. This finding was expected and was consistent with previous literature (Geldenhuis et al., 2014; Poon, 2013; Scrima et al., 2013). Additionally, the UWES moderately correlated with items of the CHIQ that aligned with work engagement, such as vocation and values. This finding aligned with recent research by Krüger et al. (2024) that examined variables that influenced career choice and

research by Schreurs et al. (2014) that examined the relationship between work values and work engagement. These constructs may also capture an individual's sense of purpose and motivations when choosing a career, especially since the CHIQ was developed for helping professions and used in a nursing population. There was a very weak correlation between UWES and some subscales from the CHIQ including professional learning, help others, growth, interests. Therefore, it may be inferred from the findings that cumulative harm could have a negative impact on work engagement, and individuals that have endured trauma may not have the motivation to engage effectively at work (Knight, 2013; Rizeq & McCann, 2021; Qin et al., 2018). Therefore, to mitigate this, workplaces could introduce the CHIQ to screen for cumulative harm and offer psychology sessions to help workers retention and overall wellbeing. A weak correlation was identified between UWES and advocacy/altruism. Weak correlations may indicate that various constructs of the CHIQ require further development. There was no correlation identified between the UWES and CHIQ items including chronicity, meaning making, and self. This finding was expected for chronicity, as prolonged exposure to trauma can hinder work engagement (Cieslak et al., 2014; Leung et al., 2022; Mason et al., 2014), although this finding was not expected for meaning making and self, as previous literature suggested that individuals who have cumulative harm experiences try to make meaning of their trauma and therefore are engaged in their career (Hirschberger, 2018; Park, 2022; Slattery & Park, 2015). The absence of this relationship may indicate that while cumulative harm can influence work engagement for some, it can also hinder other's ability to engage effectively. Individuals who may have experienced trauma may feel withdrawn and isolated, and as a result this can affect work engagement and productivity. Taken together, the findings of correlations between the UWES and the

CHIQ reveal that the CHIQ effectively measures similar components as the UWES, therefore supporting the research hypotheses of this present study.

5.3.3 *Work and Meaning Inventory*

The WAMI is a well validated psychological assessment tool designed to measure the relationship between an individual's work experiences and their sense of meaning in life (Tak et al., 2015). The WAMI helps identify how work contributes to personal fulfillment and overall sense of purpose (Svicher et al., 2022). A strong correlation was evident between WAMI and several components of the CHIQ including emotive motivations, vocation, and values. These correlations were expected, as previous research states that individuals pursue careers that align with their personal values, in order to find fulfilment and be satisfied with their career choice (Arieli et al., 2020; De Vos et al., 2020; Hall et al., 2018). A moderate to weak correlation was found between WAMI and advocacy/altruism. This finding was consistent with previous research by Sağnak and Kuruöz (2017) and Song et al. (2020). Weak correlations were apparent among the WAMI and several constructs of the CHIQ including professional learning, interests, help others, and growth. This was not expected, as these variables were expected to show a strong correlation. Therefore, it may be inferred that this weak correlation suggests that while these variables contribute to work meaning, they may not consistently predict it across diverse populations. Despite the weak relationships identified, the results support the research hypotheses and verify that the CHIQ effectively measures similar constructs of the WAMI, therefore confirming structural validity. Weak correlations may indicate that several components of the CHIQ require further development. There was no relationship between WAMI, chronicity and meaning making. This finding was not expected for meaning making, indicating that cumulative harm experiences may

diminish individual's sense of purpose and desire to complete or in engage in meaningful work (Veltman, 2014).

5.3.4 *Brief Calling Scale*

Research highlights the importance of calling in career development (Duffy & Dik, 2013; Duffy et al., 2011; Vondracek et al., 2019). Career calling refers to a sense of purpose and alignment with personal values, guiding individuals to pursue fulfilling and meaningful careers (Duffy et al., 2018). As a result, a sense of calling in a career can enhance commitment and overall career success (Dobrow Riza & Heller, 2015). Research has found calling to be associated with a deep sense of purpose and desire to help others (Dik et al., 2019). This is reflected in the CHIQ and the positive correlations between almost all of the items of the CHIQ and the BCS. Moderate to weak correlations were identified between BCS, emotive motivations and vocation which reflect aspects of career calling. This finding was consistent with previous literature by Kaminsky and Behrend (2014) who examined how sense of calling and certain motivations can influence vocation choices. A weak correlation was identified between the BCS and several constructs of the CHIQ including meaning making, professional learning, help others, values, interests, and advocacy/altruism. The weak correlation evident between BCS and help others was not expected, as literature states career calling is strongly related to a desire to help others (Duffy et al., 2014). Moreover, a very weak correlation was identified between BCS, self and growth. Despite the weak relationships identified, the results support the research hypotheses and confirm that the CHIQ effectively measures similar constructs of the BCS, therefore confirming structural validity. Weak correlations may indicate that several components of the CHIQ require further development. It is important to note the lack of correlation between a construct of the CHIQ (chronicity) and BCS. The

absence of this relationship may indicate that while cumulative harm can significantly shape an individual's sense of career calling, chronicity may not have a direct relationship due to individuals unique and varied responses to trauma or adversities (Bloom et al., 2020; Hybels et al., 2018). Therefore, it may be inferred from these findings that cumulative harm experiences may have diminished individual's motivation to seek their career calling (Vollhardt, 2009). Previous literature supports this, as it was found that prolonged hardship can reduce career calling and overall motivation levels (Morganstein et al., 2017).

The results of this study support the research hypotheses and confirm that some constructs of the CHIQ uphold structural validity. Specifically, the CHIQ was found to be a measure with relatively strong structural validity, when replicated in a nursing population. This finding inherently supports the research aims and effectively answers the proposed research question. Furthermore, the current study found that the CHIQ positively correlated with most trauma and career readiness measures. It was also hypothesised that cumulative harm will influence career choice for nursing professionals and nurses in training, and this study supports this hypothesis through the identification of various constructs in the CHIQ that were found to influence individuals to pursue careers in nursing professions. This finding was consistent with previous literature, suggesting that individuals in helping professions are motivated by a desire to assist others and to make a significant and meaningful impact to society (Weinstein & Ryan, 2010). Additionally, it was hypothesised that the CHIQ will show structural validity by comparing the structure of the scale to correlate with the PTGI, UWES, WAMI, and BCS. Findings from this current research study support this hypothesis and identified that while some of the subscale items of the CHIQ are

structurally valid measures, others require further development. Overall, this study supported proposed research aims and hypotheses.

5.4 Practical Implications

The present study's reliability and structural validity indicate that its findings are applicable and representative to nursing populations. This tool demonstrated validity and reliability in a sample of students and qualified nurses. Consequently, findings suggest the CHIQ can be valuable for assessing cumulative harm and career influences among nurses or nursing students. Nursing and healthcare organisations can use the well validated CHIQ tool to evaluate and better understand experiences of cumulative harm among staff, allowing workplaces to address and alleviate any issues that may impact their workers. This may enhance overall job satisfaction and improve retention among nursing professionals. Additionally, educational programs or universities could incorporate the CHIQ to improve their understanding of cumulative harm for student and nursing professionals. This could also enhance the application stages for university courses and supply more support within university settings to mitigate cumulative harm. By implementing the CHIQ, workplaces can prepare future nurses to recognise and address their own cumulative harm or trauma experiences. Furthermore, this tool can also be used in ongoing professional development and supervision to monitor cumulative harm, in turn, this may enhance nurses' overall wellbeing in work environments.

5.5 Limitations

A limitation of the present study is a predominantly female sample. This reduces generalisability to other genders, including gender in the workplace and in university settings, and therefore this increases potential biases. Future research could rectify this limitation by ensuring a diverse sample or using stratified sampling

to ensure generalisability of findings. Moreover, the participant pool was limited due to its homogeneity (nursing and identified as having experienced trauma), and the fact that participants were from a paid service, which may have influenced their willingness to participate. These factors may have affected the generalisability of the findings. An additional limitation of this study may be the length of the CHIQ. As this tool is quite long, it may comprise response accuracy and quality. The current length of the CHIQ may also reduce response rates or discourage completion in other populations of interest, overall affecting the reliability of the results. Future research could modify and shorten the CHIQ to enhance engagement and accuracy of findings. Another limitation may be that the CHIQ was only administered online. This increases sampling bias, as some individuals may not have access to technology or internet. The quality of responses may be compromised, as some participants may not feel comfortable sharing personal experiences of trauma or cumulative harm on online platforms. Lastly, growth and calling had lower internal consistency compared to other subscales and validation scales. The sample population consisted of student nurses and nurses already working in the field. This is a limitation as participants are in different stages of their career, although findings were combined. Stratified sampling may rectify this limitation. Dividing the sample population into students and practising nursing professionals may enhance internal consistency. This may allow results to be accurately interpreted according to the participants' current stage of their career.

5.6 Future Research

Research states that larger sample sizes can increase the applicability and generalisability of the results (Andrade, 2020). Future research could consider using a larger sample size to enhance the robustness and accuracy of the findings.

As the present study did not specifically focus on the interplay of emotional responses that motivate individuals to pursue careers in helping professions, such as nursing, future research would investigate this to provide more insight on career decision making processes. Overall, the CHIQ requires further work. Future research that replicates and refines constructs of the CHIQ is recommended to build on the findings of this study, and to enhance its application as a usable self-reflection tool in a wide range of healthcare settings. As this study was utilised in a nursing population, and among psychology and social work disciplines (previous research by Bryce et al. 2022), it may be beneficial to test the structural validity of the CHIQ in a sample of other helping professions such as occupational therapists, doctors, or paramedics. This will further contribute to the growing research of cumulative harm and career development.

5.7 Conclusion

The CHIQ is an effective tool as it specifically focuses on the cumulative harm experienced throughout a professional's career, offering a unique lens to understand its long-term impact on career choices and vocational identity. Unlike other instruments that measure engagement, growth, or meaning in the workplace, the CHIQ addresses the cumulative harm professional influence over time, shedding light on how this harm may shape career choices and identity. The CHIQ provides a deeper self-reflection, allowing individuals to explore the ongoing impact of their experiences on their vocational path. In doing so, the CHIQ offers a more comprehensive and personal understanding of how cumulative experiences influence professional development.

This study tested the structural validity of the CHIQ. An additional aim of this study was to respond to the overarching research question of 'Is the CHIQ a

structurally valid measure when replicated in a different sample? This study proved that the CHIQ was a structurally valid measure, and that it upholds validity when replicated in a nursing sample. It was hypothesised that the cumulative harm impact questionnaire will show structural validity by comparing the structure of the scale to correlate with the Post Traumatic Growth Inventory, The Utrecht Work Engagement Scale, Work as Meaning Inventory and Brief Calling Scale. Results indicated that while some of the subscale items of the CHIQ are structurally valid measures, others require further development. This study also indicated that individuals with cumulative harm or trauma experiences may be influenced to pursue careers in nursing, in order to help others and rectify their own trauma narratives. Findings of this present study were consistent with previous research. Without a strong healthcare system, Australia would struggle to meet the needs of its ageing population and the ongoing demand for various health services. To ensure the healthcare system continues to function efficiently, it is crucial for current nursing research to shed light on motivations to enter nursing professions. This may insinuate and improve strategies for retaining nurses and supporting their overall wellbeing in work environments.

This study has enhanced the field and provided valuable insight into cumulative harm and motivators for career choice in the nursing profession. This research provides valuable insights for improving recruitment and retention strategies. Results demonstrate that cumulative harm can influence career decision and professional development. This has not been explored in a nursing population to date. These insights have important implications for nursing professionals and nurses in training. Additionally, this study has proven the CHIQ is a structurally valid self-assessment tool, which can support nurses' wellbeing and career success, as well as

the retention of nurses. Taken together, this study revealed that findings were significant in the sample population, demonstrating the results may be applicable outside of this specific population of interest. This research has answered a gap in the literature regarding cumulative harm and its influence on pursuing a career in nursing.

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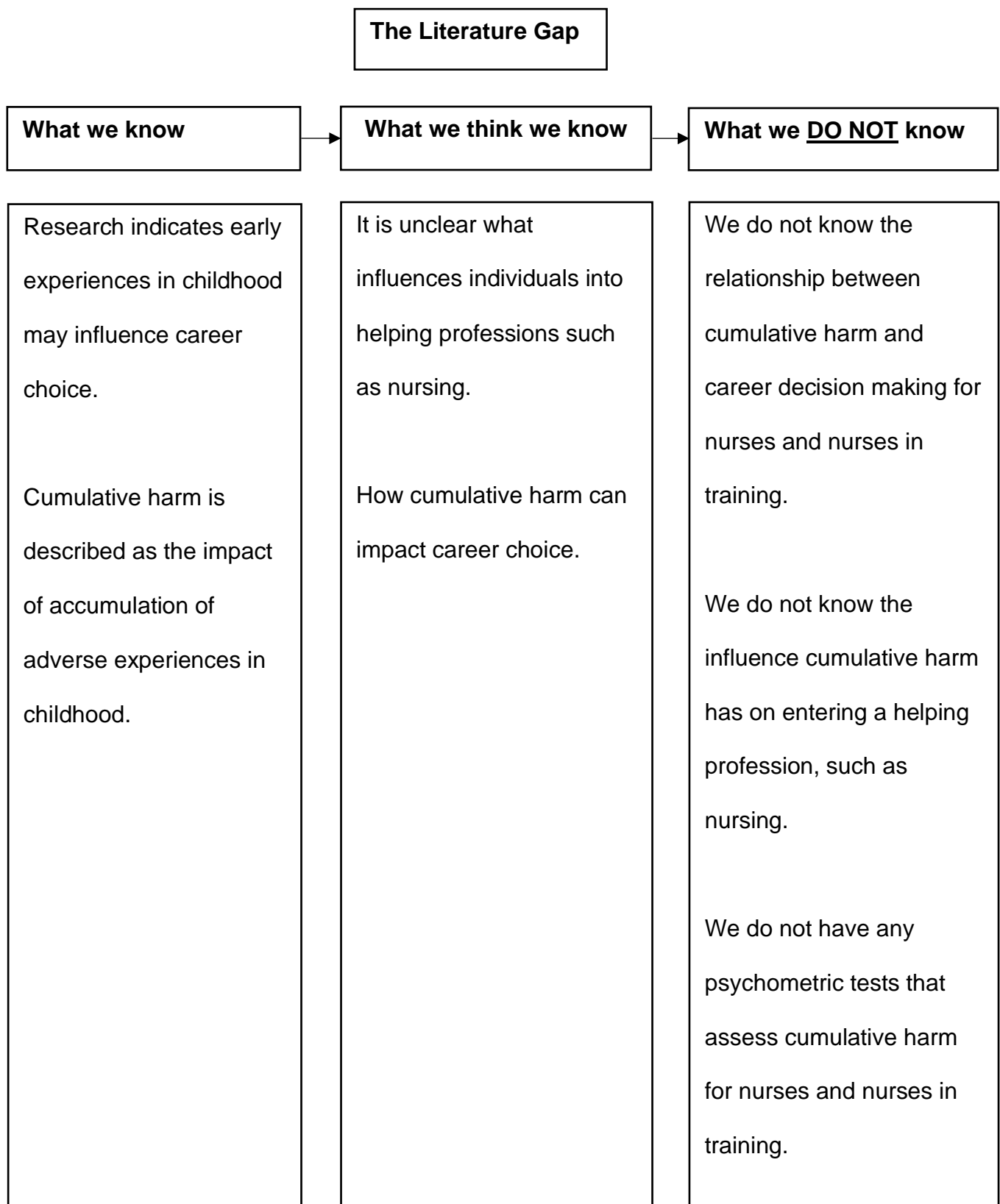
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APPENDIX A: THE LITERATURE GAP



APPENDIX B: IMPACT THIS RESEARCH WILL HAVE

What impact will my research have?

A more comprehensive understanding of cumulative harm and a measure by which to assess it will allow for significant improvements in the prevention and intervention of cumulative harm for nurses and nurses in training.

The focus on career choice, specifically nursing, and the impact of cumulative harm will provide a new body of information to the field as this has not been explored to date.

Refining and re-administering the CHIQ will promote a valuable advancement in student wellbeing, success and practitioner retention for nurses.

This study will also contribute a comprehensive review of existing literature regarding the research, which explains, supports and investigates cumulative harm and career influence for nurses, as there is limited literature available.

APPENDIX C: POST TRAUMATIC GROWTH INVENTORY

Statements	Scoring					
	0	1	2	3	4	5
1. I changed my priorities about what is important in life.						
2. I have a greater appreciation for the value of my own life.						
3. I have developed new interests.						
4. I have a greater feeling of self-reliance.						
5. I have a better understanding of spiritual matters.						
6. I more clearly see that I can count on people in times of trouble.						
7. I established a new path for my life.						
8. I have a greater sense of closeness with others.						
9. I am more willing to express my emotions.						
10. I know that I can handle difficulties.						
11. I can do better things with my life.						
12. I am better able to accept the way things work out.						
13. I can better appreciate each day.						
14. New opportunities are available which wouldn't have been otherwise.						
15. I have more compassion for others.						
16. I put more effort into my relationships.						
17. I am more likely to try to change things that need changing.						
18. I have stronger religious faith.						
19. I discovered that I'm stronger than I thought I was.						
20. I learned a great deal about how wonderful people are.						
21. I better accept needing others.						

APPENDIX D: UTRECHT WORK ENGAGEMENT SCALE

Items

Vigor:

1. At my job, I feel strong and vigorous.
2. I can continue working for very long periods at a time.
3. At my job, I am very resilient, mentally.
4. At my work I always persevere, even when things do not go well.

Dedication:

1. I am proud of the work that I do.
2. To me, my job is challenging.
3. My job inspires me.
4. I find the work that I do full of meaning and purpose

Absorption:

1. I am immersed in my work.
2. When I am working, I forget everything else around me.
3. Time flies when I'm working

APPENDIX E: WORK AS MEANING INVENTORY

	Absolutely Untrue	Mostly Untrue	Neither True nor Untrue	Mostly True	Absolutely True
1. I have found a meaningful career	1	2	3	4	5
2. I view my work as contributing to my personal growth.	1	2	3	4	5
3. My work really makes no difference to the world.	1	2	3	4	5
4. I understand how my work contributes to my life's meaning.	1	2	3	4	5
5. I have a good sense of what makes my job meaningful.	1	2	3	4	5
6. I know my work makes a positive difference in the world.	1	2	3	4	5
7. My work helps me better understand myself.	1	2	3	4	5
8. I have discovered work that has a satisfying purpose.	1	2	3	4	5
9. My work helps me make sense of the world around me.	1	2	3	4	5
10. The work I do serves a greater purpose.	1	2	3	4	5

APPENDIX F: BRIEF CALLING SCALE

The following questions assess the degree to which you see this concept as relevant to your own life and career. Please respond honestly, not according to what is socially desirable or what you feel you "ought" to think. Please indicate the extent to which each of the following statements currently describe you, using the following scale.

- 1 = Not at all true of me
- 2 = Mildly true of me
- 3 = Moderately true of me
- 4 = Mostly true of me
- 5 = Totally true of me

1. I have a calling to a particular kind of work.
2. I have a good understanding of my calling as it applies to my career.
3. I am trying to figure out my calling in my career.
4. I am searching for my calling as it applies to my career.

Presence of calling: 1, 2

Search for calling: 3, 4