Prevalence of Professional Quality of Life (ProQOL) and Its Influence on the Personal Distress of Doctors in Nepal

by

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Declaration

No portion of this work has been submitted in support of any other application for a degree or qualification at this or any other university or institute of learning.

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Abstract

Background: This research studied the prevalence of professional and personal distress of Nepali doctors, a previously unexplored subject, and examined the impact of their professional quality of life (ProQOL) on their distress.

Aim: To examine the existing situation of personal and professional distress and explore interrelationships between measures of ProQOL (burnout - BO, secondary traumatic stress - STS, and compassion satisfaction - CS) with personal distress (anxiety, depression and somatic burden) of Nepali doctors.

Methods: A non-experimental survey design was used to examine the personal and professional distress of doctors using an online and a paper-and-pencil survey with the use of SSS-8, HSCL-25 and ProQOL5-N measurement tools. Conformatory factor analysis (CFA) and structural equation modeling (SEM) techniques were used to measure the influence of professional distress on personal distress.

Results: The prevalence of anxiety, depression, psychosomatic distress and suicide risks of Nepali doctors (N= 557) were 30.89 %, 25.41 %, 20.5% and 5.7 % respectively. BO and STS scores showed moderate risk, with just over 1% doctors at high risk for BO and STS. The doctors were highly satisfied with their service. Distress measurement tools, SSS-8, and HSCL-25, and ProQOL-5, all in Nepali language, were tested through CFA. The data on SEM showed a reasonably good fit between the STS and CS measures of doctors and their levels of personal distress, but BO could not be tested. A moderate but statistically significant positive effect of STS on personal distress, except psychosomatic distress, was found. Nevertheless, the effect of CS on personal distress could not be determined.

Conclusions: One-fifth of Nepali doctors had a high level of personal distress. The risk for BO and STS was moderate. Nepali doctors found highly satisfied with their service they offer. The impact of professional distress on personal distress could not be fully determined. Nepali versions of SSS-8 and HSCL-25 were tested and verified for future use; however, ProQOL measures, mainly BO, require further studies.

Keywords : Depression, Suicide, Burnout, ProQOL, SEM, Nepali Doctors

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My grandmother inspired me to study psychology. I am grateful for her for struggling throughout her life and setting all of us a meaningful example of how to live a dignified life

despite past challenges. My sincere respect also goes to my parents, Mr. Khem Nath Adhikari and Ms. Padama Devi Adhikari, who have always wished me the best and provided the best support possible to pave my journey to higher studies. Thanks to my lovely sisters and beloved kids, Yureka and Yugin, for their encouragement and support. I am truly grateful for the motivation, love, and patience of my beloved wife Yashoda. I thank all of you.

This dissertation is dedicated to my late grandfather Punya Prasad Adhikari, who left this world when I was just six years old.

Abbreviations and Acronyms

AAP	Austrian Academy of Psychology
AD	Anno domini
BAI	Beck Anxiety Inventory
BDI	Beck Depression Inventory
BO	Burnout
CBS	Central Bureau of Statistics
CF	Compassion fatigue
CFA	Confirmatory factor analysis
CS	Compassion satisfaction
CVT	Center for Victims of Torture
DASS	Depression Anxiety Stress Scale
ENT	Ear, nose and throat
HAD	Hospital Anxiety and Depression
HADS	Hospital Anxiety Depression Score
HIV	Human Immunodeficiency Virus
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
HSCL	Hopkins Symptoms Checklist
ICRC	International Committee of the Red Cross
IOM	Institute of Medicine
IRIN	Integrated Regional Information Networks
MBI	Maslach Burnout Inventory
MBBS	Bachelor of Medicine

MHPSS	Mental health and psychosocial support
n. d.	No Date
NGO	Non-Governmental Organisation
NHRC	Nepal Health Research Council
NHS	National Health Service
NMC	Nepal Medical Council
Ph. D.	Doctor of Philosophy
ProQOL	Professional quality of life
N-ProQOL5	Nepali version of Professional Quality of Life (ProQOL5) scale
PTSD	Post-Traumatic Stress Disorder
SEM	Structural equation modeling
SSS	Somatic Symptoms Scale
UK	United Kingdom
USD	United States dollar
WHO	World Health Organisation

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Chapter 1. Introduction

"There is nothing intrinsically wrong with me. My depression resolved when I extricated myself from assembly-line medicine and became the doctor I had always dreamed of."
—Dr. Pamela Wible, medical doctor and a leading voice for ideal medical care

1.1 Background

This research was conceived during a difficult moment in my life. In Autumn 2015, my five-year-old daughter was hospitalised with septicemia at a government hospital. Hers was a life-and-death struggle and she spent three weeks in the intensive care unit (ICU). The lives of the entire population of the country were paralysed due to the unexpected blockage of medicines and petroleum products from India in the immediate aftermath of the Gorkha earthquake of 2015. There was an extreme shortage of day-to-day essential supplies for all, including medical doctors. The devotion and dedication of the medical doctors to who saved my daughter provided me with immense relief in my life. Unfortunately, however, these same doctors were unable to save an infant and she died 22 days after her birth.

At the time, I was doing research on the psychological distress and institutional support for corporate staff and was developing a dissertation proposal on the professional quality of life (ProQoL) of mental health and psychosocial support (MHPSS) professionals addressing the impact of trauma in the aftermath of the earthquake. Informally, I was noticing the psychological effects of caring for critical patients on medical doctors too in hospital. Despite their family and personal obligations, most of the doctors were present from early morning to late night. Consultant doctors served in the Out-Patient Department (OPD), performed operations and conducted ICU and general ward follow-up, gave lectures to new medical students, and attended case conferences on a daily basis.

Medical doctors are trained to be 'passionate about medicine and compassionate about people'. They have to work relentlessly to provide medical care and treatment, save lives, and alleviate human suffering, all the while according dignity and respect to patients and their care-providers. Being competent in practice and showing empathy to clients are not always easy job. Thus, doctors face constant emotional challenges too. The potential to derive self-satisfaction from the obligation to provide great can easily be jeopardised due to the inability to cope with the distress associated with providing care. Scientific studies conducted over the last two decades have reported a high, even epidemic levels of career dissatisfaction, burnout (BO), secondary traumatisation, depression, and suicide (Bright & Krahn, 2011; Doolittle, Windish, & Seelig, 2013; Dyrbye, Thomas, & Shanafelt, 2006; Hawton, Clements, Sakarovitch, Simkin, & Deeks, 2001, Shanafelt et al., 2016). The negative effects of provision care among physician has forced early retirements, resulted in non-clinical careers, and increased the practice of concierge medicine to limit the workload (Rosenstein, 2012; Shanafelt et al., 2016).

The news of medical doctors' suicides, stigma associated with seeking mental health support, and fear of losing one's license to practice have cast a pall over the medical profession (Wurm et al., 2016; Schwenk, 2018). This study covers the research gap on these elements in the Nepali context by exploring the prevalence of professional and personal distress. Furthermore, it provides interlinkages and interrelationships between the measures of professional distress factors (ProQOL) and measures of the personal distress (anxiety, depression and psychosomatic burden).

1.2 Statement of the Problem

Medical education in Nepal was initiated in 1933 with training for Ayurvedic practitioners. The Institute of Medicine (IOM) embarked on the formal education and training of physicians just three decades ago, in 1987 (Dixit, 2009). Nepal Medical Council (NMC) was founded in 1964 to

serve as a governing body to authorise medical colleges and license medical doctors in Nepal. It has approved 22 medical colleges. Annually, over 2000 new Nepali medical doctors graduate from Nepali and foreign institutions (Kumal, Mahato, Gupta, & Ghimire, 2013; RSS, 2016).

Unlike Western, individualistic society, Nepali society is a collective one (Dahlin & Regmi, 1997) in which the progress and prosperity of an individual is the pride of a family, extended family circle, and even the society to which the person belongs (Baines, 2009). Many parents believe that being a medical doctor is the most dignified profession in Nepal, and teachers and society routinely encourage teenagers to choose medicine as a profession due to its high social prestige and income (Acharya, 2014; Thakur & Koirala, 2007).

In addition to high social and family expectations, medical doctors have to deal with significant work pressure, prolonged stress during career growth, insecurity in the workplaces and vicarious trauma. Lakhey, Lakhey, Niraula, Jha, and Pant (2009) explored that a self-negative attitude towards the medical profession increases as medical students progress towards becoing a qualified doctor. In their study, 46% of medical officers and 26% of resident interns identified job satisfaction and career progression in the medical field as poor. About 89% of interns and 74% of officers suggested that improving career opportunities and providing a secure working environment could enhance job satisfaction and retain doctors in the medical profession (Lakhey, Lakhey, Niraula, Jha, & Pant, 2009).

Despite increases in healthcare budgets over the years, the gap in healthcare between urban and rural populations has grown as few medical doctors wish to deliver services in remote locations where fearful and stressful working conditions are commonplace (IRIN, 2014). The ratio of public doctors to population in Nepal is too low (Jacobs, 2016). Adhikari and Mishra (2016), cited in the Central Beauro of Statistics (CBS) report, found that there are 0.17 doctors per 1000 people. The

World Health Organisation (WHO) recommends a ratio over 10 times that, 2.3 doctors per 1000 people. Lamichhane (2016) indicates that doctors are under threat, and that the reasons are many. The quality of medical education and training has also deteriorated due to a massive increase in the number of private medical colleges without proper regulatory supervision by authorities (Lamichhane, 2016).

Doctors lack the communication skills they need to provide adequate information to patients and their care-providers, as most have little education and often misundertand. Medical negligence is another worrisome result in the rise of poorly supervised private colleges. This general lack of competence not only puts capable and caring doctors and medical professionals at risk but also increases the mental pressure and distress they experience, especially given the adverse professional and working environments they are forced to work in (Lamichhane, 2016).

Integrated Regional Information Networks (IRIN, 2014) explored 61 incidences of harassment, attacks, and threats to medical professionals reported between 2007 to 2012. Not a single perpetrator was punished. In a separate study of 375 healthcare institutions, 30% of medical doctors and 23% of health workers felt insecure in their work environment and reported a high perceived level of threats, attack and intimidation (Prajapati, Baral, Karki, & Neupane, 2013). In addition, there are not enough Nepali doctors to serve people in need. Despite these obvious stresses, the ProQOL and level of distress medical doctors experience is a relatively unstudied topic in the Nepali context.

Even as they provide great care to others, studies have highlighted that medical doctors experience overwhelming stress, BO, traumatic transformations of their patients, depression and, in the worst of cases, deliberate self-harm (Bright & Krahn, 2011; Doolittle, Windish & Seelig, 2013; Hawton, Clements, Sakarovitch, Simkin & Deeks, 2001). ‘Burnout in physicians is common, and

studies show a prevalence of 30% to 78% of compassion fatigue (CF) (Doolittle, Windish, & Seelig, 2013 p. 257).' Depression and suicide among medical doctors are increasing, and statistics often show that they exhibit such manifestations of distress in greater proportions than the general population does.

Depression, anxiety, and suicidal ideation are often correlated with BO and secondary traumatic stress (STS), but the symptoms of BO and STS are caused mostly by work-related exhaustion, poor management style, internal conflicts and exposure to the trauma of patients (de Oliveira Jr et al., 2013; Graham, 2016). Prolonged stress, secondary trauma, and BO aggravate the feelings of isolation, helplessness, and hopelessness medical doctors experience. These feelings then lead to depression and suicide. Despite the growing interest in the professional and personal quality of life of medical doctors in Nepal (Sreeramareddy et al., 2007), no nationwide study on the prevalence of distress and the state of the ProQOL of medical doctors in Nepal exists.

1.3 Rationale and Significance of the Study

Distress among medical doctors is not a new phenomenon; nevertheless, its negative impacts were not widely studied until recently. The rise in professional accountability, advances in technology, and struggle of ability to cope with modern innovative techniques and managerial tasks are some factors which have increased stress levels among medical professionals. The inability to balance one's professional life adversely impacts social obligations, family relations and personal lives (Dhar, Datta, & Nandan, 2008). BO and STS are often related to the professional environment, whereas psychological distress such as depression, anxiety, and suicidal intent can be caused by broader ecological factors. The interrelationships of these variables differ depending upon organisational values and socio-cultural and economic contexts and cannot be generalised (Maslach, Schaufeli & Leiter, 2001; Stearns & Benight, 2016).

In developed countries, studies have shown that doctors report a higher level of distress than does the general population (Kumar, 2016; Pereira-Lima, & Loureiro, 2015). The prevalence of depression, for example, is 15% to 30% higher among medical doctors than the general population (Bright, & Krahn, 2011). A systematic review of the literature on the depression and depressive symptoms of medical doctors which covering over 50 studies (n = 17,560) since 1963 found that the average prevalence rate of depression was 28.8% and that this rate had increased every year (Mata et al., 2015).

That depression sometimes has fatal consequences: male doctors have 1.41 times the suicide rate of the general population and female doctors, 2.27 (Schernhammer & Colditz, 2004). Often, the natural mortality rate of doctors is lower than that of the general population, making the high deliberate self-harm rates particularly alarming. Untreated depression is the major cause of suicide (Eckleberry-Hunt & Lick, 2015).

The depression and suicide rates of doctors in developed countries are alarming. In the United States alone, 300-400 medical doctors commit suicide every year (Eckleberry-Hunt & Lick, 2015). In Australia, 1 out of 10 medical doctors and medical students with depression commit suicide (Bailey, Robinson, & McGorry, 2018). Studies from the U.K., Denmark, and Canada also show that medical doctors are among the professional groups with the highest rates of depression (Bourne et al., 2015; Hawton, Agerbo, Simkin, Platt, & Mellanby, 2011; Gagné, Moamai & Bourget, 2011).

In Asia, a few studies have shown that nearly two-thirds of Chinese doctors are depressed (Gong et al., 2014; Li, Li, & Cao, 2012). In Pakistan, one-third (34%, n = 203) of doctors were diagnosed with mild to moderate levels of anxiety and depression, and 1% were severely depressed (Atif, Khan, Ullah, Shah, & Latif, 2016).

Nepal has a few studies on the mental health of medical students. The prevalence of anxiety was 41.1% (n = 538) and that of depression, 29.9% (Kunwar, Risal, & Koirala, 2016). In another study, 29.78% (n = 50) of medical undergraduate degree students were diagnosed with moderate and severe depression (Basnet, Jaiswal, Adhikari & Shyangwa, 2012). According to Bates (1982), doctors are sometimes unable to cope with stress, and, as a result, experience a decline in emotional wellbeing and the quality of family relations. Today, the professional distress of doctors, formally called "compassion fatigue" and encompassing both BO and the secondary traumatic effects of care, are at an unmanageable level.

Because of BO, people experience a decline in interest in work, less joy and satisfaction in their duties, emotional exhaustion, and heightened levels of cynicism, self-blame and blame of others (Alexander, & Ballou, 2018). A longitudinal study of the ProQOL of medical doctors in the US showed that BO increased from 45.5% to 54.4% in just the three years after 2011 (Alexander, & Ballou, 2018; Shanafelt et al., 2012). A national survey of the ProQOL of junior medical doctors (n = 913) in Australia disclosed that 69% of doctors suffered from BO and 54% from CF (Markwell & Wainer, 2009).

A review of 72 published articles found that medical doctors often reported experiencing work-related stress, BO and CF due to lack of job satisfaction, challenges in managing clinical cases, managerial issues and poor working conditions (Vijendren, Yung, & Sanchez, 2015). The prevalence of BO in medical doctors in South Asia is a relatively new topic. In a study in Kerala, India, 57.2% (n =558) of resident doctors met BO criteria (Ratnakaran, Prabhakaran, & Karunakaran, 2016). In Rajasthan, India, of the 576 medical professionals studied, 29.2% and 20.1% reported high scores in emotional exhaustion and depersonalization respectively and 18% reported low scores in personal accomplishments (Khanna & Khanna, 2013).

As far as the researcher knows, studies on ProQOL carried out in Nepal have yet to initiate policy-level discussions or the establishment of support mechanisms to address such concerns. Nor is there a concrete contextualised measurement tool in the Nepali language to assess the professional and personal distress of doctors (Lamichhane, 2015). This research is significant in that it will help fulfill the research gap by developing effective tools to measure, analyze and address the personal and professional distress of medical doctors in Nepal.

A growing body of literature is presenting associations and interlinkages between professional and personal distress among medical professionals. Brenninkmeyer, Van Yperen and Buunk (2001) reviewed the literature and concluded 'depression and burnout seem closely related, but they are certainly not identical twins (p. 879).' Pompili et al. (2010) claimed BO is associated with depression and suicide. BO has also been found to correlate with perceived stress (Swami, Mathur, & Pushp, 2013). McManus, Winder, & Gordon (2002) outlined the causal link between BO and stress. This study will add to that body of knowledge.

In a recent review, Imo (2017) highlighted that up to 52% of doctors experience psychiatric morbidity, a condition associated with high levels of BO (emotional exhaustion, depersonalization, and low personal achievement). Elliot and Tan (2010), following a systematic review, concluded that the rate of anxiety in medical doctors and medical students lower than the rate of depression but recommended the detection and treatment of both. Psychiatric morbidity includes neuroticism, anxiety, and depression but not BO, stress or psychosomatic burdens. The interrelationships among the factors of ProQOL (BO, STS, and CS) with personalised distress (anxiety, depression and psychosomatic burden) are understudied or unpublished due to non-findings. This study can help remedy that gap.

1.4 Place and Time of the Study

The study was conducted in Nepal. The Nepal Medical Council (NMC) of registered doctors was considered as the universe and each doctor as a unit of the study. Data was collected after securing ethical approvals from the Austrian Academy of Psychology (AAP) and Nepal Health Research Council (NHRC) was done. The data was collected from July 2018 to November 2018. This study concluded in April 2020.

1.5 Purpose of the Study

The overall aim of this study was to measure ProQOL factors and psychological distress (anxiety, depression and psychosomatic problems) of Nepali medical doctors. Furthermore, the study also examined the level of influence ProQOL measures (BO, STS, and CS) have on anxiety, depression and psychosomatic problems in that same population.

1.6 Aims and Objectives

This study focused on understanding the prevalence and level of distress (anxiety, depression and psychosomatic burden) and ProQOL (BO, STS, and CS) among Nepali medical doctors. The prevalence of distress was measured using the Hopkins Symptoms Checklist (HSCL-25) and Somatic Symptoms Scale (SSS-8) and ProQOL was measured using ProQOL-5. Some studies have shown that ProQOL measures do influence and have interrelationships with measures of distress, a fact which magnifies the burden on the effective functionality of the quality of life and overall wellbeing of medical doctors (Shanafelt et al., 2012; Wurm et al., 2016). This study, too, planned to examine the level of influence of BO, STS, and CS on the anxiety, depression and psychosomatic burden in the studied population.

The level of influence of the ProQOL factors on the distress of medical doctors was measured using structural equation modeling (SEM). The researcher also analysed a few socio-demographic variables, including sex, qualifications, years of experience, level of supervision, and training on self-care, to ascertain if those factors had any specific influence on the distress and ProQOL of medical doctors. The researcher aimed to accomplish the following specific objectives through the research:

- To assess the prevalence of BO, STS, and CS among the Nepali medical doctors.
- To measure the psychological distress (anxiety, depression and psychosomatic problems) prevalent among Nepali medical doctors.
- To examine the effects of BO, STS, and CS on anxiety, depression and psychosomatic problems among Nepali medical doctors.
- To contribute toward validating ProQOL measures in the Nepali context

1.7 Research Question

The research question for this study was: *What is the current situation of ProQOL and psychological distress (anxiety, depression and psychosomatic burden) among Nepali medical doctors and, how much influence do BO, STS, and CS have on measures of anxiety, depression and psychosomatic problems in Nepali medical doctors?*

1.8 Conceptual Framework of the Study

The following framework was proposed for outlining and measuring structural relationships among the variables. This study proposed to test the how the constructs of BO, STS and CS are related with the constructs of anxiety, depression and psychosomatic burden among Nepali medical doctors. The interrelationships were tested using SEM, a statistical technique combining factor

analysis and regression techniques that is widely used in behavioral research (Hox & Bechger, 2007). The path analysis framework applied is below (Figure 1).

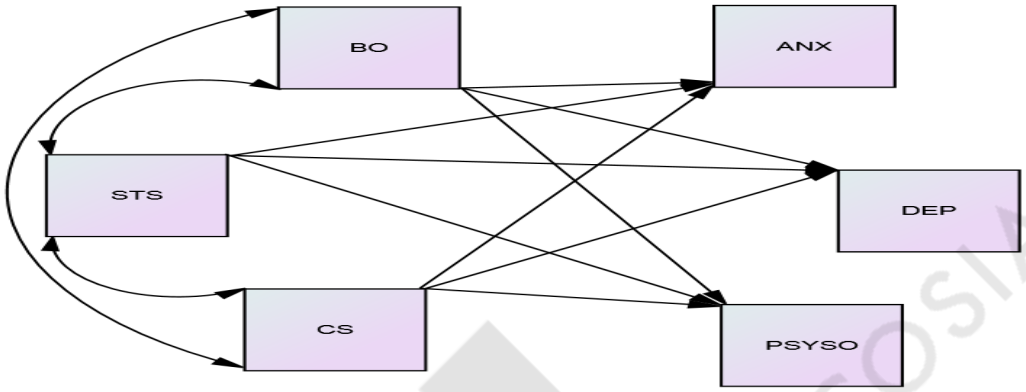

Figure 1. Conceptual Framework of the Study.

BO: Burnout, STS: Secondary Traumatic Stress, CS: Compassion Satisfaction, ANX: Anxiety, DEP: Depression, PSYSO: Psychosomatic

Definitions of Key Terms and Acronyms

Burnout (BO): BO refers to a state of emotional exhaustion that reduces motivation to perform a required task, job or service. Negative self-perception and consequent depersonalization of services to recipients often leads to a reduction in the level of care provided to patients and the individual performance of the affected care-provider also gradually diminishes (Schaufeli, Maslach & Marek, 1993). Rosenberg and Peace (2006) explain that BO is a syndrome which creates emotional exhaustion and fosters negative attitudes towards one's job, reduces compassion for patients and promotes a critical and negative self-concept. In medical doctors and surgeons, BO

may result in major medical errors and more frequent occurrences of suboptimal patient care (Dyrbye & Shanafelt, 2011). BO also diminishes the value of the sufferer's work and professional and personal satisfaction and increases vulnerability to depressive symptoms (Bianchi, Schonfeld, & Laurent, 2015).

Secondary Traumatic Stress (STS): Various terms such as 'secondary trauma' and 'vicarious trauma' are used to define this phenomenon, which is the emotional and physical exhaustion faced by any care or treatment provider through transformations experienced after witnessing or experiencing the traumatic feelings or sufferings of a survivor (Bride, 2012). According to Figley, STS is a specific type of stress which may manifest symptoms like those Post-Traumatic Stress Disorder (PTSD), such as intrusive images, hyperarousal, numbing and avoidance reactions (Figley, 2013). For Figley, "STS is the stress resulting from helping or wanting to help a traumatized or suffering person" (Figley, 1995, p. 7). STS is the cumulative effects of secondary exposure to trauma which is transferred from a client in healthcare to service-providing professionals such as medical doctors (Stamm, 2010).

Compassion Satisfaction (CS): CS refers to the sense of pride, reward and competence derived from providing care or treatment to a person in need through utilising the skills and knowledge of a care professional (Huggard, Stamm, & Pearlman, 2013; Stamm, 2010). CS derived from a sense of personal and professional satisfaction promotes resilience, enhances wellbeing and reduces the emotional burden of caring (Hair, 2013; James, Noel, & Roche Jean Pierre, 2014).

Professional Quality of Life (ProQOL): ProQOL is a combined scale to measure the negative and positive aspects of being a professional care service-providing practitioner. ProQOL has three sub-scales (BO, STS, and CS) with10 items in each (Smart et al., 2014). Figley developed

the Compassion Fatigue Self-Test (CFST) and later revised it with Stamm, and ProQOL was launched in 2010 (Bride, Radey, & Figley, 2007; Stamm, 2010).

Anxiety: Anxiety is a condition in which an individual anticipates or fears possible future calamities or situations of danger to a degree that results in distress, worry or somatic symptoms of tension. Factors both internal and external may create the anticipated danger (American Psychiatric Association, 2013). Anxiety is often comorbid with mood disorders and somatic symptoms. Acute stress (AS) and post-traumatic stress (PTS) are no longer considered anxiety disorders but 'stress and trauma-related disorders' (Andrews et al., 2009, American Psychiatric Association, 2013; Lochman et al., 2015; Maercker et al., 2013).

Depression: Depression is a depressive situation that manifests itself in behavioral, cognitive or neuro-vegetative symptoms such as feelings of sadness, depressed mood, changes in appetite, loss of interest or pleasure in previously enjoyed activities, self-blame, feelings of worthlessness or emptiness, and impaired decision-making (American Psychiatric Association, 2013; Segal, Williams, & Teasdale, 2018). Depression significantly impairs an individual's ability to function. Thoughts of ending one's life, fear of death and suicidal behaviors are also associated with the depressive situation (Bright & Krahn, 2011). Depression is often comorbid with anxiety and psychosomatic pain (Kroenke, 2003).

Psychosomatic: Somatization or somatic symptoms can be characterised as medically unexplained somatic symptoms, whether cardiopulmonary, gastrointestinal, bodily pain or combination of all three. These symptoms are either very distressing or impair the functionality of a person by affecting his or her thoughts, behaviors and feelings due to their presence (American Psychiatric Association, 2013; Gierk et al., 2014). Somatization is often comorbid with depression,

anxiety and other physical or mental health disabilities and seriously impacts the functionality and wellbeing of the sufferer (Gierk et al., 2014; Kurlansik & Maffei, 2016; Löwe et al., 2008).

1.9 Dissertation Organisation

This dissertation is organised into seven different chapters.

The **first chapter** outlines the background of the study, depicts the general situation that exists in the chosen subject, discusses gaps in the issues of distress and ProQOL of the studied population, provides the rationale of the study, and clarifies various terms used in the report.

The **second chapter** thoroughly analyses the literature and studies that were carried out of the study population by various researchers in different contexts. The literature presented in this report covers concepts, theoretical advancements in the problem, study gaps, methodological rigor and contemporary issues related to the distress and ProQOL of medical doctors. It also looks at the interrelationships among the measures of distress and ProQOL and summarises the major findings and research advancements in this field.

The **third chapter**, methodology, outlines the research design, study population, sample size selection and instruments used in the study. The reliability, validity, adaptability and cultural sensitivity of the tools used in this study are presented, too. The data collection processes, data analysis techniques and ethical concerns that were applied in this study are thoroughly described.

Chapter four discusses and presets the pilot testing of the Somatic Symptoms Scale (SSS-8) on the Nepali population and outlines the study's results with respect to the prevalence of personal and professional distress in the studied population.

Chapter five outlines and presents the outcomes of the confirmatory factor analysis (CFA) of ProQOL-5, SSS-8 and HSCL-25 measurement tools with the data collected in this study and discusses the reliability and validity of these tools.

Chapter six comprises the results of and major findings on the structural model of the measures verified through CFA in the studied population and presents, with adequate fit measures, the SEM of this study.

Lastly, the **seventh chapter** discusses and interprets the findings of this study with respect to the existing literature on the subject matter. In addition, it presents recommendations, further study possibilities and study limitations. A section on preventing and addressing the distress of Nepali doctors and enhancing their ProQOL in the Nepali context is the concluding section.

1.10 Summary

This chapter outlined the foundation of this research and covered the rationale and purpose of this research. It also identified the aims, objectives, scope, and significance of this study and its designed place and timing. Last, the research question, approach, and conceptual framework of the study and organization of the dissertation were elaborated. Chapter Two will further discuss and review important and relevant literature, including theoretical and action-based research in the field of the personal and professional distress of medical doctors.

Chapter 2. Literature Review

"The physician who treats himself has a fool for a patient."
—Sir William Osler, physician, (1849–1919)

2.1 A Brief Overview

This review of the literature provides a thorough understanding of studies carried out in various contexts around the globe in similar populations and outlines the theoretical foundation and guidance for this study. In additional, it presents emerging trends, the level of severity of the problem and underlying gaps in knowledge about and interlinkages among the professional and personal distress of medical doctors. The professional and personal distress of Nepali medical doctors as measured using the ProQOL, Hopkins Symptoms Checklist (HSCL) and Somatic Symptoms Scale (SSS) are the main interest of this research. The interrelationships among the various factors of professional and personal distress are further studied to understand the effects of professional distress, both CF and CS, on personal distress. While doing so, the psychometric properties of versions of ProQOL and of SSS-8 translated into Nepali are also presented to ensure that the tools used for this study were effectively adapted and that their measurements are valid and reliable.

The studies and literature available suggests that medical doctors are greatly affected by professional and personal distress and that high rates of BO, depression, and suicide are often found and that they deteriorate the professional and personal quality of life of medical doctors (Bright & Krahn, 2011; Nimmo & Huggard, 2013). ProQOL consists of BO, STS, and CS. When BO and STS occur together, the phenomenon is known as CF, or the gradual loss of compassion for those served and interest in serving people in need of support (Sinclair et al., 2017). Mata et al. (2015) found that on average 28.8% of medical doctors (n = 8113 individual) suffer from depressive disorders and

suicidal ideation. Some studies show strong interlinkages between BO and depression (Brenninkmeyer, Van Yperen, & Buunk, 2001; Schonfeld & Bianchi, 2016), but the interlinkages among and influence of measures of ProQOL on distress (depression, anxiety, psychosomatic and suicidal ideation) among medical doctors have yet to be studied.

Nepali medical doctors are vulnerable to the negative impacts of both professional and personal distress. The underlying causes of such distress are diverse and deeply rooted. Professional BO is often associated with the poor professional training opportunities, inadequate clinical supervision, onerous treatment protocols and the limited availability of medicines, lab facilities, and equipment for delivering services. Poor workplace safety, prolonged working hours and unsystematic professional growth practices are other factors associated with BO and workplace distress. Because they find themselves often unable to perform their duties, Nepali doctors often experience confusion, distraction, frustration, and self-blame.

In addition, the emotions and suffering of patients and their care-providers results in the accumulation of secondary traumatic distress and ultimately impacts the personal distress of doctors. There is an urgent need to understand these multifaceted factors and how much of a negative impact the provision of medical services has on medical doctors' professional and personal lives. Building such an understanding will eventually facilitate the sensitization of concerned stakeholders to the need to establish emotional care services for medical doctors and take concrete steps in reducing their vulnerability to professional and personal distress factors. The researcher aims to fill this gap and explore the degree to which Nepali medical doctors are affected by professional and personal distress as well as the interrelationships among and influence of professional distress on personal distress.

2.2 Literature Search Strategy

In the 21st century, the professional and personal distress of medical professional, medical students, and resident doctors have risen significantly in developed countries. Recent research is not focused on understanding both the root causes of professional BO, secondary trauma, depression and suicide among medical doctors, but was focused on understanding the prevalance and correlations among the factors of professional and personal distress. To locate both published and unpublished resources, the researcher used some key search words alone and in combination in multiple search attempts: "compassion fatigue," "burnout," "secondary trauma," "depression," "suicide," "professional quality of life," "mental health," "compassion satisfaction," "medical doctors," "physician," "burnout and depression," "professional distress," and "personal distress". The literature search process included books, journal articles, and online peer-reviewed resources. Online databases and libraries such as JSTOR Search, Google Scholar, Web of Science, Scopus, MEDLINE, PsychINFO, PubMed, Researchgate, Psychopen and Wiley Online were used. The websites of the American Medical Association (AMA), British Medical Association (BMA), Australian Medical Association (AMA), Vicarious Trauma Institute, The Proqol.org, Ideal Medical Care Website, and Black-bile were also accessed.

2.3 Theoretical Foundation

Some authors concluded that the 'mindset of self-sacrifice or being compassionate at any cost' has been characteristic of medical doctors since the Hippocratic era and that 'the mindset of self-care' was not much considered in the modern economic world, where patient care provides financial rewards to healthcare institutions (Chesanow, 2017; Clark, 2018). The mental health concerns and distress of medical doctors were first discussed and called attention to during the 1960s. The professional distress and suicide of the medical doctors got more attention in the mid-

90's when the BMA and Lancet Editorial highlighted those concerns as matters needing addressing (Anon, 1994; Lindeman, Läärä, Hakko, & Lönnqvist, 1996).

BO, secondary traumatic distress, CF, anxiety, depression, psychosomatic burden, and suicide represent negative stress i.e. distress. Distress factors are often interrelated and represent the negative outcome of either providing care to others or underlying personal and familial reasons. CS discusses and measures the level of joy and pleasure an individual derives from serving people in need. When distress outweighs the positive aspects of care, an imbalance is created that not only affects an individual's professional life but also hampers his or her personal, familial and social life. The theoretical foundation of the study is the interplay between the ProQOL and personal distress of medical doctors.

In 1974, Freudenberger noticed changes in the moods, attitudes and motivations of emotional service providers and coined the term 'burnout' in healthcare professionals (Freudenberger, 1974). In 1982, Maslach presented BO in psychological and medical care, and explored emotional exhaustion, depersonalization and feelings of diminished satisfaction in the professional outcomes (Maslach, 2003). As Pines and Aronson (1988) outlined, BO is a condition which impacts the emotional, physical, mental, social and familial aspects of life and is often suffered by professionals who play unrewarding and neglected roles in care-providing professional settings for prolonged periods.

Maslach was the leading professional in developing a 'burnout inventory' to measure emotional exhaustion, cynicism and professional dissatisfaction (Maslach, Jackson & Leiter, 1986). In the mid-'90s Figley emphasised the concept of CF after observing the diminished capacity of the care-providing professionals due to their direct exposure to or knowledge of the sufferings of patients and caregivers. The impact of CF on one care provider can have a significant impact on care

providers, patients and co-workers (Figley, 1995; Figley, 2001). Figley (1995), after investigating specific conditions, introduced a model of compassionate stress and fatigue. It includes a consideration of care providers' level of exposure to trauma and their capacity to empathise. The general developmental pathways of the burden of compassionate care were universally applied and were found effective in understanding the levels of direct and indirect trauma experienced by professional care providers.

Stamm (2002) emphasised the need to study the positive aspects of trauma care and introduced the CF and CS model, which includes a consideration of the pleasure of work, satisfaction derived from caring for people in need, and good-quality interactions among peers. Earlier, Raphael et al. (1984) had studied the personal growth, skills learned for future use and personal satisfaction of emergency responders, but it wasn't until Stamm emphasized CS that the positive aspects of trauma care among healthcare professionals became more popular. In 2005, Stamm proposed the ProQOL concept, which includes both CF and CS in a theoretical model applicable to compassionate care professionals, including medical doctors (Stamm, 2005).

Ms. Beth Hudnall Stamm, a renowned psychologist and researcher developed a broader concept of ProQOL and expanded her seminal work on CF and CS. The core concept of ProQOL is how professionals feel about and perceive their care and treatment of other people, specifically whether they feel happy and satisfied or burdened and emotionally exhausted (Stamm, 2002; Stamm, 2005). The positive manifestation of ProQOL, the reward for their service, is termed "compassion satisfaction" and the negative manifestation of the burden of their service is coined as "compassion fatigue" representing both "burnout" and "secondary traumatic sress". When the negative outcome of care is prolonged and unaddressed, the sufferer becomes vulnerable: that negative outcome will affect his or her work, working environment, relationships, and career

progress and increase the chance he or she will experience moral distress. This effect is equally applicable to medical doctors, as various studies have outlined (Huggard, Stamm, & Pearlman, 2013).

Following Stamm's work, the use of the ProQOL concept became widely popular. As of today, over 1,000 publications are available on the use of ProQOL. This concept was re-conceptualized in 2009 and presented as a comprehensive theoretical model of CF and CS (Adhikari, 2017; Stamm, 2010). The theoretical model this study used is taken from Stamm (2010, p. 10) and presented in (Figure 2).

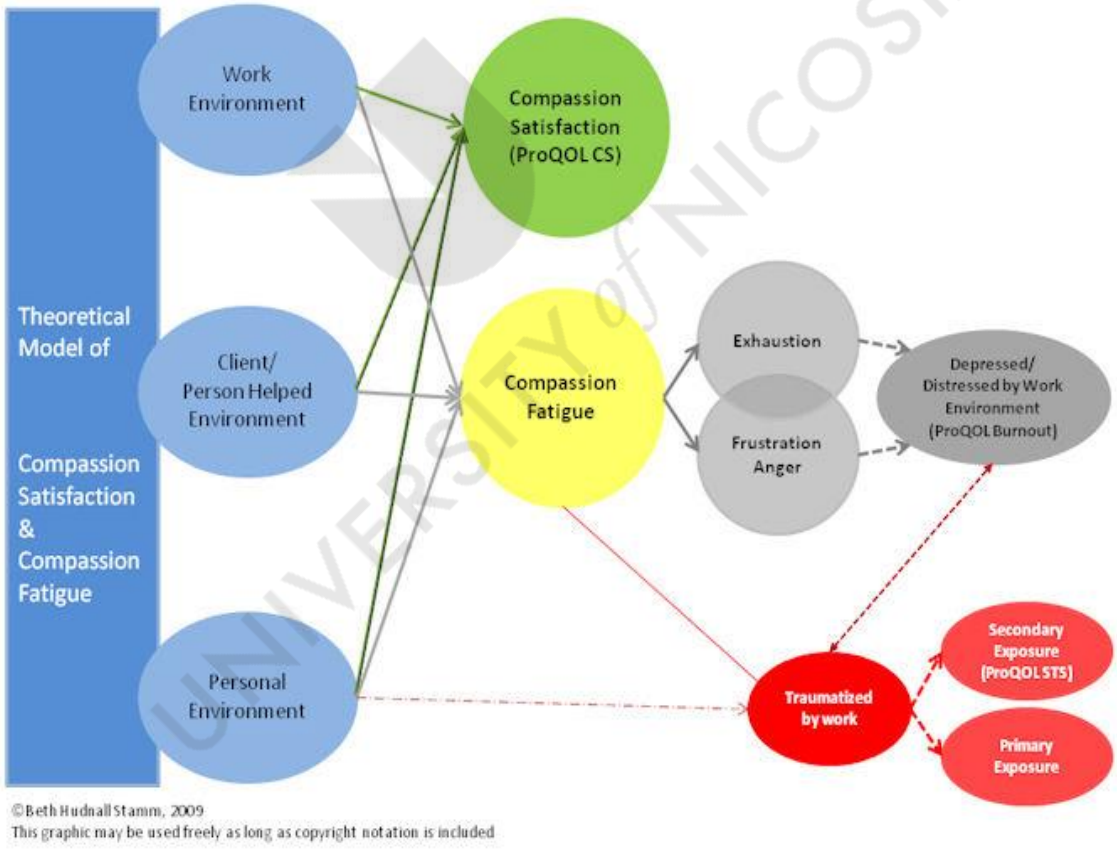

Figure 2. Theoretical Path Analysis of the Positive and Negative Outcomes of Medical Care.

The distress and ProQOL experienced by medical doctors first became the subject of systematic study in the early 1990s. Pilowski and O'Sullivan (1989) brought attention to the matter with their claim that while doctors may have better physical health than the general population, they suffer from more mental health issues. Two decades after the warning given by the Pilowski and O'Sullivan, a systematic review of the literature on the mental health problems of medical doctors by Brooks, Gerada, and Chalder (2011) found high rates of depression, anxiety, substance abuse, misuse of prescription of medicines, and suicide among doctors.

After reviewing the BO and personal efficacy of over 800 medical doctors, McManus, Winder, and Gordon (2002) concluded that BO has a causal link with the stress and psychiatric morbidity of medical doctors. Inversely, experiencing a high level of personal accomplishment and self-satisfaction from service can outweigh the impact of BO and boost the mental wellbeing of medical doctors (Graham, Potts, & Ramirez, 2002). In their study, Brenninkmeyer, Van Yperen, and Buunk (2001) revealed that BO and depression are not identical twins though 'individuals high in burnout with a reduced sense of superiority seem to develop depression (Brenninkmeyer, Van Yperen & Buunk, 2001, p7)'. A seven-year-long longitudinal study of dentists in Finland by Ahola, Hakanen, Perhoniemi, and Mutanen (2014) concluded with a similar conceptualisation regarding the symptoms of BO and depression. Harvey, Laird, Henderson, and Hotopf (2009) pointed out the individual risk factors interact with occupational risk factors to produce distress and psychiatric disorders. They suggest that high levels of professional distress among healthcare professional could be a cause of anxiety, depression and psychosomatic burden. The theoretical foundation of this study is the following review of the interrelationships among the measures of ProQOL and personal distress as they pertain to medical doctors.

2.4 Literature on Burnout and Compassion Fatigue in Medical Doctors

Studies on BO and CF are diverse considered in terms of the measurement tools they use, and the specialties of the populations studied (medical students, junior doctors and residents), but the major studies are concentrated in developed countries. The studies also vary in terms of sample size though most are cross-sectional in nature. As this study focuses on all categories of medical doctors in Nepal, the literature review includes literatures that used ProQOL in diverse contexts, including both developed and underdeveloped countries.

Markwell and Wainer (2009), in their study of 914 Australian and New Zealand junior doctors (with a 22% response rate), found that doctors' scores on BO in ProQOL-5 were 69% than those of the general population. Hopelessness and the inability to perform their job effectively were characterised as the main burden of BO. In addition, 54% of respondents had high rates of CF. In addition, 71% of junior doctors on average, more females than males, report low job satisfaction. The study concludes with the challenges junior doctors face in accessing medical care: 38% used self-prescribed antibiotics, contraceptive pills, and non-opioid analgesics; 19% used self-prescribed sleeping pills and anti-anxiolytics; and 10% used self-prescribed anti-depressants. It was alarming that 71% of junior doctors were concerned about their own ill-health and that 63% were worried about the health of their peers. Only 66% of junior doctors had their own general practitioners as compared to 80% of the general population. Despite the low response rate, which suggests that many junior doctors are not comfortable sharing their burden with a researcher, the study clearly indicates low rates of satisfaction and high rates of compassion burden and ill health among junior doctors.

In another study of the ProQOL of doctors (n =187 with a response rate of 46.8%) in Sri Lanka by Wijerupa, Weerakkody and Street (an unpublished article shared at Researchgate), 29.0%

doctors were found at risk of developing BO and 31.6% had high STS scores. In addition, 23.9% of the doctors had low CS. When an individual's spouse was also working as a medical doctor the burden was higher than it was for individuals who partners were not medical doctors: fewer had high CS (50.3% vs 54.5%, $p = 0.018$) and more had high STS (52.4% versus 48.1%, $p = 0.024$) and high BO (51.8% versus 45.0%, $p < 0.001$). Interestingly, religion, the habit of meditation, specialty, whether the practice was private or public, and gender had no significant difference on BO, STS, or CS scores. High scores in STS were correlated with earning less than 700 USD per month, $p = 0.054$. The predictors of high BO scores including limited team work, marital status, spouse in the medical profession, separation from family, lack of domestic support, and low-income level.

The ProQOL of Indian doctors ($n = 60$) was studied through a cross-sectional design by Bhutani, Bhutani, Balhara, and Kalra (2012) using ProQOL-5. Over 10% of doctors (7 out of 60 respondents) were reported with high risk of BO and low CS. Poor working conditions were a major risk factor for BO, whereas private practice ($t = 0.273$, $p = 0.035$), a high level of income and years of experience ($t = 0.258$, $p = 0.046$) were the predictors of CS. BO among the diabetologists was the highest among sepcialities ($t = 0.266$, $p = 0.04$). Gender, specialty and working hours were not significant variables for either STS or CS. While the study did have a small sample size with low replicability of the findings, it does indicate that working conditions and certain specialties are concerns related to ProQOL that need to be addressed.

Table 1. Prevalence of Professional Quality of Life Measures in Doctors

Researchers	Country	Sample size (n)	Professional Quality of Life		
			High BO (%)	High STS (%)	Low CS (%)
Markwell and Wainer (2009)	Australia and New Zeeland	914	69.00	54.00	N/A
Wijerupa et al. (n. d.)	Sri Lanka	187	29.00	31.60	23.90
Bhutani et al. (2012)	India	60	11.67	11.67	11.67
Khan et al. (2015)	Pakistan	254	6.20	6.20	N/A
Oo and Htun (2014)	Myanmar	97	0.00	1.00	1.00
Chan et al. (2015)	Singapore	332	37.00	7.50	20.70
Dasan et al. (2015)	United Kingdom	681	0.30	0.20	2.30
Thomas et al. (2014)	France	53	24.25	N/A	N/A
McCain et al. (2018)	UK and Ireland	283	37.00	72.00	24.00

Pakistan Armed Forces Medical Journal published a study by Khan, Khan and Malik (2015), in which the ProQOL of 254 healthcare professionals was considered. Altogether 113 medical doctors, 113 nurses and 92 nursing assistants took part in the survey. The CF scores of medical doctors were significantly (p=0.049) different than those of nurses, and 6.2% of doctors had high CF scores. CF scores were three times higher among male participants than their female counterparts. The study has some limitations. In particular, the English version of ProQOL was administered to participants who were not native English speakers. The study did not present or analyse CS scores,

no explanation was provided for the omission of CS scores. The study did find, however, that the male healthcare population, including medical doctors, was more at risk of BO and STS than their female and nursing counterparts.

Oo and Htun (2014) studied the ProQOL of 97 medical doctors (72 females and 25 males) and 45 nurses (females) working in a government hospital in Mandalay, Myanmar. All had low BO scores and just 1% reported high STS and low CS. However, 53% of respondents did not experience job satisfaction, 68% were unsatisfied with their income, and 21.1% reported many working hours and insufficient sleep. Although there were no significant differences between the ProQOL and job satisfaction of doctors and nurses, the nurses' scores on both measures were lower than those of doctors.

A study of 332 medical doctors (with a 93% response rate) carried out by Chan, Chan, Chuang, Ng, and Neo (2015) in Singapore found that 37% of the respondents were at a high risk of BO and that 7.5% of doctors were at higher risk of CF. One in five (20.7%) doctors had moderate to high CF and low CS. In addition, CS were relatively strongly correlated (rho = 0.772, $p < .001$) with work engagement, but BO was strongly negatively correlated (rho = -0.700, $p < .001$) with work engagement. Interestingly, CF and work engagement had a poor and non-significant correlation (rho = 0.503).

A mixed method study with an e-survey of ProQOL-5 measures sent to 681 emergency medical consultants (with a 52% response rate) in the U.K. followed by six qualitative interviews with those respondents with low and high score of CS and CF by Dasan, Gohil, Cornelius and Taylor (2015) found that 2.3 % (n =15) consultant doctors had low CS. Furthermore, 0.3% consultants ($p = 0.05$) were found to be at high risk of BO and 0.2% ($p = 0.05$) had high STS scores. Consultant doctors with high BO and STS scores have expressed that they were feeling irritable

toward patients and providing them a reduced standard of care. The respondents were more likely to seek early retirement. This study found a much lower burden of CF among consultant doctors than did similar studies in other countries and of junior doctors.

The ProQOL of French healthcare professionals working with the geriatric population was studied by Thomas, Billon, Chaumier, Barruche and Thomas (2014), who found that 24.25% of healthcare staff, including medical doctors, were exposed to the risk of BO. Eleven out of the 53 professionals (20.75%) surveyed had high BO scores. CS was negatively correlated with BO ($t = -7.30$, $p < 0.001$), whereas CF ($t = 0.558$, $p < 0.001$), and feelings of harassments ($t = 0.309$, $p = 0.002$) were positively associated with BO. Interestingly, the years of experience of the medical doctor was a major predictor of BO and CF. Those who had served over 10 years had low BO and high CS rates, while doctors who had served less than 10 years reported the highest BO and the lowest CS scores. Though this study was not solely of medical doctors, it did provide many insights into understanding the prevalence of ProQOL among doctors.

In a study of UK and Ireland doctors, McCain, McKinley, Dempster, Campbell, and Kirk (2018) surveyed 283 doctors and found that 37% of doctors had high BO scores, 72% had high STS scores, and 24% had low CS scores. Interestingly, the mean score of the resiliency of the doctors was 68.9, which is higher than that of the general population. The researchers speculate that maladaptive coping behaviors might be the reason for BO and conclude that a qualitative understanding of such issues was indicated. The research points to a unique finding, that enhancing resilience has probably no effect on preventing BO and STS. Instead, the concerns of self-blame, behavioral disengagement and substance abuse must be tackled to reduce the burden of care. It is equally possible that non-clinical factors were associated with the high risk of BO among doctors.

A review conducted by Prins et al. (2007) of the BO rates of resident doctors reported in studies from 1975 and 2005 found a range between 18% and 82%. The causes of BO were predominantly occupational risk factors; individual risk factors relating to BO were relatively low. In another systematic review of the BO rates of medical students covering literature published between 1974 and 2011, IsHak et al. (2013) found a range between 45% and 71%. The study concluded that at least one out of two medical students is affected, and that the effects of BO extend beyond medical college.

A recent review by Rodrigues et al. (2018) which included 16 peer-reviewed journals (n = 4,664) found that the overall BO rate of resident doctors was 35.1% (95%, CI: 26.8% - 43.5%) and that specialties such as general obstetrics and gynecology, surgery, anesthesiology, and orthopedics had a higher rate, averaging 42.5%, but that internal medicine, plastic surgery, and pediatrics had a moderate rate of 29.3%. Otolaryngology and neurology were the specialties with the lowest BO rate, just 23.5%. That said, no statistically significant differences were observed through meta-regression ($p = 0.17$). A systematic review of the ProQOL of medical doctors was done with six published reports in 2013, when Huggard and Unit (2013) concluded that the age of a medical doctor is significantly and inversely associated with CF.

Spirituality is inversely associated with STS, but male doctors who experienced childhood neglect are at risk of STS. The nature of the patients to whom doctors provide care, such as the sexually abused or HIV infected is also associated with the development of STS. In addition, CS and positive coping were found to mediate CF in medical doctors. Studies of CS and positive psychology among medical professionals, however, are relatively new discourses and more research is needed to assert conclusively that either CS or positive psychology can prevent STS and BO.

The literature on the ProQOL of medical professionals demonstrates that BO and STS are not hidden issues and that they have a chronic and a long-term impact on professionals, institutions, the families of doctors, patients receiving their treatment and society itself. Figures of the prevalence and degree of burden vary, but scholars have started to carry out meta-analysis and systematic review of the literature to provide a more concrete understanding. Even so, such reviews are still based on research carried out in Western and developed contexts and can provide little insight into a low and middle-income context like that found in Nepal.

Measures of compassion fatigue (CF) and BO vary. Most research before 2010 is done with the Maslach Burnout Inventory (MBI) and does not cover either CS or STS. The prevalence of BO and STS among medical doctors found by studies carried in Western and English-speaking countries is higher than the prevalence found in Asian countries. The available studies have many limitations in terms of our ability to draw conclusions about the prevalence of a negative burden on healthcare service providers in low and middle-income countries. The issues and concerns of negative health as an outcome of care in the Asian context are a relatively new part of the discourse. Cultural differences, low investment in research, and the lack of validated tools for measuring CF and CS in local languages might be reasons for the limited amount of research.

Certain familial and cultural aspects of Asian societies are different from those in the West. The available studies are mostly cross-sectional research, have relatively low response rates and are self-reporting online studies. They have many limitations, including socially desirable bias, limited interest in participating among the affected, and linguistic barriers due to the lack of validated and culturally proven measuring tools. Because there is a huge shortage of longitudinal research on this issue, the casual factors, evolutions and trends in CF over time are not understood. The work settings of medical doctors in developed countries differ significantly from those in Asia and,

specifically, Nepal in terms of equipment, laboratories, interactions with patients and caregivers, and the supervision and training of medical doctors. The researcher could not find any comparative studies on the populations of the two contexts and still lacks causal and qualitative understanding on this issue. Even though, the understanding of the BO, STS and CS concerns of medical doctors has increased, these problems are not yet comprehensively understood in the South Asian context, particularly in Nepal.

2.5 Literature on the Distress of Medical Doctors

The literature demonstrates that persistent exposure to a high level of occupational distress contributes to vulnerability and the development of neurological and psychiatric disorders. Fatigue and exposure to secondary trauma lead to increases in anxiety, fear, depression, and medically unexplained pain, and, in extreme cases, to serious thoughts of self-harm and suicide attempts (Harvey, Laird, Henderson, & Hotopf, 2009; Nimmo & Huggard, 2013; Silverman, 2000). The perception of the general populations in every context and culture is that the job of a medical doctor is a prestigious one offering financial security, social rewards, and high pay. Nevertheless, medical doctors are vulnerable to psychological distress and addiction irrespective of seniority, age, specialty, and gender and have higher rates of depression and anxiety than does the general population (Brooks, Chalder, & Gerada; 2011).

Working as a healthcare professional, especially as a general practitioner, is not an easy task. A National Health Service (NHS, 2015) survey found that one-third of its staff, including doctors, experienced high levels of stress and that 63% of staff had to report to work while they were feeling unwell. In a recent survey of National Health Service (NHS) staff in the U.K., 42% of staff reported that they were unwell due to work-related stress. Smith, Goldacre, and Lambert (2017) interviewed 3,597 medical doctors who graduated in the years between 1974 and 1977; over 75% of them

reported that they experienced a high level of work stress in their medical careers. Surprisingly, doctors responded that stroke, hypertension, migraine, and heart diseases were even caused by or aggravated by the work-related stress, and many claimed their health returned to normal after they retired. The psychosomatic pain, anxiety, and depression common among medical doctors seems to be induced or aggravated by work-related stress. Ford et al. (1998) found, for example, that coronary heart disease in men was associated with depression and work-related stress. Rout (2018) outlined, despite long hours of stressful work, irregular meals, disturbed sleeping patterns, interrupted weekends, limited time with family, reduced social activities and continuous exposure to human suffering, however, the physical health of medical doctors was found to be better than that of the general population. The state of their mental health, however, was a source of concern (Rout, 2018).

Suicidal behavior and self-harm are the worst manifestations of poor mental health among medical doctors. These outcomes are caused primarily by depression, substance use disorder and other psychiatric disorders. Professional distress and overwork renders medical doctors fatigued, and many doctors unfortunately choose negative coping behaviors. Substance use disorders and coping with self-medication often disturb the balance of their professional, personal and marital lives. Such maladaptive coping obviously increases the risk of anxiety, depression and suicidal attempts among medical doctors, and can destroy marital relations. The increased prevalence of substance abuse, depression and suicide among the wives of medical doctors has also been observed (Sakinofsky, 1980).

Most of the literature on the distress of medical doctors is from the developed world (including the U.S., Canada, Europe and Australia) and meta-analysis and systematic reviews are beginning to be conducted. The findings of these reviews are summarised below. The literature review has as much as possible included the studies from low and middle-income countries because

the working conditions, socio-economic situations and prevalence of violence in the workplace are like those of the studied population in Nepal. This literature is summarised below (Table 2).

Table 2. Prevalence of Distress among Medical Doctors

Researchers	Country	Sample size (n)	Distress		
			Depression (%)	Anxiety (%)	Somatic Burden (%)
Marzouk et al. (2018)	Tunisia	1700	62.00	74.10	N/A
Nisar et al. (2012)	Pakistan	100	26.00	26.00	N/A
Atif et al. (2016)	Pakistan	97	25.80	42.20	N/A
Dave et al. (2018)	India	461	27.10	36.00	N/A
Gong et al. (2014)	China	2641	28.13	25.67	N/A
Chambers and Campbell (1996)	U.K.	896	10.00	19.00	N/A
Oosthuizen and Van der Bijl (2007)	South Africa	260	54.00	54.00	N/A
Yahaya et al. (2018)	Malaysia	140	10.70	28.60	N/A

Marzouk et al. (2018) interviewed 1,700 Tunisian resident doctors, 60.8% female and 39.2% male, with a 77% response rate, and administered the Hospital Anxiety and Depression Score (HADS) questionnaire in order to ascertain the prevalence of depression and anxiety among doctors. The average number of working hours per week was 62±21 hours and 73% had to work an average

of five night shifts every month. The anxiety score of 74.1% of the doctors was high, 43.6% definitely so and 30.5% probably so.

The depression scores of 62% of residents were high, with 30.5% definitely so and 31.5% probably so. About 20% reported comorbidity with high anxiety and depression scores. The surgical and medical-surgical specialty group had significantly higher HAD scores (OR = 1.459, 95%, CI 1.172 to 1.816, p = 0.001), and medical specialty doctors had lower rates of anxiety and depression. Being female, belonging to an older age group, and having a heavy workload with extended working hours and many night-shift duties per month were all significantly associated with high rates of anxiety and depression. The study was well designed. The large number of participants, high response rate, use of standard measuring tools and application of appropriate statistical tools to present the findings are strengths of the study. However, as it used a cross-sectional quantitative design, the replicability of its findings is low. In addition, the lower participation of male than female residents suggest that males with high depression and anxiety might not have participated.

Nisar, Khan and Shah (2012) applied the Urdu versions of Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) measures to 100 medical doctors (59 male and 41 female) pursuing post-graduate training in an armed forces postgraduate medical institute in Rawalpindi. The average anxiety score of the respondents was 8.05, a moderate level. About 26% of doctors had high scores in anxiety, with 18% exhibiting mild and 8% moderate anxiety. ENT and anesthesia doctors had the highest anxiety scores of any specialty, but no doctor presented a severe level of anxiety.

Male doctors had higher rates of moderate anxiety than females: 5% to women's 3%. The overall score for depression (M = 9.2) was at a mild level, but the average depression score of doctors specialising in anesthesia was M = 20, a moderate score. Radiologists and pathologists

presented mild levels of depression. The process of data analysis and presentation of findings could have been strengthened. The fact that the study did not secure ethical clearance suggests a weak design and neither the response rates nor the demographic details of the respondents were discussed. That said, the application of a localised and validated Urdu was a strength. As the study was a cross-sectional one covering a single teaching hospital, the sample is not representative. Thus, it is difficult to generalise the findings. ENT doctors and anesthesiologists presented moderate level of comorbidity in both depression and anxiety measures, but none had severe levels of distress.

Another study on the distress of general practitioners was carried out by Schattner, Mazalin, Pier, Wainer & Ling (2010), who examined 102 Australian general practitioner registrars (females = 67, males = 35) with a 51% response rate. The survey used the 21-item Depression Anxiety Stress Scale (DASS) and its face validity was tested before the administration. Twenty-nine respondents (28%) reported a history of mental illness, 65% with depression, 24% with stress and emotional problems, 8% with anxiety and 3% with psychotic disorders. Out of the 29, 34% had secondary mental illnesses often comorbid with neurotic and psychotic disorders. The prevalence of anxiety and depression was 7% and 10% respectively, and the scores were moderate. About 6% of participants reported a severe to extremely severe level of depression, 3% severe and 3% extremely severe.

The study did not find that the levels of depression, anxiety and stress experienced by doctors varied significantly due to several variables, including gender and service in a rural or urban context, but insufficient training and mentoring was a predicting variable of distress. The response rate (only 51%) is a limitation as it means that the distress level of nearly half of the population is unknown. In addition, self-reported measures are biased, and a survey cannot provide insight into

causation. The research design and ethics of the study and the fact that its findings were in line with similar studies in other Australian contexts were the strengths of the study.

Atif, Khan, Ullah, Shah and Latif (2016) interviewed 97 medical doctors, 53.6% male and 46.4% female, (with a response rate of 47.78%) and administered the HADS. The survey revealed that 34% of the doctors had a moderate level of anxiety and 24.8% had a moderate level of depression. About 7.2% had a severe level of anxiety, and 1%, a severe level of depression. The anxiety scores were strongly positively correlated with depression scores ($p < 0.001$).

In addition, service terms of less than four years had a direct and significant correlation with depression. The anxiety scores of female and male doctors were significantly different (males – 17.31 %; females – 53.33 %, $p = 0.002$). The authors outline some limitations, including the low response rate, the non-inclusion of all doctors from Lahore, the study's cross-sectional design, respondents' potential biases on the health-related survey due in part to the stigma associated with the mental health of medical doctors, all of which prevent the generalization of the findings of the study. The researcher recommends developing a guideline to the proper screening of and response to the distress of doctors in Pakistan.

In a recent study by Dave, Parikh, Vankar and Valipay (2018), the anxiety, depression and stress of 461 resident doctors (male – 251, female – 2010, with a 93% response rate) in Ahmedabad, India, were studied using the 42-item DASS (each of three sub-scales has 14 items). The study found that 27.1% of the doctors had mild to moderate depression, 36% had moderate to severe anxiety, and 24.2 % had high levels of stress. Out of the respondents, 3.9% had a family history of psychiatric illness, 4.5 % had previously suffered from psychiatric disorders, and 18.1 % were engaged in substance abuse. Respondents in the second year of their training had a higher level of

depression than those in other years. Those who had to work over 12 hours a day and thought their department was very strict were not satisfied with their jobs.

Respondents without any hobbies were highly affected by depression, anxiety, and stress, and living in a hostel was associated with a higher level of stress than living in other accommodations. Distress was high among doctors reporting habitual substance use, too. High depression, anxiety and stress scores were not measured in doctors who studied at non-English-medium study centers at the undergraduate level and a family history of psychiatric disorders was also not associated with higher distress.

The study has many strengths, including a huge sample size and a response rate over 90%. It looks at many aspects of stress-inducing factors including their associations with the prevalence of distress. As 53.9% of doctors earned their undergraduate degrees at non-English medium schools, the use of DASS in the English language with no cultural or contextual validation might have impacted responses. As was the case in other studies, the bias and stigma associated with the mental health of doctors is another factor making it difficult to generalise the study outcomes. Nevertheless, this was a pioneering study in South Asia covering a large population and looking at various dimensions interrelated with the distress of doctors.

In their study of depression and anxiety among 2,641 doctors (54.71% male, 45.29% female, with a 96.46%. response rate) from Shenzhen city of southern China, Gong et al. (2014) applied the Zung Self-Rating Anxiety Scale (SAS) and the Zung Self- Rating Depression Scale (SDS), each of which is a 20-item multiple choice questionnaire. Zung rating scales were developed by late William W. K. Zung, who was a professor of psychiatry in Duke University. Respondents' profiles indicated that 13.5 % had poor health and 30.42% were active smokers.

Workplace violence is common in Asia. About 10% of the respondents said they had been exposed to violence in the workplace frequently and 63.17% had faced an occasional situation. One out of four (25.67 %) of the doctors had high anxiety scores. The prevalence of depression was slightly higher, 28.13%. A high level of comorbidity in both anxiety and depression was reported in 19.01% of the doctors. Work-related variables such as job title, specialty, hospital grade, and long working hours were associated with high anxiety and depression scores. Perceived low health status, exposure to workplace violence and lack of regular exercise were associated with increased levels of stress.

Surprisingly, smoking habits were not associated with higher levels of depression or anxiety. A few limitations of the study were elaborated, including the fact that it was a cross-sectional study which cannot explain the causality of the problem. The study included only doctors from the urban public sector, so its findings cannot be generalised to doctors in private practice or in rural settings. The use of non-contextualised and culturally non-validated instruments were other shortcomings. However, getting prior ethical approval, using a larger sample size, and applying adequate methodological rigor are strengths of the study.

With a large sample but a two decades-old study, Chambers and Campbell (1996) surveyed 896 general practitioners (with a response rate of 69%) in the U.K., administering the HADS to understand the prevalence of anxiety and depression. The 33% of those who did not take part in the survey, provided the reasons: 70% mentioned lack of time, 7% said they were not interested, and 1% each mentioned confidentiality and lifestyle as reasons. The anxiety scores of 19% and the depression scores 10% of respondents were high. Additionally, 22% and 16% of general practitioners had borderline anxiety and depressive disorders respectively.

High anxiety scores were associated with living alone, much on-call duty and recent graduation. The prevalence of depression was associated with doctors without sufficient leisure, in a work setting with no supervision, and handling cases alone. Gender did not cause a significant difference in the prevalence of either anxiety or depression. The study was inclusive in terms of geographical coverage (rural, semi-urban and urban), and the age distribution was in line with the active population of general practitioners. The follow-up with non-respondents, 70% of whom said they had not responded due to a lack of time, was another strength.

The use of a cross-sectional design and a self-reporting survey limits the replicability of the findings, but this was a significant pre-21st century comprehensive study of the distress of medical doctors in the UK and Wales. Recent studies have shown an increasing trend of mental illness and distress in medical doctors in the UK. In their review, Harvey, Laird, Henderson, & Hotopf (2009) concluded, 'Health care professionals report high levels of workplace stress, burnout and other "work-related" mental illness (p. 91)'. After two decades of Chambers and Campbell (1996), Cohen, Winstanley, & Greene (2016) studied the reporting behaviors of medical doctors about their ill-mental health concerns, and disclosed, 60% of medical doctors (n = 1954) had experienced mental illness including depression and suicide.

In another study, Oosthuizen and Van der Bijl (2007) chose a randomised sample of 260 medical doctors (covering over 50% available doctors) and 200 teachers from five northern areas of Cape Town, South Africa. They compared these two populations as their socio-economic situations are similar and both work in situation with high rates of HIV/AIDS and violence. Bilingual (English/Afrikaans) sets of the HADS, a questionnaire on substance use and health behavior were included in the survey. Teachers exhibited more symptoms of anxiety than doctors did but about the same level of depression. The mild and moderate levels of anxiety and depression found in teachers

were 33% and 31% respectively, while those for doctors were 21% and 30%. In addition, 2% of doctors had severe depression.

Gender differences were significant: 67% of female doctors faced anxiety and depression compared to lower rates among males ($\chi^2 = 8.75$, df = 1, p = 0.003). About 7% of doctors reported that they smoked and 15% that they were dependent on alcohol. Altogether 70% of doctors said they were underpaid, and 30% were dissatisfied with their jobs and wanted to migrate to developed countries for a better future. About 17% were in 'wait and see' situations for the treatment of depression and anxiety, and 13% were self-medicating.

Work-life balance was an additional factor for female doctors: the majority expressed a desire to divorce. Fewer male doctors expressed the same wish. The authors believe that the geographical coverage of the study did not comprise the entire country and that, as a result, the findings cannot be generalised to all of South Africa. Nevertheless, their study did corroborate media reports of a high level of distress and dissatisfaction among teachers and doctors.

In a study conducted by Yahaya, Wahab, Yusoff, Yasin, and Rahman (2018), 140 emergency medical doctors (40% male; 60% female) working in the emergency departments of six public hospitals across Malaysia were administered the Depression Anxiety Stress Scale (DASS-21) through a face-to-face self-administrative method. The results suggested that 28.6% of the doctors were facing a high level of anxiety, 10.7% had high depression scores and 7.9% a high level of stress. High anxiety was strongly associated with gender (p = 0.022), with female doctors having higher rates, but other factors, such as marital status, ethnic origin, patient care system and years of work experience made no significant differences among the studied population. The authors explained that while the DASS severity rankings were based on the mean scores of the studied populations and extracted from a large heterogeneous group of respondents covering major public

hospitals, the generalisability of the findings is limited because doctors having a private practice, working in the private sector and serving in non-emergency settings were not included. In addition, a face-to-face self-administrated survey has the potential for certain biases from the participants. The study could not offer a theory on the causation of the high prevalence of distress among doctors either, as gender was the only significant predictive factor for high levels of anxiety.

In the eight sources reviewed above, the prevalence of depression among medical doctors is over 20% except in three studies, and the prevalence of anxiety is over 25% in seven studies. Neither the screening tools nor the cut-off and grading of the severity of depression and anxiety are the same, however it is concerning that one in five medical doctors suffers from depressive episodes and one in four from high levels of anxiety. Young, female doctors working in the surgical and anesthesia or emergency departments were most heavily affected.

Resident doctors with excessive workloads are another category with a high level of depression and anxiety. Low pay, violence in the workplace, working in isolation or rural areas, limited opportunities for training and little or no supervision were other risks. Since the studies were few, neither the habit of smoking nor a family history of psychiatric illness was a predictive factor of increased depression and anxiety; nevertheless, substance use and the pre-diagnosis of mental illnesses were interrelated with an increase in distress. Doctors working in private practice had lower levels of distress than employees at public or teaching hospitals. The few meta-analyses carried out in developed countries also had similar findings.

The psychosomatic burden of care was the focus of neither individual studies nor systematic reviews. The researcher could not find a relevant piece of literature which studied anxiety, depression and psychosomatic burden among medical doctors. Thus, significant research on this dimension could not be included. Wittchen and Einsle (2012) reviewed the available literature and

claimed that mental illnesses and somatic pain are interrelated and often have overlapping symptoms. Anxiety and depression are heavily associated with cardiovascular problems, chest pain, back pain, sleep disturbances, weakness, low energy and headaches. In a systematic review of mental illness and quality of life studies, Baumeister, Hutter, Bengel and Härter (2011) found that patients with mental illness were mostly comorbid with psychosomatic burdens and their physical and mental quality of life was significantly less than that of patients with psychosomatic complaints without mental illness.

Yanartaş et al. (2019) found that anxiety and depression influence psychosomatic complaints such as abdominal pain, intestinal complaints, nausea, and leg pain. In their meta-analysis, Elliot and Tan (2010) explored studies carried out by Rout and Rout (1997) and Sutherland and Cooper (1993) on the somatic anxiety of medical doctors. Both found that doctors experience less somatic anxiety than the general population but could not identify a reason for the difference. The psychosomatic burden of medical doctors is rarely measured even though it is known that the prevalence of depression, burnout and anxiety is higher among those in the medical profession than in the general population and that there is an established interrelationship between mental distress and psychosomatic burden.

In their systematic review, Mata et al. (2015) found that one out of four medical students (young doctors), one out of three residents and up to 60% of medical doctors are affected by depression and depressive disorders. Elliot and Tan (2010) carried out a systematic review of literature about the beyond-blue institution, most of it from developed countries. The study revealed that the prevalence of anxiety among doctors varies 18 and 55%, and that, irrespective of the exact number, these rates are higher than those for the general population.

The prevalence of depression varied between 14 and 60% depending upon study design and cut-off points. Rates of depression among doctors as a whole, but not among female doctors, were higher than those of the general population. In most of the literature reviewed above, the rates of depression and anxiety among female doctors were higher in developing and underdeveloped countries than in developed ones.

Suicide rates among doctors was not found a major topic of study in underdeveloped or developed countries, and none of the studies reviewed above included suicide as a study measure. Elliot and Tan (2010) found a moderate level of suicidal risk among doctors. Their scores were 1.41 times higher (95%, CI = 1.21, 1.65) than those of the general population. This review could not identify any specific socio-economic or work-related factors such as marital status, specialty, or gender female putting doctors at higher risk of depression and anxiety. That said, in most contexts, doctors do have higher rates of depression, anxiety, and suicide than the general population.

2.6 Summary

This chapter presented, analysed and discussed the available literature on the prevalence and burden of ProQOL, anxiety, depression, and suicide among populations of medical doctors. Both historical and recent theoretical and research advancements were presented. The strategy for the literature search and the inclusion of academic and peer-reviewed resources related to the topics was well elaborated. Furthermore, nine journal articles and the relevant research findings they offer on the prevalence of BO and CF covering the contexts of both developing and developed countries were reviewed and presented.

Similarly, the burdens of anxiety, depression, and suicide in medical doctors were reviewed. The presented and analysed articles were the most relevant and influential papers. The fact that they covered diverse contexts provided a lot of analytical and comparative understanding of the problem.

Psychosomatic burden as a type of distress was found to be a comparatively new phenomenon in the study of medical doctors or possibly the medical doctors do not easily report such symptoms and were not considered in most of the studies. Thus, the literature review on personal and professional distress focused mostly on BO, CF, anxiety, depression, and suicide.

The above analysis of literature found and presented a well-known gap in our understanding of the personal and professional distress of Nepali doctors. This study will contribute to filling these gaps. In addition, the interrelationships among the measures of professional and personal distress need further study because the available literature on such issues is dominated by Western and developed contexts. The next chapter will cover the research methodology, data collection process, ethical issues and data analysis steps.

Chapter 3. Methodology

"I am a better doctor for accepting that I have a mental health problem."
—Dr. Zoe Norris, who left the medical profession and started to support other doctors

3.1 Introduction

This chapter outlines the design of the study, research population, sample size and data collection procedures adapted to the study. The data collection tools and their psychometric properties are also elaborated and discussed. The reliability and socio-cultural adaptations of the data collection tools are discussed and meticulously explained. Last, the ethical considerations and processes of ethical clearances relevant to this study are presented.

3.2 Research Design

This study used a cross-sectional quantitative design, a survey designed to measure the prevalence of various factors of psychological distress and ProQOL among Nepali medical doctors. As previous data and research on the prevalence of anxiety, depression, psychometric burden, BO, STS, and CS in the population of Nepali doctors was not available, a cross-sectional survey design was deemed appropriate. As De Vaus and de Vaus (2001) emphasise, in any social science research a cross-sectional design provides more insight into the prevalence of a specific problem at a given time than does random allocation.

According to Carlson and Morrison (2009), a cross-sectional design can be applied when resources and time are limited. A cross-sectional design is a powerful approach to collecting a lot of data at the same time, but multiple outcomes describing the characteristics of a chosen population can be studied (Mann, 2003). In addition, such a design enables a researcher to analyse interrelationships among, in this case, the factors of ProQOL and psychological distress among the studied population at the same time.

An alternative approach would have been a longitudinal design, a design which allows a researcher to measure prevalence at multiple times. A longitudinal approach could have provided the opportunity to explore causal links between the training, supervision, self-care approaches and family stress factors influencing personal distress and ProQOL (Field, 2011). The longitudinal data would also have allowed the researcher to use repeated measures to analyse variances on the distress over time, and if the retention rate of study respondents was low, to use generalised estimating equations (GEE) and mixed effects models (MEM) to analyse data (Ma, Mazumdar, & Memtsoudis, 2012).

The primary aim of this research was to understand the prevalence and influence of measures of ProQOL on the distress of medical doctors, an aim which, given limited finances and time, was best achieved using a cross-sectional design. Furthermore, a cross-sectional design makes subjects less vulnerable in terms of privacy, confidentiality and time allocation (Maan, 2003; Yee & Niemeier, 1996) than a longitudinal design (Caruana, Roman, Hernández-Sánchez, & Solli, 2015), thus making it a suitable design for this study.

3.3 Research Population

The Nepal Medical Council (NMC) had registered 15,479 medical doctors and 1,786 dental doctors by December 2015 (MoF, 2016). Many medical doctors migrate; in fact, nearly 50% of new graduates and young doctors are either in the process of migrating to other countries or have already left. Out of the approximately, 10,000 doctors who are available in the country, over 40% are centralised in the capital city (Phuyel, 2013; Shankar, 2010). Most medical doctors work in the private sector, and those associated with the government system also have private practices. Teaching hospitals, both government and private, are another sector where doctors are engaged. To a more limited extent, doctors are also involved in the non-profit sector.

The researcher had access to various web-based groups of Nepali doctors. To calculate sample size, Aday and Cornelius (2006) recommend applying $n = Z^2 1\text{-}\alpha/2 \text{ X } P (1\text{-}P)/d^2$, where the sample size is chosen based on the estimated population (P) and level of desired precision (d). A total sample size of 384 was calculated, using 95% as the confidence interval, 50% of the true population and a 5% marginal error. Hulley, Cummings, Browner, Grady, & Newman (2013) outline the use of $n = [(Z\alpha+Z\beta)/C]^2 + 3$ to calculate the sample size in a correlational study. A total sample size of 194 was calculated, in which $\alpha = 0.05$, power $(1\text{-}\beta) = 0.8$, and the expected correlation coefficient $r = 0.20$ (Hulley et.al, 2013). Therefore, a sample size of 384 was determined to be sufficient to measure the correlation between the ProQOL and psychological distress among Nepali doctors. The sample size was calculated through using http://www.sample-size.net/correlation-sample-size/ (National Institutes of Health, 2019).

All medical doctors, both male and female, who were registered with the NMC and over the age of 18, irrespective of the nature of their work or location of their job, were included in the study. Respondents below the age of 18 who declared themselves as well as those who were absent from medical practice due to mental illness or retirement was excluded. Students pursuing an undergraduate degree in medical science without having passed the NMC's registration were also excluded. The results section of this report explains in detail on the profiles of the medical doctors who participated in this study.

3.4 Data Collection

3.4.1 Procedure.

The data collection process primarily relied on the direct responses of respondents through an online process created with Google Docs. As some of the potential participants asked the researcher to approach them personally and collect data using a paper-and-pencil format, the

researcher trained two research assistants, each with a master's degree in social work and deployed them to collect the information. The assistants were recruited through announcements in various social media platforms. Research announcement emails were also sent to over fifty medical institutions to notify the medical doctors.

The researcher became a member of various social media groups of medical doctors in Nepal. Those that posted the announcement for a research assistant were the Non-Governmental Doctors' Association, Governmental Doctors' Association, Doctors and Medical Society of Nepal, Doctors' Society of Nepal, Doctor Story Nepal, Mental Health Concerns of Nepali Doctors, and Nepal Doctors' Medical Society Consultants.

The researcher also received a roster of the emails of cardiac, orthopedic and dental doctors, whom he then approached through a group email. Likewise, he circulated an email to 69 private, government and teaching hospitals. In addition, 250 paper-and-pencil questionnaires together with the research announcement form (Appendix A), participant's information sheet (PIS; Appendix B), and consent form (Appendix C) were handed over to doctors with the support of the two research assistants (see the agreement at Appendix D).

For online responders, the research announcement, consent form, and questionnaire were consolidated in one document so that respondents would get the package at once. The questionnaire package, which included N-ProQOL-5, HSCL-20, N-SSS-8 and socio-demographic information was prepared in both paper and online forms (Appendix E). It was not possible, as planned to post on online link to the research announcement on the NMC website as it was too difficult to secure authorisation from the NMC board. The researcher used a snowballing technique to reach doctors working in remote locations.

Providing data would have taken a respondent approximately 30-35 minutes. At any point of time in the process, the respondent had the right to withdraw without providing an explanation. It was very difficult to track the response rate to the online announcement. The researcher received 400 online responses. Out of the 250 paper questionnaires distributed, 147 questionnaires were returned, making the response rate 59%. The demographic details of the respondents are presented in the results section.

The data collection process was started on 7 July 2018 and ended on 7 November 2018. In the process of data collection, all the respondents were provided with a debriefing letter (Appendix F), which included a thank you note, information on services available for therapeutic and counseling support and the contact details of the researcher if the respondent wished to contact him for any advice or for a summary of the findings of the research.

3.4.2 Demographic Survey

Participants were asked to contribute through an online self-reporting questionnaire. Consent and demographic data were gathered in English, but responses to ProQOL and personal distress were asked in Nepali. At the end of the survey, respondents were asked to fill in some demographic and work-related responses. The detailed questionnaire used is found in Appendix E. The demographic information collected includes sex, age, qualification, and type of institution at which the respondent works. They were also requested to indicate years of experience, place of work, any self-care training and availability of clinical supervision.

3.4.3 Nepali Version of Professional Quality of Life 5

ProQOL-5 consists of 30 items in all, 10 each for CS, BO, and STS. Each item is scored on a scale of five, the Likert scale, where 1=Never, 2= Rarely, 3=Sometimes, 4=Often, and 5=Very Often. Stamm (2010) stated that the cut-off scores for each sub-scale fall below the 25th or above

the 75th percentiles. Sodeke-Gregson et al. (2013) found that each sub-scale of ProQOL-5 has a good internal consistency reliability (CS α=0.88 [n=1,130]; BO α=0.75 [n=976]; CF α=0.81 [n=1,135]). According to Stamm (2010), the ProQOL-5 has been translated, contextualised, used and validated in more than a dozen languages.

Using the guidelines of van Ommeren et al. (1999), the researcher translated, used and contextualised a Nepali version of ProQOL5, namely N-ProQOL-5. The Pearson correlation in N-ProQOL-5 (n =112) was explored and found that STS and CS as well as BO and CS are significantly but negatively correlated with r = -.197, p = .05 and r = -.689, p <0.001 respectively. A positive correlation was observed between BO and STS with r = 0.614, p <.001. The overall reliability was modest with a reliability coefficient of 0.651 (Adhikari, 2017).

N-ProQOL-5 was reviewed and accepted by the ProQOL governing institution, the Center for Victims of Torture (CVT), after the creator of ProQOL, Dr. Beth Hudnall Stamm, had retired. The Nepali version of ProQOL is available at https://proqol.org/uploads/Final_Nepali_PROQOL-5_in_Preeti.pdf.

3.4.4 Nepali version of Hopkins Symptoms Checklist (HSCL-25)

HSCL-25 covers the symptoms of anxiety and depression and comprises 25 items. The first 10 items of the scale measure symptoms of anxiety and the next 15 items measure the symptoms of depression including 1 item measuring suicidal ideation. Respondents had to choose one out of four categories, “Not at all,” “A little,” “A lot,” and “Extremely,” which are rated 1 to 4 respectively. The internal consistency of these measures is high, and the reliability coefficient Cronbach α was measured to be from 0.84 to 0.87 (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974; Thapa & Hauff, 2005).

Thapa and Hauff (2005) applied HSCL-25 to the Nepali population. The reliability coefficient (Cronbach α) they found for anxiety and depression was 0.89, and both the anxiety and depression scales had a cut-off score of 1.75. The researchers used the Nepali version of HSCL-25 with the families of disappeared persons (n=1,442) for the longitudinal monitoring of a therapeutic support group-based intervention between 2010 and 2016 and found it consistent across the genders, geographical locations and ages of the population it was applied to (ICRC, 2016). Recently, HSCL-25 was also adapted to Nepali-speaking Bhutanese refugees (Baird, LeMaster, & Harding, 2016).

3.4.5 Somatic Symptom Scale (SSS – 8)

SSS-8 covers an individual's somatic symptoms burden. It has eight self-reported items ranked on a 5-point Likert scale (0 = Not at all, 1 = A little bit, 2 = Somewhat, 3 = Quite a bit, and 4 = Very much). SSS-8 has good reliability as measured with Cronbach α (α = 0.81) good internal consistency (Gierk et al., 2014). The construct validity of the SSS-8 showed a positive correlation between SSS, and the symptoms of both anxiety and depression.

Tests of the confirmatory factorial analysis (CFA) confirmed that somatic symptoms lie in four clusters: gastrointestinal-, pain-, cardiopulmonary- and fatigue-related factors (Gierk et al., 2014). The content validity of SSS-8 is good. It includes, as recommended by Zijlema et al. (2013), cardiopulmonary-related symptoms while measuring somatic symptoms. SSS-8 was adapted culturally and translated into Nepali, both forward-backward translations, with appropriate pilot testing before it was used in the final data collection process.

3.4.6 Translation and Cultural adaptation of SSS-8 into the Nepali context

The Nepali version of SSS-8 also consists of eight items. Before the data collection process started, SSS-8 was translated into Nepali. According to Maneesriwongul and Dixon (2004), multiple methods are adopted while translating and adapting any psychological tool from one language to

another, and there is no consensus among scholars. Some literature provides an outline of steps, which include drafting a direct translation, writing a lexical back translation, collecting feedback from practitioners and experts, finalising a draft version and piloting the tool with the targeted population before its final use (Davis et al., 2013; Sousa & Rojjanasrirat, 2011; Van Ommeren et al., 1999).

The first translation from English to Nepali was done by two Nepali bilingual psychologists. Both translated versions were checked by the researcher and a single list prepared. That list was given to an expatriate bilingual psychologist to carry out a lexical back translation (Appendix F), which was then reviewed by an expatriate bilingual psychologist before a final draft was prepared. Then both the English and Nepali versions were shared with 23 Nepali psychologists and consultant psychiatrists, who had both clinical and research experience in the mental health and psychosocial field for their feedback.

Fifteen experts out of 23 responded to the request. In response to SSS_1, it was advised to add ‘wa’ in between two optional words rather than using brackets. In SSS_2, there was a suggestion to choose ‘dhad’ instead of ‘pittyu’. In SSS_6, the word ‘samasya’ was found missing and was adjusted. In S8, it was advised to phrase ‘trouble sleeping’ as ‘nidauna garho hune wa nidrama biujhine’. It was advised to frame the sentence as ‘bhayo’ and ‘diyo’ instead of ‘bhaeko chha’ and dieko chha’. Last, the reviewers recommended that the researchers conduct psychometric testing through a pilot study rather than apply the translated version directly to the study population. The researcher himself had already planned such a step.

The translated and culturally adapted Nepali version of SSS-8 was reviewed by a Nepali language expert for grammatical errors before the pilot test. The final Nepali version of SSS-8 version was piloted with 55 medical doctors. The test results and statistical properties of SSS-8

Nepali pilot version were calculated before the final study. The results are presented in the results section.

3.5 Data Analysis Process

The data analysis process included data entry, coding, and cleaning. The online data were downloaded from the data repository where the responses from the participants were automatically restored. Prior to its use every questionnaire has to go through a pilot test, a step which not only improves the questions, format and scale, but also allows the researcher to examine the validity and reliability of the tool (Creswell, 2008). As SSS-8 was translated into Nepali and tested in the Nepali population for the first time, a pilot study to verify the reliability and validity of the tool was conducted. For this purpose, the first 55 responses were used as pilot sample data. The data was checked for missing values. None were found. Appropriate coding, tabulation, and analysis were carried out. The psychometrics and model fit on the CFA of the tool together with the scores on validity and reliability were satisfactory, so the full study was launched. The results are presented in the results section.

The online data collection portal provided automated responses from 400 respondents. The data received in physical form (n = 157) were individually typed into a similar format and merged with the online data. The refined data of 557 respondents was copied in SPSS-25 student version, and appropriate variables were coded. No missing data were found in the online repository. SPSS worksheet data were verified for anomalies and cleaned. The few missing data on the physical forms were explored and treated by putting in the mean value of the items. Normality, homogeneity of the variances, linearity and multicollinearity, and co-variances were tested before a detailed analysis was performed. Apart from the correlations among the variables, Levene's test for the homogeneity of variances was also conducted.

Descriptive statistical analysis was applied to measure the means and standard deviations of continuous variables. The analysis was carried out using SPSS-25 version. The significant testing for normality followed the distribution checks via scatterplots, box plots, kurtosis, and skewness. A Pearson's product-moment correlation was analysed after testing the relevant assumptions for the correlation. The cumulative scores on the subscales of ProQOL (BO, STS and CS) of the participants were used as independent variables (one at a time) while scores for anxiety, depression and somatic problems were considered as dependent variables. The prevalence of BO, STS, CS, anxiety, depression and somatic problems were outlined. Details on the outcomes of the analysis are presented in the results section.

A path analysis diagram was drawn into the AMOS by using individual items of the measures. The interlinkages among the variables were prepared. SPSS AMOS- 25 version was used for data analysis. To investigate the factor loadings and structures of each measure of ProQOL (psychosomatic, anxiety and depression measures) in the new data set of 547 respondents, a path analysis diagram for each measure was drawn into AMOS using individual items of the measures. CFAs of SSS-8, ProQOL-5, and HSCL-25 were carried out. Several model fit indices and fit criteria such as chi-square, goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), normed fit index (NFI), Tucker-Lewis Index (TLI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) to examine the goodness of fit of the CFA model of SSS-8, ProQOL-5 and HSCL-25 measures were applied. After the model fit examination, construct reliability (CR) for convergent validity and average variance extracted (AVE) for discriminant validity were analysed for further use of the tools.

In the SEM, there is no consensus about which fit indices are to be analysed and presented to define whether or not the tested model is absolutely fit. Instead, there are various fitness indexes to

determine if the model is the best fit with the given data (Hooper, Coughlan, & Mullen, 2008; McDonald, & Ho, 2002). It is recommended that three commonly agree upon standardised fitness indices (absolute fit indices, incremental fit indices, and parsimonious fit indices) be reported on (Holmes-Smith, Coote, & Cunningham, 2006; Hooper, Coughlan, & Mullen, 2008; Awang, 2014). After analysing various peer-reviewed resources, Ahmad, Zulkurnain, and Khairushalimi (2016 p. 2) consolidated standardised fitness indices. These are adapted and presented in Table 3.

Table 3. Summary of Fit Indices for Confirmatory Factor Analysis

Category	Index	Index Name	Acceptable Value of Indices
Absolute Fit Indices	Chi-square insignificant	Discrepancy chi square	>.05
	RMSEA	Root mean square error of approximation	<.08
	GFI	Goodness-of-Fit Index	>.9
Incremental Fit Indices	NFI	Normed-Fit Index	.9 to .95
	TLI	Tucker-Lewis Index	>.9
	AGFI	Adjusted-Goodness-of-Fit Index	>.9
	CFI	Comparative-Fit Index	>.9
	RMR	Root mean square residuals	<.08
	SMRs	Standardized root mean square residuals	<.08
	RMSEA	Root mean square error of approximation	<.08
	P-Close		<.05
	Hölter Kriterium		N
Parsimonious Fit	CMIN/df		< 1.5 to 5

Last, the items with the best model fit for each measure were taken for further analysis. A structural model comprising measures of SSS-8, ProQOL-5 and HSCL-25 was drawn. The interlinkages among the variables were prepared. A SEM was applied to understand associations and relationships among the factors of ProQOL and distress. Explicitly, a positive association

between the depression, anxiety and psychosomatic scores of Nepali medical doctors and their scores of BO and STS was checked. Inversely, the measures of CS should have a negative correlation with anxiety, depression and psychosomatic symptoms, a hypothesis which was tested. The final model fit indices and diagram with necessary details were tested with the aim and objective of this study. The details on the outcomes of these analyses are presented in the results sections (Chapter 4, 5 and 6) of this dissertation.

3.6 Ethical Procedures

The researcher followed the ethical approval process of the Research Ethics Committee of the Austrian Academy of Psychology (AAP), which was that assigned and accepted by the University of Nicosia (Appendix G). In addition, the researcher received a local ethics approval from the National Health Research Council (NHRC) located in Ramsahahapath, Kathmandu (Appendix H). Both ethical clearances were granted before the start of the data collection process in July 2018. The researcher provided the research announcement letter and participants' information sheet to prospective participants through an online and anonymous data collection process. Those approached by the research assistants were handed a sealed envelope and requested to provide their contributions without writing any personal details. To protect the dignity, anonymity, and confidentiality of the information collected, a group data collection process was neither planned nor implemented.

The online announcement posted on social media groups and sent through individualised emails protected the privacy of the prospective participants and allowed all who wished to participate to do so. All participants were requested to read the participant information sheet, which explained that participation was voluntary and that they could withdraw from participation at any time without providing a justification. Prospective respondents who received a sealed envelope were

not forced to return it and were never asked why they had not done so. As a result, only 147 out of 250 envelopes were returned.

Respondents were not asked for personal information such as their names, emails or phone numbers, an omission which respected their privacy. The contact details of the researcher and two providers of mental health and counseling support services were provided in a debriefing latter if the respondents wanted a consultation (Annex G). Before the data collection process started, approval for the referral to services was granted from Transcultural Psychosocial Organisation Nepal and Rhythm Neuropsychiatry Hospital and Research Center Private Limited.

The physical data and the consent form for the pencil-and-paper responses were separated from the data entry process. No personal data were analysed. The hard copies of responses were sealed and stored in a locked cabinet in the researcher's house. The data collected, and the online repository were accessible only by the researcher and his dissertation supervisor.

All the data was kept in a password-protected laptop owned by the researcher. All the electronic data was stored on a disk and kept with the physical files in a locked cabinet for future references if any is needed after the analytical process is over. Since no personal data which may identify the responses of any respondent were entered or processed, the anonymity, privacy, and confidentiality of the respondents were well respected in all the steps of this research.

3.7 Summary

The main aim of this chapter was to present the research design, study population, sampling techniques, sample size, and data collection tools. The reliability, adaptability and socio-cultural aspects of the data collection tools before they were applied to the studied population were also covered. Appropriate data analysis methods and techniques to achieve the research objectives and answer the research questions were explored and presented. Relevant methods and data analysis processes were

included and discussed. Detailed procedures on the use of CFA in evaluating the tools and structural model to examine the relationships among the various direct and indirect variables of personal and professional distress were thoroughly explained. Last, the ethical procedures and approvals of this study are discussed. The next chapter will discuss the results of the study.

Chapter 4. Results: Pilot Testing and Prevalance of Distress

"Doctors, above all, are helpers: they care for us, rather than us caring for them."
—Alex Broom, a professor of sociology.

4.1 Introduction

This chapter represents the results of the study. Its focus is the pilot testing of the Nepali version of SSS-8 and its results. This chapter also presents the socio-demographic characteristics of the respondents and the prevalence of personal distress (anxiety, depression and psychosomatic burden) and the ProQOL measures of Nepali doctors. The two chapters after Chapter 4 outline the CFA of each measure and results of the structural model of this study.

4.2 Pilot Study on Nepali Version of Somatic Symptoms Scale

Prior to data collection, the researcher drafted a direct translation, carried out both a back translation and a blind back translation, and incorporated the feedback of experts. The final draft of the Nepali version of the scale was piloted in the intended population and the first 55 online responses collected in a Google form considered. The responses were coded, and data cleaned. No missing data were found. A statistical analysis was performed in SPSS -25 versions.

The Cronbach alpha for the Nepali version of SSS-8 was .864, which shows there is a good internal consistency among the eight items. The internal consistency in the case of any one item deleted was over 0.833 for all the items. When bivariate correlations of each item were tested, all the items, except N-SSS-2 and N-SSS-5 were found significantly correlated ($p < .001$).

While looking at the dimensionality of the scale, the factor command of the pilot data was also investigated. The commonalities after the principal CFA were drawn, and the results indicated that the commonalities of all the items except N-SSS-2 and N-SSS-8 were above than 0.4. The extraction of loadings through total variance explained why the eigenvalues of two components

were more than 1. The two components with eigenvalues over 1 comprised only 65.26% of cumulative variance. The outcome of KMO and Bartlett's Test for adequacy of sampling was 0.838, and the variance of each item was significantly correlated (p <0.001).

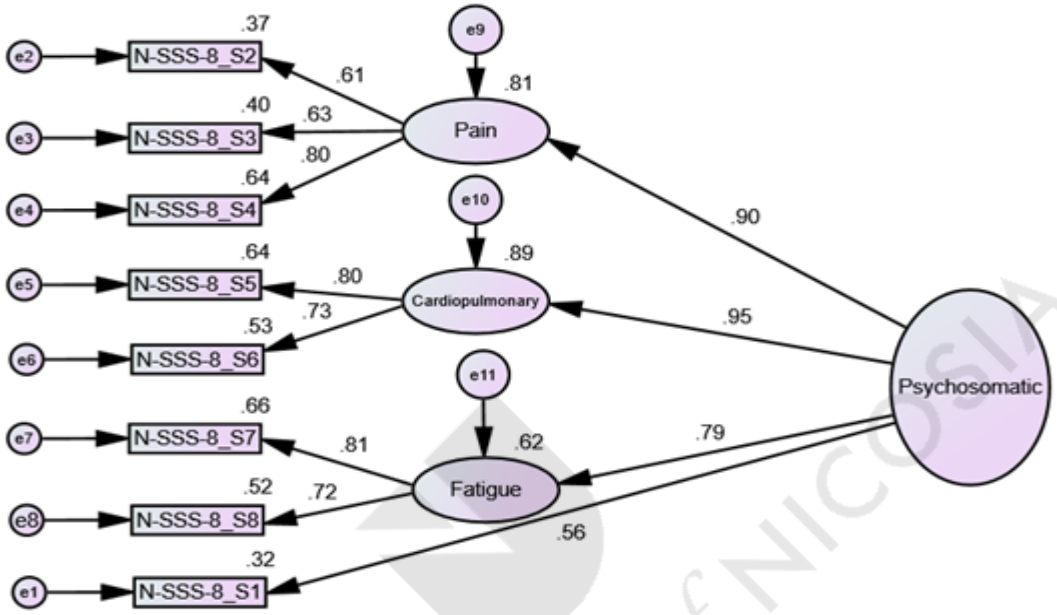

Figure 3. Results of Confirmatory Factor Analysis of Pilot Test for SSS-8-N

The analysis suggested carrying out a confirmatory analysis to test the model of SSS-8. When Gierk et al. (2014) tested a higher order general factor analysis of the English version of SSS-8, the results suggested using four factors. The suggested frame includes a) SSS-1 for gastrointestinal symptoms, b) SSS-2, 3 and 4 for pain, c) SSS-5 and 6 for cardiopulmonary symptoms, and d) SSS-7 and 8 for fatigue. A CFA was applied with the four-dimensional model of SSS-8. The results are presented in (Figure -3).

The CFA of the Nepali version of SSS-8 showed a maximum reasonably good fit. All items had strong and significant correlations (< 0.56). The fit indices are presented in Table 3.

Table 4. Fit Indices from CFA with Four-Factor Model of SSS-8-N (N = 55, p = 0.002)

Model	CMIN/df	NFI	TLI	GFI	CFI	RMR	SMRs	RMSEA	P-Close	Hölter Kriterium
SSS-8	2.077	.770	.823	.849	.861	0.118	.053	0.141	.010	48

Note. NFI = Normed-Fit Index, TLI = Tucker-Lewis Index, GFI = Goodness-of-Fit Index, CFI = Comparative-Fit Index, RMSR = Root mean square residuals, SMRs = Standardised root mean Square Residuals, RMSEA = Root mean square error of approximation, Hölter Kriterium for numbers of samples in p = 0.01

The results of the fit indices of the CFA for the pilot test of SSS-8 are reasonably in line with a good fit. For convergent validity, composite reliability (CR) was found > 0.7 and average variance extracted (AVE) > 0.5 was measured. For other measures, CR = 0.84 and AVE = 0.78 for pain; CR = 0.73 and AVE = 0.57 for cardiopulmonary, and CR = 0.61 and AVE = 0.44 for fatigue were measured. Each score of AVE was greater than MSV and ASV (See Table 5). The test further confirmed that it would be fruitful to carry out the full-scale administration of the Nepali version of SSS-8 to the chosen population for study in Nepal.

Table 5. Convergent and Discriminant Validity Indices of SSS-8 Pilot Study (N = 55)

Construct	AVE	CR	MSV	ASV
Pain	0.78	0.84	0.76	0.67
Cardio	0.57	0.73	0.81	0.71
Fatigue	0.44	0.61	0.81	0.79
Gastro	0.31	0.31	N/A	N/A

Note. AVE = average variance extracted, CR = composite reliability, MSV = maximum shared variance, ASV = average shared variance

4.3 Socio-Demographic Information of the Respondents

Data was collected from 7 July 2018, to 7 November 2018. The researcher obtained 400 online and 157 pencil-and-paper responses (with a 62.80% response rate). None of these responses was excluded, and no missing data was found in the online responses. The few missing data found in the physical forms was treated with the mean value of the responded item and the value nearest the Likert value was used for ease of data analysis. Out of the 557 responses, male and female responses were 415 (75.90 %) and 129 (23.60 %) respectively. Three respondents (0.5%) recorded no gender option.

The socio-demographic data reveals that over half of the respondents (55.39 %) had a home-based job and 44.61% were working in out-of-home locations. One out of two doctors (52.83 %) were from Kathmandu Valley, 6.22% of the doctors participated from abroad, and 40.95 % were serving out of the capital. The participation of doctors working in government hospitals was encouraging: 242 doctors (44.24%) reported that they do so. Altogether 175 doctors (31.99 %) doctors were associated with private hospitals and 97 doctors (17.73 %) worked at teaching

hospitals. Small numbers worked in private practices or non-governmental (public) hospitals, just 3.66% and 2.38% respectively.

The dominant age group, with 451 respondents (82.45%), was 26–45 years of age, but 12.25% of doctors were below 25 years of age and 4.75% (26 doctors) were over 46. Just three were older than 60. The socio-demographic details are given in Table 6 below.

Table 6. Socio-Demographic Details of the Respondents

Characteristics	Sub-Heading	N	Percentage
Gender	Male	415	75.90
	Female	129	23.60
	Unknown	3	0.50
Position	General physician / Dental doctor	291	53.20
	Consultant	153	28.00
	Senior Consultant	39	7.10
	Director	9	1.60
	Resident Doctor	55	10.10
Qualification	Bachelor of Medicine/Dental	288	52.70
	Master's in Medicine/Dental	199	36.30
	Doctorate in Medicine	60	11.00
Experience	0-2 Years	188	34.40
	> 2-5 Years	183	33.46
	> 5-10 Years	109	19.93
	> 10+ Years	67	11.88
Type of Institution	Government Hospital	242	44.24
	Private Hospital	175	31.99
	Teaching Hospital	97	17.73
	Private Practice	20	3.66
	Non-Governmental/Public	13	2.38
Type of Service	Emergency Service	97	17.73
	Out-Patient	36	6.58
	Surgery or Post-Operative	225	41.13
	Clients at Private Clinic	89	16.27
	Other (not mentioned above)	74	13.53
	All of the Above	26	4.80
Caseload per Week	Below 25	124	22.67
	26-49	153	27.97
	50-75	120	21.94
	76 or above	150	27.42

Of the participants, 52.3% were medical doctors and 28% general practitioners or consultant doctors. Senior consultants and directors constituted 7.1 % and 1.6 % of the respondents respectively. In addition, there were 55 resident doctors (10.10 %). Interestingly, only one out of three doctors (30.90 %) received clinical supervision, 11.3% of participants had never heard of it, and 57.77 % of doctors were working without clinical supervision. Only 5.48 % of doctors had participated in self-care or care-for-care-providers workshops and training in the last one-year period. About 36.5 % of the respondents had a master's degree and 11% had a doctorate degree in medicine.

4.4 Prevalence of Distress among Nepali Medical Doctors

The reliability of each scale was measured. The Cronbach alpha for anxiety, depression and psychosomatic disorders were .890, .926, and .802 respectively. The mean scores of the population for anxiety, depression and psychosomatic distress were 16.15 (SD = 5.16), 13.16 (SD = 7.93), and 6.92 (SD = 5.18). The HSCL-25 cut-off scores were 1.75 for each item of anxiety and depression (Thapa and Hauff, 2005).

After applying the cut-off criteria of 17.50 for anxiety and 26.25 for depression, it was found that the prevalence of anxiety and depression among medical doctors were 30.89 % and 25.41 % respectively (see details in Table 7). About 19.56% had scores above the cut-offs for both anxiety and depression and 5.7 % of the respondent were at risk of suicide. Of the latter, 3.7% claimed to have suicidal thoughts 'a lot' and 2%, 'extremely high' in the last two weeks before responding. The somatic symptoms were calculated based on five severity categories: no to minimal (0-3), low (4-7), medium (8-11), high (12-15), and very high (16-32). The prevalence of psychosomatic measures

among respondents was as follows: medium = 20.80%, high = 13.70% and very high = 6.80%. In a cumulative way, almost 40% of the respondents experienced high psychosomatic distress.

Table 7. Distribution of Distress Measures across Socio-Demographic Variables

				Anxiety		Depression		Somatic	
Characteristic	Sub-Heading	N	%	M	SD	M	SD	M	SD
Overall	Medical/Dental Doctors	547	100	16.15	5.16	23.16	7.93	11.9	6.42
Gender	Male	415	75.9	16.01	5.14	22.64	7.62	11.92	6.35
	Female	129	23.6	16.68	5.2	24.95	8.69	11.91	6.73
	Unknown	3	0.5	12.67	2.31	18.33	2.89	9.67	1.15
Position	General Physician/ Dental Doctor	291	53.2	16.59	5.18	23.8	8.04	11.37	6.8
	Consultant	153	28	15.27	4.88	22.16	7.72	12.03	6.26
	Senior Consultant	39	7.1	14.49	5.17	20.69	7.92	11.64	4.79
	Director	9	1.6	16.56	5.43	24.22	6.83	13.78	6.08
	Resident Doctor	55	10.1	17.4	5.3	24.13	7.67	14.29	5.35
Qualification	MBBS	288	52.7	16.79	5.22	23.88	8.04	11.9	6.6
	Master's in Medicine	199	36.3	15.73	5.27	22.75	7.92	12.95	6.12
	Doctorate in Medicine	60	11	14.5	3.93	21.1	7.06	8.47	5.33
Experience	0-2 Years	188	34.4	16.13	4.97	23.36	7.84	12.54	7.09
	2-5 Years	183	33.46	16.65	5.37	23.55	8.22	11.23	5.75
	5-10 Years	109	19.93	16.32	5.14	22.88	7.68	11.62	7.08
	10+ Years	67	11.88	14.57	4.92	22.01	7.84	12.4	4.78
Type of Institution	Government Hospital	242	44.24	16.02	4.99	23.09	7.47	11.71	6.03
	Private Hospital	175	31.99	16.1	5.48	22.88	8.35	10.29	6.96
	Teaching Hospital	97	17.73	16.54	5.04	23.66	7.8	14.44	5.58
	Private Practice	20	3.66	15.45	4.05	22.05	6.59	13.95	4.94
	NGO/Public	13	2.38	17.38	6.54	26.23	12.58	15.31	6.92
Location of Job	Home-Based	303	55.39	16.5	5.5	23.48	8.3	11.95	6.35
	Out of Home	244	44.61	15.72	4.68	22.77	7.44	11.85	6.52
Rural/Urban/ Aboard	Out of Kathmandu Valley	224	40.95	17.03	5.44	24.06	8	13.71	6.02
	Kathmandu Valley	289	52.83	15.48	4.86	22.52	7.93	10.56	6.48
	Working Abroad	34	6.22	16.06	5.04	22.65	7.12	11.44	5.78

Table 8. Distribution of Distress Measures across Socio-Demographic Variables

				Anxiety		Depression		Somatic	
Characteristic	Sub-Heading	N	%	M	SD	M	SD	M	SD
Age Group	18-25 Years	67	12.25	18.69	5.82	26.64	9.55	12.87	7.88
	26-45 Years	451	82.45	15.93	5.02	22.86	7.67	11.82	6.21
	46-60 Years	26	4.75	13.81	3.68	19.96	5.14	11.31	5.97
	60+ Years	3	0.55	13.67	3.51	19	4	8.67	7.02
Type of Service	Emergency Service	97	17.73	17.61	5.73	24.48	8.27	13.31	6.6
	Out-Patient	36	6.58	14.83	4.11	20.47	5.15	5.25	4.56
	Surgery/Post-Op.	225	41.13	15.65	5.06	22.81	8.04	12.74	5.78
	Private Clinic	89	16.27	15.66	4.9	22.46	7.8	8.7	6.5
	Other	74	13.53	16.82	5.33	24.7	8.7	13.74	5.87
	All of the Above	26	4.8	16.65	4.44	23	5.69	14.42	5.01
Caseload per Week	Below 25	124	22.67	15.1	4.58	22.03	7.65	8.44	5.98
	26-49	153	27.97	16.26	5.01	22.92	7.77	10.48	6.89
	50-75	120	21.94	16.38	5.42	23.3	7.79	14.68	5.4
	76 or above	150	27.42	16.73	5.47	24.23	8.35	14	5.23
Clinical Supervision	Not Heard of	62	11.33	16.5	5.05	24.5	7.88	15.08	6.41
	Yes	169	30.9	15.9	4.97	22.62	7.74	13.25	5.75
	No	316	57.77	16.22	5.29	23.19	8.03	10.56	6.42
Self-Care Training	Not Heard of	50	9.14	16.08	4.88	24.14	7.92	13.86	6.07
	Yes	30	5.48	15.27	5.19	21.33	6.97	9.37	6.39
	No	467	85.37	16.22	5.19	23.17	7.98	11.86	6.41

There was a significant difference in depression scores according to the gender, qualifications, and age group of the respondent and the location of the services he or she provided. The one-way analysis of variances (ANOVA) showed that the depression scores for gender were significantly different from [F (2, 544) = 4.818, p = 0.008]. The post hoc Tukey test verified significant differences, with small effects, between the depression scores of males and females with

($p = 0.01$, $d = 0.28$). Depression scores also varied significantly according to the qualifications and age groups of the respondents.

One-way ANOVA results showed that, age-group-wise, group differences were [$F(3,543) = 6.396$, $p = 0.001$]. The post hoc Tukey test showed that the mean score of depression of doctors group with the age of 18-25 years, 26-45 years, and 46-60 years differed significantly ($p = 0.001$), but the depression score of the age group (60 + years) did not show any significant difference with other age groups. The differences on the depression scores between 18-25 years and 26-45 years of age group was significant with a medium effect ($p = 0.001$, $d = 0.44$), however, the differences on the depression scores between 18-25 years and 46-60 years of age groups were significant with very large effect ($p = 0.001$, $d = 0.87$). Similarly, the variation on the mean score of depression between 26-45 years and 46-60 years of age groups of doctors were significant with ($p = 0.001$, $d = 0.44$). Qualification-wise, one-way ANOVA showed that the differences on depression scores were [$F(2, 544) = 3.49$, $p = 0.031$]. Post hoc Tukey test outlined a significant difference in the depression scores between MBBS and Doctor of Medicine groups with a median effect ($p = 0.036$, $d = 0.37$), but the rest of the qualification wise group had no significant differences in their depression mean scores.

Applying one-way ANOVA revealed that the prevalence of anxiety was significantly different in terms of qualification, age group, and location of service: [$F(2,544) = 6.045$, $p = 0.003$], [$F(3,543) = 7.993$, $p < 0.001$], [$F = 2,544) = 5.800$, $p = 0.003$]. The post hoc Tukey test for qualification outlined, the anxiety scores of MBBS and Doctor of Medicine groups were significantly different with a median effect ($p = 0.005$, $d = 0.50$), but the rest of the qualification wise group had no significant differences in their anxiety mean scores. Similarly, a post hoc Tukey test analyzed the anxiety scores of age groups and found, a significant and high effect difference on

the anxiety scores of 18-25 years group with 26-45 years ($p < 0.001$, $d = 0.51$). Whereas, the difference between 46-60 years of age group was significant with a medium effect ($p < 0.001$, $d = 0.48$). There were no significant differences in the anxiety mean scores of other age groups. A post hoc Tukey test for location of service and anxiety scores were tested, the anxiety scores of doctors working outside of Kathmandu Valley were significantly different, with a median effect, with the doctors working inside the Kathmandu valley ($p = 0.003$, $d = 0.37$).

The participants' scores for somatic symptoms were significantly different across position, qualification, type of institution, type of service provided, weekly caseload, availability of clinical supervision, and self-care training. The one-way ANOVA results for position, qualification, and type of institution were [$F(4,542) = 2.660$, $p = 0.032$], [$F(2, 544) = 11.698$, $p < 0.001$] and [$F(4,542) = 8.487$, $p = 0.003$] respectively. Position wise a post hoc Tukey test was conducted, in which, the mean score of the psychosomatic burden of general physician and resident were only found significantly different with a medium effect ($p = 0.017$, $d = 0.48$). The rest of the groups were found with no significant differences in psychosomatic scores.

Qualification wise, the psychosomatic scores of MBBS with Doctor of Medicine group were significantly different with a median effect ($p < 0.001$, $d = 0.57$), and the group of doctors with a master's Degree in Medicine were significantly different with a median effect (($p < 0.001$, $d = 0.78$), with the group of Doctor of Medicine. There was no significant difference in the psychosomatic mean scores between MBBS and master's Degree in Medicine groups.

A post hoc Tukey test results for Type of Institutions group-wise differences on psychosomatic burden was tested. The mean score of psychosomatic burden between the doctors working in the teaching hospital was significantly different with a median effect than doctors working in government hospitals ($p = 003$, $d = 0.47$). Similarly, the group of doctors working in

teaching hospitals had higher psychosomatic mean scores with significant and medium effect on the psychosomatic burden than the doctors working on private hospitals ($p < 0.001$, $d = 0.65$). The psychosomatic burden of the doctors working NGO/public sector was significantly higher, with a median effect than the doctors working in private hospitals ($p = 0.043$, $d = 0.72$). The mean scores on the psychosomatic burden with other groups were found non-significant.

The significant differences with among somatic symptom scores for type of service, weekly caseload, clinical supervision, and self-care training were [$F(5,541) = 18.397$, $p < 0.001$], [$F(3, 543) = 31.987$, $p < 0.001$], [$F(2, 544) = 19.472$, $p < 0.001$], and [$F(2, 544) = 4.736$, $p = 0.009$] respectively. A post hoc Tukey test for type of service group was carried out. The doctors working in emergency service had significantly higher psychosomatic burden as compared to the doctors working in Out-Patient ($p < 0.001$, $d = 1.42$), and private practice ($p < 0.001$, $d = 0.70$). Similarly, the doctors working in Surgery or Post-Operative cases reported significantly higher psychosomatic burden with a large effect as compared to the doctors working in Out-Patient ($p < 0.001$, $d = 1.44$), and a moderate effect with the doctors from private practice ($p < 0.001$, $d = 0.66$). Other groups of the doctors had also significantly higher with a larger effect on psychosomatic burden as compared to the doctors working in out patient wards (($p < 0.001$, $d = 1.91$) and practice practice ($p < 0.001$, $d = 0.98$).

Post hoc Tukey test for the psychosomatic burden of doctors with various numbers of clients per week was tested. The mean psychosomatic scores of doctors serving more than 75 clients per week were statistically significant with higher scores than their counterparts: below 25 clients per week ($p < 0.001$, $d = 0.99$), 26-50 clients ($p < 0.001$, $d = 0.56$), whereas, there were no significant differences with the group of doctors serving 50-75 clients per week. Nevertheless, doctors serving 50-75 clients per week had significantly higher psychosomatic mean scores than the doctors serving

below 25 clients per week ($p < 0.001$, $d = 1.08$) and 26-50 clients ($p < 0.001$, $d = 0.67$). Similarly, a significant difference on psychosomatic mean score was measured between the groups serving below 25 clients per week and 26-50 clients ($p < 0.001$, $d = 0.32$).

The availability of clinical supervision should have a direct impact on the psychosomatic burden as compared to those without having such facilities. Interestingly, a reverse outcome was measured. A post hoc Tukey test outlined that doctors without clinical supervision expressed statistically significant and higher mean scores on psychosomatic than the doctors with clinical supervision ($p < 0.001$, $d = 0.44$). The group with no clinical supervision and never heard about clinical supervision had significantly different with a moderate effect of differences in the psychosomatic burden ($p < 0.001$, $d = 0.30$). There were no significant differences in the mean scores of the psychosomatic between the group with the availability of clinical supervision and never heard about the clinical supervision. However, the post hoc Tukey test confirmed that doctors received a self-care training had significantly lower mean scores for psychosomatic than the group of doctors who never heard of a self-care training ($p = 0.007$, $d = 0.70$). Nevertheless, there was no significant difference measured between the group of doctors having self-care training or not.

To sum up, the prevalence and impact of depression were higher on female doctors, doctors below the age of 25 and undergraduate doctors than on other groups, and doctors below 25 years of age, undergraduate doctors and doctors working outside of Kathmandu valley were highly affected with anxiety. The psychosomatic burden was highest on resident doctors, directors, post-graduate medical doctors, and doctors working in teaching and private hospitals. Doctors working in surgery or post-operative departments, working with diverse categories of clients, and delivering support to over 50 clients per week had a greater somatic burden than their fellow doctors. Doctors without clinical supervision or self-care training also faced higher psychosomatic burdens than others.

4.5 Prevalence of Professional Quality of Life Measures in Nepali Medical Doctors

The reliability coefficients of the subscales of Nepali version of ProQOL-5 (BO, STS, and CS) were 0.693, 0.766, and 0.861 respectively. The reliability scores of BO and STS were measured below than minimum requirements of 0.80. The overall means and standard deviations were BO (M = 31.52, SD = 4.55), STS (M = 27.92, SD = 6.50) and CS (M = 54.03, SD = 8.38). The ProQOL manual (Stamm, 2010) recommends using these cut-off criteria: for BO and STS, an overall score of 22 or less represents low risk, while an overall score of 42 or above is high risk. Scores between 22 to 42 are classified as medium risk for both BO and STS (see Table 8).

Table 9. Prevalence of Professional Quality of Life Factors of Nepali Doctors (N = 547)

Sub-Scale	Group	N	%	Interpretation Criteria
BO	Low Risk	19	3.47	Overall score 22 or less
	Medium Risk	521	95.25	Overall score 22 to 42
	High Risk	7	1.28	Overall score 42 or more
	Overall	547	100	Medium Risk (M = 31.52, SD = 4.55)
STS	Low Risk	121	22.12	Overall score 22 or less
	Medium Risk	417	76.23	Overall score 22 to 42
	High Risk	9	1.65	Overall score 42 or more
	Overall	547	100	Medium Risk (M = 27.92, SD = 6.50)
CS	Low Satisfaction	1	0.18	Overall score 22 or less
	Medium Satisfaction	35	6.40	Overall score 22 to 42
	High Satisfaction	511	93.42	Overall score 42 or more
	Overall	547	100	High Satisfaction (M = 54.03, SD = 8.38)

The mean scores of BO and STS indicate that the majority of Nepali doctors suffer from a moderate risk of both BO and STS with BO (M = 31.52, SD = 4.55) and STS (M = 27.92, SD = 6.50). Similarly, an overall score of 22 or less on the CS measure is classified as a low level of satisfaction and an overall score of 42 or above is considered as highly satisfied. The study found that Nepali doctors are highly satisfied by providing compassionate care to their patients and caregivers: CS (M = 54.03, SD = 8.38). However, 1.28% of doctors are at high risk of BO and 1.65% face a high risk of STS. Only 0.18% doctor said that they were dissatisfied in the provision of compassionate care through the professional service. Table 9 presents details of the outcome of the analysis.

Table 10. Distribution of PROQOL Measures across Socio-Demographic Variables

				BO		STS		CS	
Characteristic	Sub-Heading	N	%	M	SD	M	SD	M	SD
Overall	Medical/Dental Doctors	547	100	31.52	4.55	27.92	6.5	54	8.38
Gender	Male	415	75.9	31.62	4.74	27.77	6.57	54.1	8.28
	Female	129	23.6	31.29	3.9	28.46	6.27	54.1	8.72
	Unknown	3	0.5	27.33	3.05	25.67	6.11	48.7	8.33
Position	MBBS	291	53.2	31.46	4.3	29.01	6.33	53.2	8.37
	Consultant	153	28	32.01	4.78	27.52	6.53	54.4	8.8
	Senior Consultant	39	7.1	29.72	4.39	23.77	6.39	54.7	6.92
	Director	9	1.6	30.78	3.6	26.56	4.75	56.9	4.31
	Resident Doctor	55	10.1	31.91	5.2	26.45	6.12	56.5	8.23
Qualification	MBBS/BS in Dental	288	52.7	31.43	4.73	28.85	6.29	53.5	8.61
	Master's in Medicine	199	36.3	31.49	4.54	26.27	6.53	55.7	7.9
	Doctorate in Medicine	60	11	32.05	3.68	28.93	6.39	51.3	7.85
Experience	0-2 Years	188	34.4	31.61	4.52	28.64	6.18	53.2	8.59
	2-5 Years	183	33.46	31.6	4.36	28.15	6.26	54.5	8.06
	5-10 Years	109	19.93	32	4.82	28.63	6.71	54	9.17
	10+ Years	67	11.88	30.31	4.64	24.1	6.49	55.2	7.15
Type of Institution	Govt. Hospital	242	44.24	31.14	4.3	27.48	6.32	53.6	8.03
	Private Hospital	175	31.99	31.31	4.31	29.56	6.14	52.1	8.68
	Teaching Hospital	97	17.73	33	5.23	26.94	6.95	57.6	6.8
	Private Practice	20	3.66	30.15	4.96	23.55	5.57	56	9.48
	NGO/Public	13	2.38	32.69	4.44	28.08	7.26	58.2	10.2
Location of Job	Home Based	303	55.39	31.55	4.84	27.8	6.79	54.4	8.77
	Out of Home	244	44.61	31.49	4.17	28.07	6.12	53.6	7.87
Rural/Urban/Aboard	Out of Kathmandu	224	40.95	31.57	4.84	26.95	6.33	55.4	7.83
	Kathmandu Valley	289	52.83	31.45	4.43	28.76	6.56	52.7	8.65
	Working Abroad	34	6.22	31.82	3.66	27.21	6.18	56.3	7.69

Table 11. Distribution of PROQOL Measures across Socio-Demographic Variables

				BO		STS		CS	
Characteristic	Sub-Heading	N	%	M	SD	M	SD	M	SD
Age Group	18-25 Years	67	12.25	30.85	4.45	30.28	6.18	54	8.57
	26-45 Years	451	82.45	31.65	4.61	27.73	6.46	54	8.42
	46-60 Years	26	4.75	30.73	3.68	24.69	6.18	54.5	7.8
	60+ Years	3	0.55	35	2	31.67	6.51	52.3	6.81
Type of Service	Emergency Service	97	17.73	32.57	4.4	29.25	6.14	55.5	7.76
	Out-Patient	36	6.58	30.64	3.74	31	4.32	47.6	5.33
	Surgery or Post-Op.	225	41.13	31.07	4.53	26.3	6.55	54.8	7.89
	Clients at Clinic	89	16.27	31.36	4.24	30.74	6.21	50.2	9.24
	Other	74	13.53	31.64	5.43	26.97	6.55	56	8.47
	All of Above	26	4.8	33	4.02	25.77	4.97	58.2	6.17
Caseload per Week	Below 25	124	22.67	30.45	4.56	29.76	5.91	49.7	7.68
	26-49	153	27.97	31.91	4.33	29.9	6.55	53	8.23
	50-75	120	21.94	31.58	4.47	26.08	6.19	56.5	7.31
	76 or above	150	27.42	31.97	4.73	25.86	6.12	56.7	8.3
Clinical Supervision	Not Heard of	62	11.33	32.85	4.85	26.19	6.2	55.9	7.94
	Yes	169	30.9	31.25	4.77	26.33	6.63	55.7	8.01
	No	316	57.77	31.41	4.34	29.11	6.24	52.8	8.46
Self-care training	Not Heard of	50	9.14	33.2	4.97	26.68	6.12	56.9	8.56
	Yes	30	5.48	30.27	5.74	28.77	6.29	50.2	9.46
	No	467	85.37	31.42	4.39	28	6.54	54	8.19

The variance of BO, STS, and CS by socio-demographic variables was tested using ANOVA. The mean values of BO, STS, and Cs for each subtype of socio-demographic variable are presented in Table 9. The BO scores were found significantly different depending on the type of institutions respondents worked for, the number of clients they served per week, and clinical supervision: the ANOVA results were [$F(4,542) = 3.832$, $p = 0.004$], [$F(3,543) = 3.174$, $p = 0.024$], [$F(2,544) = 3.083$, $p = 0.047$] respectively. No significant differences were measured for BO scores with other variables.

A post hoc Tukey test was applied. The doctors working in teaching hospitals were found statistically significantly higher BO mean scores as compared with their government hospital counterparts ($p = 0.006$, $d = 0.38$). Equally, doctors working in teaching hospitals have shown a significantly higher BO mean scores than the doctors working in private hospitals ($p = 0.026$, $d = 0.35$). No other groups had statistically significant differences in their BO mean scores. Post hoc Tukey test for the BO of doctors serving with various numbers of clients per week was tested. The BO mean scores of Doctors serving more than 75 clients per week were statistically significant with higher scores than their counterparts: below 25 clients per week ($p = 0.04$, $d = 0.33$), and 26-50 clients ($p =0.031$, $d = 0.33$), whereas, there were no significant differences with the group of doctors serving 50-75 clients per week. No other groups had statistically significantly different in the mean score of BO. Post hoc Tukey test on availability of clinical supervision outlied that the group without knowing any clinical supervision had significantly higher BO mean scores as compared to the group who regularly receive clinical supervision ($p = 0.046$, $d = 0.55$). However, there were no significant differences measured in the groups receiving clinical supervision regularly versus not receiving any clinical supervision.

Differences in socio-demographic variables and STS scores were also tested. The mean scores of STS were found significantly different according to the respondents' qualifications, the number of years of experience, type of institution they serve, age group, type of services they provide, numbers of clients they service per week and availability of clinical supervision. The differences in STS mean scores for qualification were [$F (2,544) = 10.508$, $p < 0.001$], while those for experience, type of institution, age group, and were [$F (3,543) = 9.413$, $p < 0.001$], [$F (4,542) = 6.099$, $p < 0.001$], and [$F (3,543) = 5.698$, $p = 0.001$] respectively. In terms of numbers of service type and client served per week the differences were [$F (3,543) = 17.861$, $p < 0.001$], and [$F (2,544)$

= 13.179, $p < 0.001$]. No significant differences were measured for STS mean scores when other variables were considered. Post hoc Tukey test on qualification wise groups were carried out. The STS scores of MBBS with a master's Degree in Medicine group were significantly different from a median effect ($p < 0.001$, $d = 0.40$). There was no significant difference in the STS mean scores of Doctorate in Medicine groups with MBBS and master's Degree in Medicine groups.

Through a post hoc Tukey test on the years of experiences, doctors having over 10 years of experience had significantly higher STS mean scores as compared to other groups: less than 2 years group ($p < 0.001$, $d = 0.72$), 2-5 years (($p < 0.001$, $d = 0.07$), and 5-10 years ($p < 0.001$, $d = 0.69$). There was no statistical difference in the STS scores among other groups. A post hoc Tukey test results for Type of Institutions group-wise differences on STS was tested, the mean score of STS between the doctors working in the private hospital was significantly different with a median effect than their government counterparts ($p = 010$, $d = 0.33$), doctors in teaching hospital ($p = 011$, $d = 0.40$), and doctors working in private practice ($p = 001$, $d = 1.03$). The mean scores on the STS with other groups were found non-significant. Age group wise, the post hoc Tukey test outlined that 18-25 years age group had statitistically higher and significant STS mean scores in comparision with the STS scores of 26-45 years age group ($p = 0.013$, $d = 0.40$), and 46-60 years age group ($p = 0.001$, $d = 0.90$). The mean scores on the STS with other age groups were found non-significant.

As per the post hoc Tukey test, doctors working in surgery or post-operative clients had significantly different STS mean scores. The differences of mean score of doctors working in surgery or post-operative clients with emergency service group was ($p = 0.002$, $d = -0.46$), Out-patient working group ($p < 0.001$, $d = - 0.85$), and doctors working with clients at private clinic ($p < 0.001$, $d = - 0.70$) respectively. Similarly, doctors working with clients at private practice had

significantly different STS mean scores than doctors working with other clients ($p = 0.002$, $d = 0.59$). No other groups were found statistically different.

Post hoc Tukey test for the STS of doctors with various numbers of clients per week was tested. The mean scores of Doctors serving less than 25 clients per week were statistically significant with higher scores than their counterparts: 50-75 clients per week ($p < 0.001$, $d = 0.60$), and 76 or above clients ($p < 0.001$, $d = 0.56$), whereas, there were no significant differences with the group of doctors serving 50-75 clients per week. Nevertheless, doctors serving 50-75 clients per week had significantly higher mean scores than the doctors serving below 25 clients per week ($p < 0.001$, $d = 1.08$) and 26-50 clients ($p < 0.001$, $d = 0.65$). Similarly, a significant difference was measured between the groups serving 26-50 clients with doctors serving 50-75 clients per week ($p < 0.001$, $d = 0.60$), and 76 or above clients ($p < 0.001$, $d = 0.64$). No other groups were found significantly different in terms of mean scores of STS.

The tests between the subject effects of CS mean scores with different socio-demographic variables revealed that the CS of doctors varies significantly by qualification, type of institution served, type of service provided, weekly caseload and level of clinical supervision. All the results were significantly different. The analysis of variance between the subject results were [$F(2,544) = 7.784$, $p < 0.001$] for qualifications, [$F(4,542) = 8.585$, $p < 0.001$] for type of institution, and $F(5,541) = 12.403$, $p < 0.001$] for type of service provided. Similarly, the variances with significant differences for weekly caseload and level of clinical supervision were [$F(3,543) = 22.053$, $p < 0.001$] and [$F(2,544) = 8.629$, $p < 0.001$] respectively. No significant differences were measured for CS mean scores with respect to other variables.

Post hoc Tukey test of ANOVA on CS score across the various socio-demographic groups was measured. CS mean scores of doctors with master's Degree in Medicine group was significantly

higher with small effect as compared to the MBBS group of doctors ($p = 0.012$, $d = 0.26$), whereas a medium effect with significant differences was measured between the master's Degree in Medicine group and Doctor in Medicine group ($p = 0.001$, $d = 0.55$). There was no significant difference in the mean scores of CS between the MBBS group of doctors and Doctor in Medicine group. Post hoc Tukey test outlined that the doctors working with teaching hospitals had significantly higher CS, with a medium effect, as compared to their fellows working in private ($p < 0.001$, $d = 0.71$) and government hospitals ($p < 0.001$, $d = 0.54$). No other groups were found significantly different in the CS mean scores.

As per the post hoc Tukey test report, doctors working in other sectors were found significantly higher CS scores, with large effects, than the doctors working with out-patients ($p < 0.001$, $d = 1.85$) and clients at private practice ($p < 0.001$, $d = 1.02$). The doctors working with surgery departments had significantly higher CS than the doctors working with out-patients ($p < 0.001$, $d = 1.07$) and clients at private practice ($p < 0.001$, $d = 0.54$). Similarly, doctors working in emergency department had significantly higher CS than their counterparts working for out-patients ($p < 0.001$, $d = 1.19$) and private clinics ($p < 0.001$, $d = 0.62$). There were no statistically significant variations on the mean scores of CS among the groups of doctors serving various categories of clients.

Post hoc Tukey test for the CS of doctors with various numbers of clients per week was tested. The mean scores of Doctors serving more than 76 or above clients per week were statistically significant with higher scores than their counterparts: below 25 clients per week ($p < 0.001$, $d = 0.86$), and 26-50 clients ($p < 0.001$, $d = 0.44$), whereas, there were no significant differences with the group of doctors serving 50-75 clients per week. Nevertheless, doctors serving 50-75 clients per week had significantly higher mean CS scores than the doctors serving below 25 clients per week (p

<0.001, d = 0.89) and 26-50 clients (p <0.001, d = 0.44). Similarly, the group serving below 26-50 clients had a significantly higher CS mean scores as compared to doctors working below than 25 clients per week (p = 0.004, d = 0.41).

Lastly, in the post hoc Tukey test, doctors receiving clinical supervision had a significantly higher CS mean scores as compared to the doctors without receiving any clinical supervision (p = 0.001, d = 0.35). Surprisingly, the doctors never heard of clinical supervision had significantly higher CS mean scores as compared to the doctors not receiving clinical supervision (p = 0.017, d = 0.39). However, no statistically significant difference was measured between the doctors receiving clinical supervision and doctors never heard about clinical supervision.

Conclusively, the ANOVA and post-hoc test results on the BO, STS and CS have outlined; doctors working in teaching hospitals had a higher level of BO than other doctors, as did doctors working in emergency wards, providing care to over 50 clients per week and working with all categories of clients. The lack of self-care training was also associated with a higher than average level of BO. STS scores were higher among young doctors and doctors over the age of 60 than other doctors. Doctors working in a private hospital, looking after clients in out-patient wards and working with all categories of clients also experienced a higher level of STS, as did doctors with no clinical supervision and working with less than 50 clients per week. Doctors who completed a post-graduate degree had higher levels of CS than other doctors, as did those working in private and teaching hospitals or the emergency department, looking after over 50 clients per week and serving diverse categories of clients. Interestingly, clinical supervision and self-care training were not associated with a higher level of CS.

4.6 Summary

In this chapter, the pilot study results of the Nepali version of SSS-8 through CFA provided sufficiently good fit indices to use the tool for a full study. The demographics and descriptive statistics of the studied population demonstrate that it adequately represented all the socio-economic and demographic diversities of the population. The statistical outcomes of the descriptive statistics were covered and described in detail, and the prevalence of the personal and professional distress of the studied population was analysed. The impact of personal and professional distress as it relates to gender, education, place of work, work setting, and level of training and supervision were analysed and discussed. The next chapter discusses the CFA of the different measures used in this study in-depth to discover whether or not the data supports the measurement models of the measures covering the professional and personal distress of Nepali doctors.

Chapter 5 Results: Measures and Confirmatory Factor Analysis

"The stress that many doctors face is far beyond basic run-of-the-mill stress."

—Elizabeth Scott, a wellness coach and author

5.1 Introduction

This chapter presents the main findings of CFA and model fit for SSS-8, HSCL-25, and ProQOL-5 measures. It also outlines the reliability and validity (convergent and discriminant) of the constructs to be used in the Nepali context. Structural models with appropriate model fit diagrams of each scale are also analysed and presented. Last, the results of the fit indices of each scale with CFA coefficient results are also presented.

5.2 Structural Equation Model and Confirmatory Factor Analysis

The SEM is a very sophisticated statistical procedure that enables a researcher to examine a series of regression equations at once and serves as a confirmatory method that provides a comprehensive means to assess and modify measurement and structural models. Because it is a multivariate technique of data analysis, the SEM allows us to estimate a series of interrelated relationships and verifies how well data fits hypothesised theoretical and structural models (Blunch, 2012). While applying the SEM, an initial model has to be established to perform a CFA. A CFA then suggests how well the hypothesised model fits the given data. When the outcome data is collected, such as the level of BO and depression in medical doctors, the SEM investigates how well the assessment predicts the measures of BO and depression and presents their interlinkages.

In this study, the proposed model consists of three exogenous variables (BO, STS, and CS), which are measured without any errors, and three endogenous variables (anxiety, depression and psycho-somatic). The hypothesised model analyses the model fit between these exogenous and endogenous variables. Details of the structural model, with necessary path diagrams for the observed

and unobserved variables, will be discussed and presented in Chapter 6. The model fit indices and their standardized fitness levels are elaborately discussed in Chapter three, and a summary of fitness indices are presented in Table 3.

Before preparing the CFA for SSS-8, HSCL-25 and ProQOL-5 measures, descriptive statistics, missing data, outliers, and the normality of the data were checked. There were no missing data in the online responses (n = 400), but a few items in the paper-and-pencil responses (n = 147) were left unanswered. The missing values for a few items were adjusted using the mean values of the data for those responses so that the overall mean of the responses remained the same.

The essential tests for the CFA of all three measures were done. Kurtoses, skewness, Shapiro-Wilk and/or Kolmogorov Smirnov were tested to ensure the normality of the data. Furthermore, histograms, normal Q-Q plots, box plots, scatter plots, the Mahalanobis' distances for the dependent variables (DVs) and residuals were tested to ensure that the data was normally distributed. The results of the tests are presented in the sections on each measure found below.

5.3 Confirmatory Factor Analysis of the Nepali version of SSS-8

5.3.1 CFA process and outcomes

Descriptive statistics of N-SSS-8 showed very good reliability: Cronbach alpha was 0.802 (Cortina, 1993), which is equivalent to that found in a previous study by Gierk et al. (2014). The mean score of SSS-8 for the overall data was M = 11.90 (SD = 6.42). The static values of skewness and kurtosis were .603 and .440 with standard errors of .104 and 0.209 respectively.

Histograms, normal Q-Q plots, box plots, scatter plots, Mahalanobis' distances for the DVs and residuals further demonstrated that the data was normally distributed. Shapiro-Wilk and Kolmogorov Smirnov tests were done for all the items of SSS-8, and no serious deviations from

normality were found. The results derived from normality tests recommended proceeding with the CFA of N-SSS-8.

CFA for N-SSS-8 was run for a four-factor model as suggested by Gierk et al. (2014). The four-factor model of SSS-8 includes three items, SOM_2 (back pain), SOM_3 (pain in arms, legs, or joints) and SOM_4 (headaches) to represent pain; two items, SOM_5 (chest pain or shortness of breath) and SOM_6 (dizziness) to represent cardiopulmonary symptoms; two items, SOM_7 (feeling tired or having low energy) and SOM_8 (trouble sleeping) to represent fatigue; and a single item SOM_1 (stomach or bowel problems) to represent gastrointestinal symptoms (Gierk et al., 2014). A single item SOM_1 had only 0.55 factor loading with 0.28 error variance, which was minimal than the required factor loading. Therefore, SOM_1 could not be retained, and the CFA was conducted for three factor model without SOM_1. The combined measure is called SSS-8 and the measurement model is presented in Figure 4.

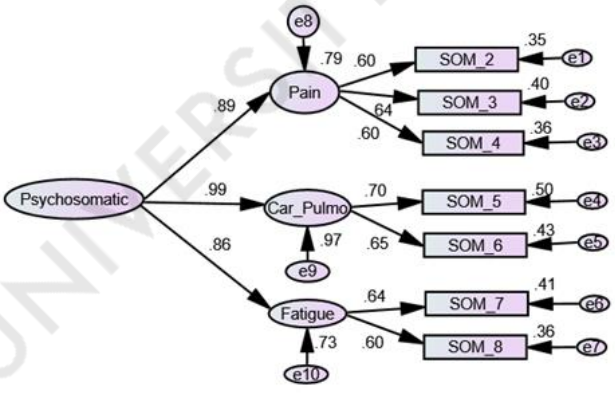

Figure 4. Confirmatory Factor Analysis of N-SSS-8 with Three - Factor Model

5.3.2 CFA Fit Indices of N-SSS-8

The overall model fit for the structural model of N-SSS-8 was examined using a set of variables for fit indices similar to that utilised for the measurement model of SSS-8. The model fit indices are presented below in Table 10.

Table 12. CFA Fit Indices for Three - Factor Structural Model of N-SSS-8 (N = 547, p <.001)

Model	CMIN/df	NFI	TLI	GFI	CFI	RMR	SMRs	RMSEA	P-Close	Hölter Kriterium
SSS-8	4.461	.922	.918	.965	.938	0.072	.0529	0.080	.005	245

Note. NFI = Normed-Fit Index, TLI = Tucker-Lewis Index, GFI = Goodness-of-Fit Index, CFI = Comparative-Fit Index, RMSR = Root mean square residuals, SMRs = Standardised root mean square residuals, RMSEA = Root mean square error of approximation, Hölter Kriterium for number of required sample with p = 0.01

A recursive model, with 28 distinct sample moments and 12 distinct parameters to be estimated was tested. The chi-square value of the default model was 71.379 with 16 degrees of freedom with a significant level of probability (p <.001). The measurement model of the current study shows an adequate model fit for the empirical data. The normed chi-square (CMIN/df) was measured as 3.699, which is an acceptable value. The values of NFI, TLI, GFI and CFI were all above .90, the required level. The values of RMSR, RMSR, and RMSEA were 0.071, 0.53 and 0.070 respectively, all values well the acceptable threshold of 0.08. In conclusion, the CFA analysis of N-SSS-8 was fit and supported by the data.

5.3.3 Factor Loading and Summary of Construct of Measurement Model of N-SSS-8

The construct related to gastrointestinal symptoms had only a single item by which measure the construct. The item, for gastrointestinal symptoms, was not used in the measurement model. A summary for all constructs is presented in Figure 5.

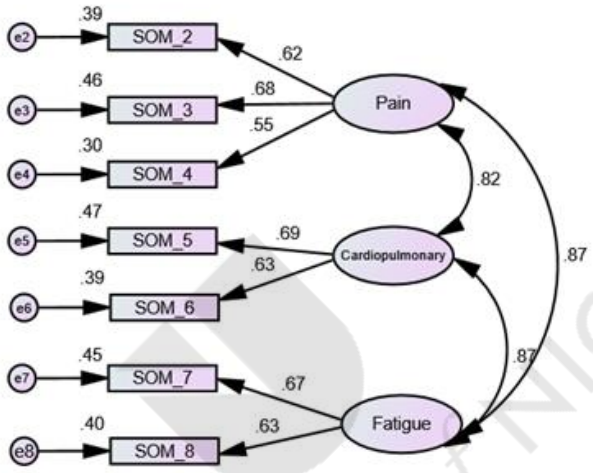

Figure 5. Measurement Model of N-SSS-8

The factor loading for all items of each construct was above .62 except one (item SOM_4). Positive and strong correlations (> 0.82) among the three measures were found. A summary of the fitness indices of the measurement model is presented in Table 11. All the fitness indices for the measurement model of N-SSS-8 achieved the required level.

Table 13. CFA Fit Indices for Three - factor Measurement Model of SSS-8 (N = 547)

Model	CMIN/df	NFI	TLI	GFI	CFI	RMR	SMRs	RMSEA	P-Close	Hölter Kriterium
SSS-8	3.456	.947	.942	.976	.961	0.048	. 0396	0.067	.078	329

Notes. NFI = Normed Fit Index, TLI = Tucker-Lewis-Index, GFI = Goodness-of-Fit-Index, CFI = Comparative Fit Index, RMSR = Root mean square residuals, SMRs = Standardized Root mean Square Residuals, RMSEA = Root mean square error of approximation, Hölter Kriterium for the number of required samples with p = 0.01

5.3.4 Unimodality, Validity and Reliability of N- SSS-8

Unimodality: To achieve unimodality, there should be acceptable factor loadings for all measuring items and acceptable loadings of items for respective latent variables. Each item with a low factor loading must be deleted. Unimodality has to be analysed before calculating and presenting the reliability and validity of any construct. Positive factor loadings of 0.50 or above are an acceptable level to demonstrate the unidimensionality of a scale. Figure 5 presented above shows positive factor loadings over 0.60 for each item of N-SSS-8 except SSS-1 were measured. Thus, it is acceptable to move on to calculate the reliability and validity of the scale.

Reliability: A summary of each construct and item with its factor loading, CR and AVE is presented below in Table 12.

Table 14. Factor Loadings and Reliability Scores of SSS-8 (N = 547)

Construct	Item	Factor loading	Cronbach alpha	CR	AVE
Pain	SOM_2	0.60	0.64	0.64	0.38
	SOM_3	0.64			
	SOM-4	0.60			
Cardio	SOM_5	0.70	0.60	0.63	0.45
	SOM_6	0.65			
Fatigue	SOM_7	0.64	0.60	0.55	0.38
	SOM_8	0.60			

Note. AVE = average variance extracted, CR = composite reliability

For construct reliability, CR vales should be greater than 0.6 and AVE values should be above 0.5. In addition, the Cronbach alpha (α) for each construct should be above 0.7. Thus, N-SSS-8 did not achieve scores demonstrating its reliability for each sub-scale. The overall reliability (α) of the construct, however, was 0.804, which is better than it was in previous studies. Gierk et al. (2015) measured α = 0.76 for SSS-8, and Toussaint, Kroenke, Baye, and Lourens (2017) found α = 0.72.

Validity: The validity of any instrument or measure is its ability, in a certain extent, to measure whatever it is supposed to measure. In any measurement model, three types of validity are measured through CFA. Convergent validity is achieved only when all the items in a measure are statistically significant. It can be verified if the value of the AVE for each item is 0.5 or above (Fornell, & Larcker, 1981). The AVE scores for all factors of N-SSS-8 are below 0.5 (see Table 13),

so the convergent validity of the tool was not achieved. That said, AVE scores probably did not reach acceptable levels because there were fewer than three items for each factor.

Table 15. Internal Reliability and Validity Indices of N-SSS-8 (N = 557)

Construct	AVE	CR	MSV	ASV
Pain	0.38	0.64	0.76	0.71
Cardio	0.46	0.63	0.76	0.71
Fatigue	0.38	0.55	0.76	0.76

Note. AVE = average variance extracted, CR = composite reliability, MSV = maximum shared variance, ASV = average shared variance, N/A = not applicable

Ping (2009) suggested that AVE scores below 0.50 AVE be considered if a study is being carried out for the first time. Construct validity is established when the fitness level of indices meets the acceptable criteria. The model fit indices of the measurement model are presented in Section 5.2.2. All the measures crossed the acceptable level of fit criteria (Awang, 2014). Hair, Black, Babin, Anderson, and Tatham (2005) claim that convergent validity can be explained and verified through computing and analysing the values of CR and AVE of each measure and that validity is achieved if the CR values of each construct are above 0.7 and if the AVE scores of each construct are above 0.5. The CR score for each measure should be greater than the AVE score (Hair, Black, Babin, & Anderson, 2013).

Discriminant validity is confirmed when both maximum shared variance (MSV) and average shared variance (ASV) are greater than AVE (Hair, Black, Babin, Anderson and Tatham, 2005; Hair, Black, Babin, & Anderson, 2013). The scores of AVE, ASV and MSV presented in Table 13

prove that MSV<AVE and that ASV<AVE; thus, the discriminant validity of the scale is confirmed. Discriminant validity can also be achieved in situations where the measurement model and all items of the model are free from redundancy (Ahmad, Zulkurnain, and Khairushalimi, 2016). Figure 5 in Section 5.2.3 demonstrates that there is no redundant item in the model, confirming its discriminant validity.

5.4 Confirmatory Factor Analysis of HSCL-25 Nepali version

The proposed hypothesised model of the Nepali version of HSCL-25 (N-HSCL-25) was tested by applying CFA. Two measures, anxiety and depression, with 10 and 15 items respectively, were drawn. The hypothetical model was expected to fit with the set of collected data. As done in previous studies, a two-factor model of HSCL-25 was applied (Skogen, Øverland, Smith, and Aarø, 2017; Ventevogel et al., 2007; Wind and Knipscheer, 2017). A measurement model with all the collected data for each item of the two measures was taken from the 25th version of SPSS AMOS software.

5.4.1 CFA and outcomes

Descriptive statistics of N-(HSCL-25 were calculated. The reliability scores of Cronbach alpha for anxiety and depression were 0.890 and 0.926 respectively. These are very good. The mean scores of anxiety and depression for all the data were M = 16.15 (SD = 5.15) and M = 23.16 (SD = 7.93). Field (2016) analyzed and suggested that Kolmogorov Smirnov and Shapiro-Wilk test results are only accurate for the smaller sample size studies. In large samples, the researcher has to analyse the normality based on the visual inspection of histograms, Q-Q plots, box plots, and interpretation of skewness and kurtosis scores. Histograms, normal Q-Q plots, box plots, scatter plots, Mahalanobis' distances for the DVs and residuals were reviewed. The skewness and kurtosis were tested for all the items of both the anxiety and depression measures. The kurtosis values of

depression were found slightly positively deviated. The quadratic Mahalanobis' distance (MD^2) was used to outline possible outliers. Some outliers were identified, but there were no major differences even after they were deleted. Therefore, the normality of the data was ensured.

CFA for N-HSL-25 was run for a two-factor model as was done in previous studies (Skogen, Øverland, Smith, and Aarø, 2017; Wind and Knipscheer, 2017). The two-factor model of HSCL-25 includes 10 items for anxiety and 15 items for depression. Details on the coding and items for each factor are presented below in Table 14.

Table 16. HSCL-25 Coding and Items

Factor	Code	Item
Anxiety	ANX_1	Suddenly scared for no reason
	ANX_2	Feeling fearful
	ANX_3	Faintness, dizziness or weakness
	ANX_4	Nervousness of shakiness inside
	ANX_5	Heart pounding or racing
	ANX_6	Trembling
	ANX_7	Feeling tense or keyed up
	ANX_8	Headaches
	ANX_9	Spells of terror or panic
	ANX_10	Feeling restless and can't sit still
Depression	DEP_1	Feeling low in energy, slowed down
	DEP_2	Blaming yourself for things
	DEP_3	Crying easily
	DEP_4	Decreased interest in sex/sexual desire
	DEP_5	Poor appetite
	DEP_6	Difficulty falling asleep, staying asleep
	DEP_7	Feeling helpless about the future
	DEP_8	Feeling blue
	DEP_9	Feeling lonely
	DEP_10	Thoughts of ending your life
	DEP_11	Feeling of being trapped or caught
	DEP_12	Worrying too much about things
	DEP_13	Feeling no interest in things
	DEP_14	Feeling everything is an effort
	DEP_15	Feeling of worthlessness

Gerbing and Anderson (1988) demonstrate that an exploratory analysis with item correlation and factor analysis is not sufficient to evaluate the unimodality of any measure. CFA, however, can assess both the model fit of a measurement model and unimodality. Hair et al. (2006) emphasise that

the model identification process in a SEM technique provides adequate pieces of information to offer a solution for a set of structural equations.

Byrne (2001) proposes checking the number of degree of freedom for any proposed measurement model. The hypothesised CFA of HSCL-25 output showed a total of 325 distinct sample moments identified from a sample covariance matrix. A of total of 78 parameters were found in the model. Of them, 27 were fixed and 51 free to be estimated. The degree of freedom was 274 with chi-square value of 1219.17. The model was over-identified, as the probability level of the data was non-significant. However, according to Heir at al. (2006), having an adequately large sample size influences the degree of freedom, and the proposed model can still be tested to determine the reliability of its results through fit indices.

While doing the analysis, the loading for one of the indicators in each measure is fixed to 1.0 so that the scale for Latent variables can be generated automatically in AMOS. The initial measurement model of HSCL-25 based on a two-factor combination, anxiety and depression, for CFA is presented below (Figure 6).

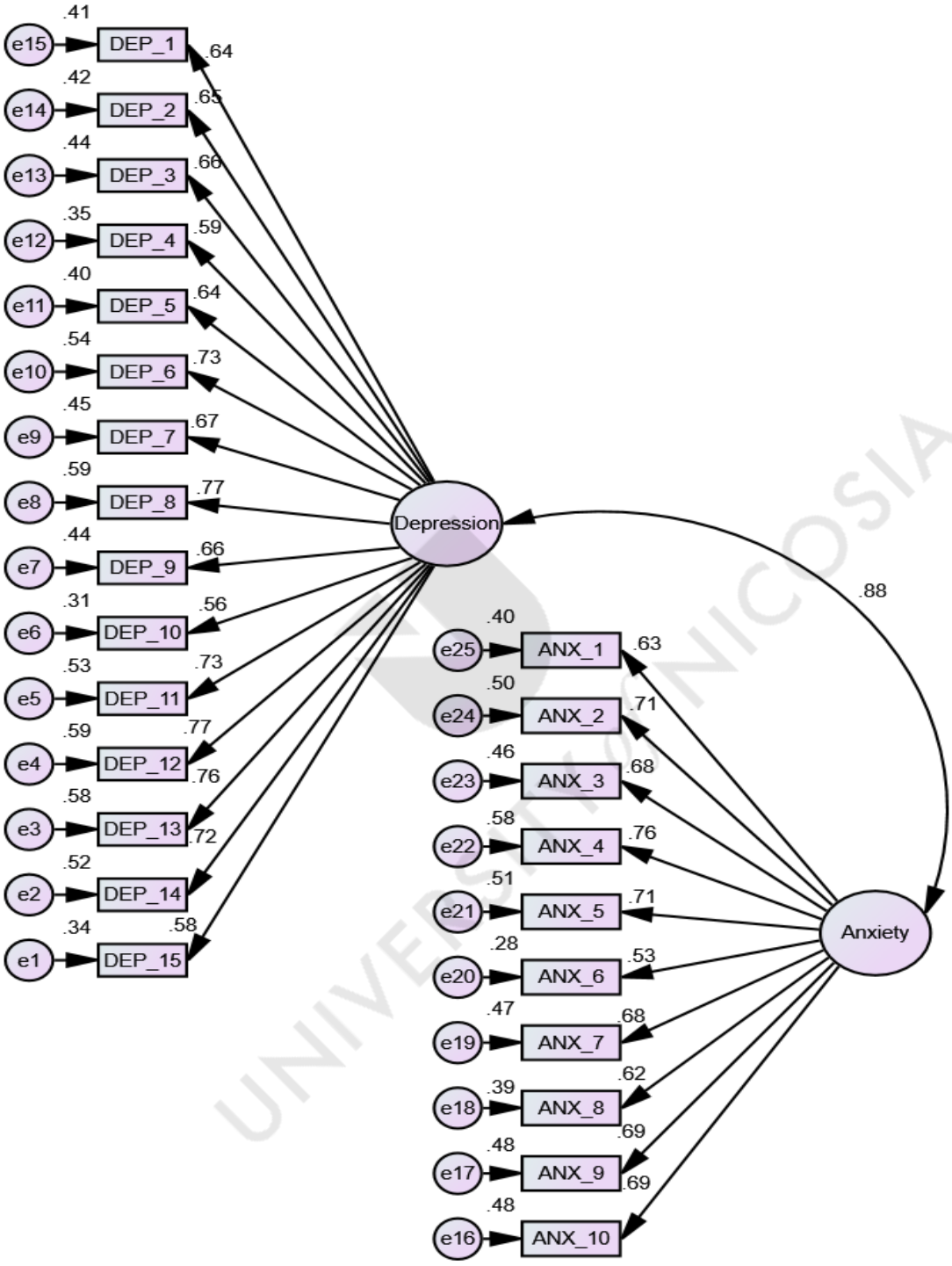

Figure 6. Initial Measurement Model for CFA of N-HSCL-25

The absolute goodness-of -fit measures of the HSCL-25 initial measurement model were acquired through analysis. They are presented in Table 15.

Table 17. Fit Indices from CFA with Two-Factor Model of N-HSCL-25 (N = 547, p <.001)

Model	CMIN/df	NFI	TLI	GFI	CFI	RMR	SMRs	RMSEA	P-Close	Hölter Kriterium
HSCL-25	4.450	.840	.859	.828	.871	0.029	.0538	0.079	.000	149

Note. NFI = Normed-Fit Index, TLI = Tucker-Lewis Index, GFI = Goodness-of-Fit Index, CFI = Comparative-Fit Index, RMSR = Root mean square residuals, SMRs = Standardised root mean square residuals, RMSEA = Root mean square error of approximation, Hölter Kriterium for number of required samples with p = 0.01

The fit indices for the measurement model should meet the minimum acceptable criteria based on the table prescribed by Ahmad, Zulkurnain, and Khairushalimi (2016) (see Table 3). The summary of fit indices for the initial measurement model of HSCL-25 of the current study, including CMIN/df, NFI, TLI, GFI, and CFI, did not yield an adequate model fit for the given empirical data. The p-value for the chi-square score was 1219.17, which is non-significant for the given empirical data to justify the observed covariance matrix with the estimated covariance matrix. The model fit indices presented above also have to be investigated based on the sensitivity of the sample size to the chi-square statistical test (Bergh, 2015).

Besides the sample size issues, the factor loading of each item has to be examined to understand the best fit of the model with the given data. The factor loadings for all the items of each construct were above .63 except for two items measuring anxiety (i.e. ANX_6, and ANX_8) and three measuring depression (DEP_4, DEP_10, and DEP_15). The values of squared multiple

correlations (R^2) for the items were above 0.4 except for two items measuring anxiety (ANX_6, and ANX_8) and three items measuring depression (DEP_4, DEP_10, and DEP_15). Awang (2012) recommends omitting any item having a factor loading value less than 0.6 and a R^2 value less than 0.4 from the measurement model.

5.4.2 Post-Hoc Analysis of CFA for N-HSCL-25

The post-hoc analysis of the measurement model of HSCL-25 with two items of anxiety and three items of depression omitted was carried out. From the parameter summary obtained from AMOS results for the default model, 210 sample moments of parameters were drawn. Of them, 44 distinct parameters were free to be estimated. The degree of freedom was measured as 166. The chi-square value was 499.20 with $p < .001$. Again, the given empirical data could not justify the observed covariance matrix with the estimated covariance matrix, a result common in studies with large sample sizes. Therefore, the proposed model can still be tested to observe the reliability of the results through fit indices (Byrne, 2001). The measurement model of the HSCL-25 with the post-hoc CFA test is presented in Figure 7.

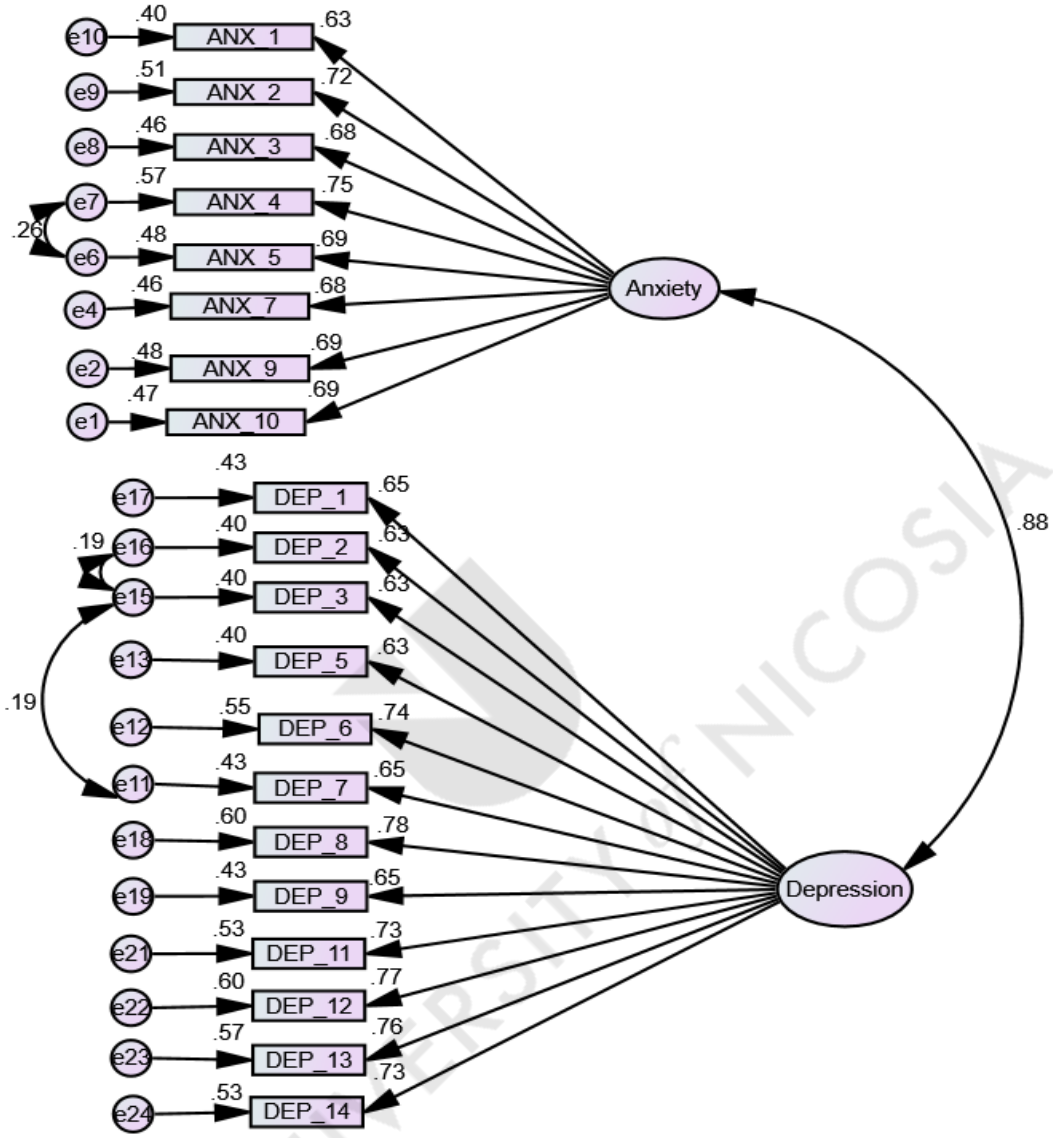

Figure 7. Post-Hoc Test of Measurement Model for CFA of N-HSCL-25

5.4.3 Goodness-of-Fit Results for the CFA of N-HSCL-20

The post-hoc analysis of CFA for HSCL-25 requires that all the items of both the anxiety and depression measures have factor loading values over .63. The value of R^2 from the measurement model was over .40 for each item. The correlation between anxiety and depression was measured as

strong and positive, with a correlation coefficient value of .88. Three items of depression, DEP_2, DEP_3, and DEP_7, were redundant, as were two items of anxiety, ANX_4 and ANX_5. There are three redundant values for interrelationships for redundant items. They are presented in Figure 7. After these adjustments, the goodness-of-fit indices for the post-hoc CFA test for N-HSCL-20 Nepali were calculated and presented in Table 16.

Table 18. Fit Indices from CFA with Two-Factor Model of N-HSCL-20 (N = 547, p <.001)

Model	CMIN/df	NFI	TLI	GFI	CFI	RMR	SMRs	RMSEA	P-Close	Hölter Kriterium
HSCL-20	3.007	.916	.934	.914	.942	0.020	.0374	0.061	.002	232

Notes. NFI = Normed-Fit Index, TLI = Tucker-Lewis Index, GFI = Goodness-of-Fit Index, CFI = Comparative-Fit Index, RMSR = Root mean square residuals, SMRs = Standardised root mean square residuals, RMSEA = Root mean square error of approximation, Hölter Kriterium for number of required samples with p = 0.01

The fit indices of CFA for the measurement model of HSCL-25 were good fit scores for absolute fit indices (RMSEA, GFI, etc.), incremental fit indices (NFI, TLI, CFI, RMR, SMRs, etc.) and parsimonious fit indices (CMIN/df) s prescribed in Table 9. Fit indices scores for SMRs, RMR, and RMSEA were less than 0.08, and the scores of NFI, TLI, AGFI, and CFI were above .90. The fit indices scores presented are statistically justifiable to accept the model fit (Ahmad, Zulkurnain, & Khairushalimi, 2016; Ockey & Choi, 2015; Hu & Bentler, 1999).

5.4.4 Unimodality, Validity and Reliability of N-HSCL-20

Unimodality: To confirm the unimodality of any scale, factor loading values must be above 0.5 and positive for each item. As Table 16 shows, all items of each construct meet these criteria.

Thus, the unimodality of the anxiety and depression measures of N-HSCL-20 Nepali is confirmed, and further exploration of their reliability and validity is recommended.

Reliability: A summary of each construct and item with its factor loading, reliability coefficient (Cronbach alpha), CR, and AVE is presented below (Table 17). To achieve construct reliability, the values of CR and AVE should be greater than 0.6 and 0.5 respectively. The AVE scores for anxiety and depression measures were 0.479 and 0.488 respectively. Fornell and Larcker (1981) advise considering scores slightly below 0.5 AVE when the CR vales are above 0.60. In this case, the CR values for anxiety and depression measures were far better than 0.60: they were 0.880 and .919 respectively.

Table 19. Factor Loadings and Reliability Scores of HSCL-20 (N = 547)

Construct	Item	Factor loading	Cronbach alpha	CR	AVE
Anxiety	ANX_1	0.63	0.880	0.880	0.479
	ANX_2	0.72			
	ANX_3	0.68			
	ANX_4	0.75			
	ANX_5	0.69			
	ANX_7	0.68			
	ANX_9	0.69			
	ANX_10	0.69			
Depression	DEP_1	0.65	0.919	0.919	0.488
	DEP_2	0.63			
	DEP_3	0.63			
	DEP_5	0.63			
	DEP_6	0.74			
	DEP_7	0.65			
	DEP_8	0.78			
	DEP_9	0.65			
	DEP_11	0.73			
	DEP_12	0.77			
	DEP_13	0.76			
	DEP_14	0.73			

Note. AVE = average variance extracted, CR = composite reliability

The internal consistency of HSCL-20 was measured through a reliability coefficient, Cronbach alpha (α), whose value for the overall construct was .944. Similarly, the reliability score

for each construct was measured; each should be above 0.7. The Cronbach alpha (α) score of HSCL-25 for anxiety was 0.880 (p = 0.05) and that for depression was .919 (p = 0.05). The internal consistency for the anxiety and depression sub-scales of HSCL-20 is in line with the previous studies done in Nepal (Thapa & Hauff, 2005). After evaluating all reliability measures, the reliability of the HSCL-20 scale with two subscales, anxiety and depression, was confirmed.

Validity: As explained in Section 5.3.4, convergent validity is achieved when all the items of a scale are statistically significant. The analysis results did show statistically significant results for all the items of both subscales, i.e. anxiety and depression, but the AVE scores were slightly below the prescribed threshold of 0.5 (see Table 18). Some researchers, such as Fornell and Larcker (1981) and Ping (2009), recommend accepting AVE scores slightly below 0.5 when CR is above 0.60 or when a study is done for the first time in the studied population in a given context.

Table 20. Internal Reliability and Validity Indices of HSCL-25 (N = 557)

Construct	AVE	CR	MSV	ASV
Anxiety	0.479	0.880	0.96	0.78
Depression	0.488	0.919	0.79	0.86

Note. AVE = average variance extracted, CR = composite reliability, MSV = maximum shared variance, ASV = average shared variance

Construct validity is established when the fitness level of indices meets the acceptable criteria. The model fit indices of the measurement model of HSCL-20 met all the recommended fit indices (Awang, 2012), as presented in Table 16. As recommended by Hair, Black, Babin, Anderson, and Tatham (2005), the convergent validity can be explained and verified through

computing and analysing the values of CR and AVE of each measure. The values of CR of each construct should be above 0.7 and the CR score for each measure should be greater than its AVE score (Hair, Black, Babin, & Anderson, 2013). Discriminant validity is confirmed when both MSV and ASV are greater than AVE (Hair, Black, Babin, Anderson and Tatham, 2005; Hair, Black, Babin, & Anderson, 2013). The scores of AVE, ASV and MSV presented in Table 17 show that, for HSCL-20, MSV<AVE and ASV<AVE; thus, the discriminant validity of the scale is confirmed.

5.5 Confirmatory Factor Analysis of the Nepali version of ProQOL-5

5.5.1 CFA process and outcomes

Before conducting CFA for the Nepali version of ProQOL-5 (N-ProQOL-5), descriptive statistics were calculated. Reliability scores for BO, STS, and CS were measured as 0.693, 0.766, and 0.861 respectively. The overall means and standard deviations were BO (M = 31.52, SD = 4.55), STS (M = 27.92, SD = 6.50) and CS (M = 54.03, SD = 8.38). Histograms, normal Q-Q plots, box plots, scatter plots, Mahalanobis' distances for the DVs and residuals were tested. The normality of the data was tested by evaluating the skewness and kurtosis of all the items of ProQOL-5. No serious deviations from normality were observed.

CFA for N-ProQOL-5 was run for the three-factor model suggested by the authors of ProQOL-5 and used in other studies (Duarte, 2017; Samson, Iecovich, & Shvartzman, 2016; Stamm, 2010). The three-factor model of PRoQOL-5 includes 10 items each for BO, STS, and CS. The details on the coding and items for each factor are presented below in Table 19.

Table 21. Items and Coding of ProQOL-5

Factor	Code	Item
Burnout	PROQOL_1	I am happy
	PROQOL_4	I feel connected to others
	PROQOL_8	I am not as productive at work because I am losing sleep over traumatic experiences of a person I [help]
	PROQOL_10	I feel trapped by my job as a [helper]
	PROQOL_15	I have beliefs that sustain me
	PROQOL_17	I am the person I always wanted to be
	PROQOL_19	I feel worn out because of my work as a [helper]
	PROQOL_21	I feel overwhelmed because my case [work] load seems endless
	PROQOL_26	I feel "bogged down" by the system
	PROQOL_29	I am a very caring person
Secondary Traumatic Stress	PROQOL_2	I am preoccupied with more than one person I [help]
	PROQOL_5	I jump or am startled by unexpected sounds.
	PROQOL_7	I find it difficult to separate my personal life from my life as a [helper]
	PROQOL_9	I think that I might have been affected by the traumatic stress of those I [help]
	PROQOL_11	Because of my [helping], I have felt "on edge" about various things
	PROQOL_13	I feel depressed because of the traumatic experiences of the people I [help]
	PROQOL_14	I feel as though I am experiencing the trauma of someone I have [helped].
	PROQOL_23	I avoid certain activities or situations because they remind me of frightening experiences of the people I [help].
	PROQOL_25	As a result of my [helping], I have intrusive, frightening thoughts
	PROQOL_28	I can't recall important parts of my work with trauma victims.
Compassion Satisfaction	PROQOL_3	I get satisfaction from being able to [help] people.
	PROQOL_6	I jump or am startled by unexpected sounds.
	PROQOL_12	I like my work as a [helper]
	PROQOL_16	I am pleased with how I am able to keep up with [helping] techniques and protocols
	PROQOL_18	My work makes me feel satisfied
	PROQOL_20	I have happy thoughts and feelings about those I [help] and how I could help them.
	PROQOL_22	I believe I can make a difference through my work.
	PROQOL_24	I am proud of what I can do to [help].
	PROQOL_27	I have thoughts that I am a "success" as a [helper].
	PROQOL_30	I am happy that I chose to do this work.

The hypothesised CFA of N-ProQOL-5 was carried out, and a total of 465 distinct sample moments from a sample covariance matrix were identified. Of them, 96 parameters were found in the model, 36 fixed and 60 free to be estimated. The degree of freedom was 405 and the chi-square value was 4510.55. The model was over-identified, as the probability level of the data was non-significant. According to Heir at al. (2006), adequately large sample sizes influence the degree of freedom; therefore, the proposed model can still be tested to observe the reliability of its results through fit indices. While doing the analysis, the loading for one of the indicators in each measure was fixed to 1.0 so that the scale for latent variables could be generated automatically in AMOS. The initial measurement model of ProQOL-5 with three factor combinations, BO, STS and CO, for CFA is presented below (Figure 8).

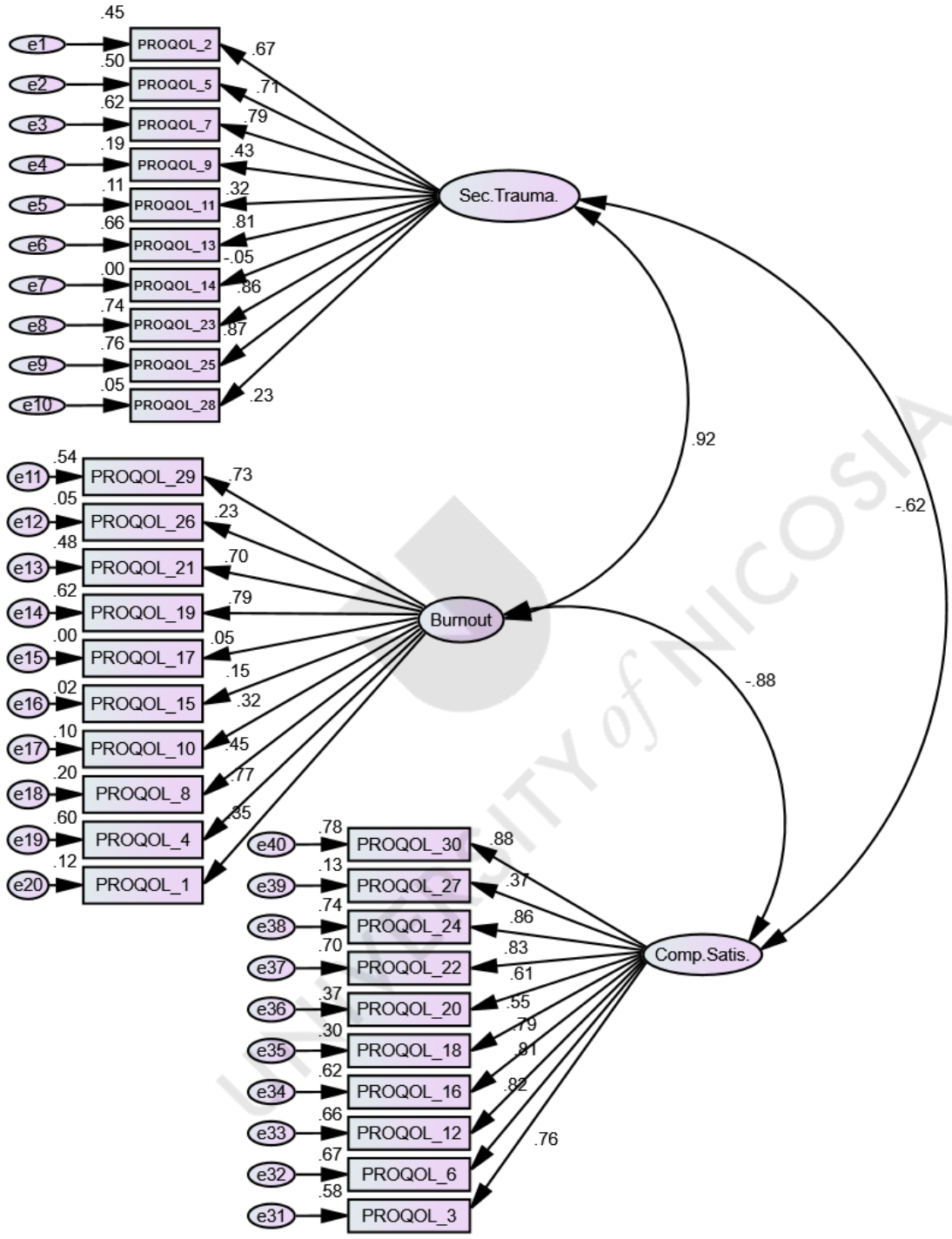

Figure 8. Initial Measurement Model for CFA of N-ProQOL-5

The fit indices of the measurement model of ProQOL-5 were obtained. They are presented in Table 20.

Table 22. Fit Indices from CFA with Three-Factor Model of N-ProQOL-5 (N = 547, p <.001)

Model	CMIN/df	NFI	TLI	GFI	CFI	RMR	SMRs	RMSEA	P-Close	Hölter Kriterium
ProQOL-5-N	11.137	.457	.440	.543	.479	0.449	.228	0.136	.000	58

Notes. NFI = Normed-Fit Index, TLI = Tucker-Lewis Index, GFI = Goodness-of-Fit Index, CFI = Comparative-Fit Index, RMSR = Root mean square residuals, SMRs = Standardised root mean square residuals, RMSEA = Root mean square error of approximation, Hölter Kriterium for number of required samples with p = 0.01

The proposed measurement model of N-ProQOL-5 could not be justified for various reasons. None of the fit indices were found at the acceptable and recommended thresholds. The factor loading of many items was less than 0.5 when, ideally, it should be around 0.7. The squared multiple correlations (R^2) were also less than 0.4 for many items. Therefore, the CFA of the proposed model for N-ProQOL-5 could not be justified as proposed.

The problem with the psychometric properties and factor loadings for BO and STS of the ProQOL-5 is not unique. Indeed, has been widely reported by other researchers in their validation studies (Galiana, Arena, Oliver, Sansó, & Benito, 2017; Samson, Iecovich, & Shvartzman, 2016; Shen, Yu, Zhang, & Jiang, 2015). Hemsworth, Baregheh, Aoun, and Kazanjian, (2018) removed the BO measure from CFA and suggested using alternative tool to screen BO symptomology. After reviewing the literature, a post-hoc CFA was conducted after taking out the BO-related items and

items of CS with poor factor loadings. The post-hoc CFA for STS and CS is presented in the next section.

5.5.2 Post-Hoc Analysis of CFA for STS and CS measures of N-ProQOL-5

The post-hoc CFA for the measurement model of N-ProQOL-5 without any BO items was carried out. From the parameter summary obtained from AMOS results for the default model, a total of 55 sample moments of parameters were drawn. Of them, 21 distinct parameters were free to be estimated. The degree of freedom was measured as 34. The chi-square value was 106.50 with a probability level of $p < .001$. Again, the given empirical data could not justify the observed covariance matrix with the estimated covariance matrix, a result which is often be the case with a study having a large sample size. The proposed model is presented in Figure 9 below.

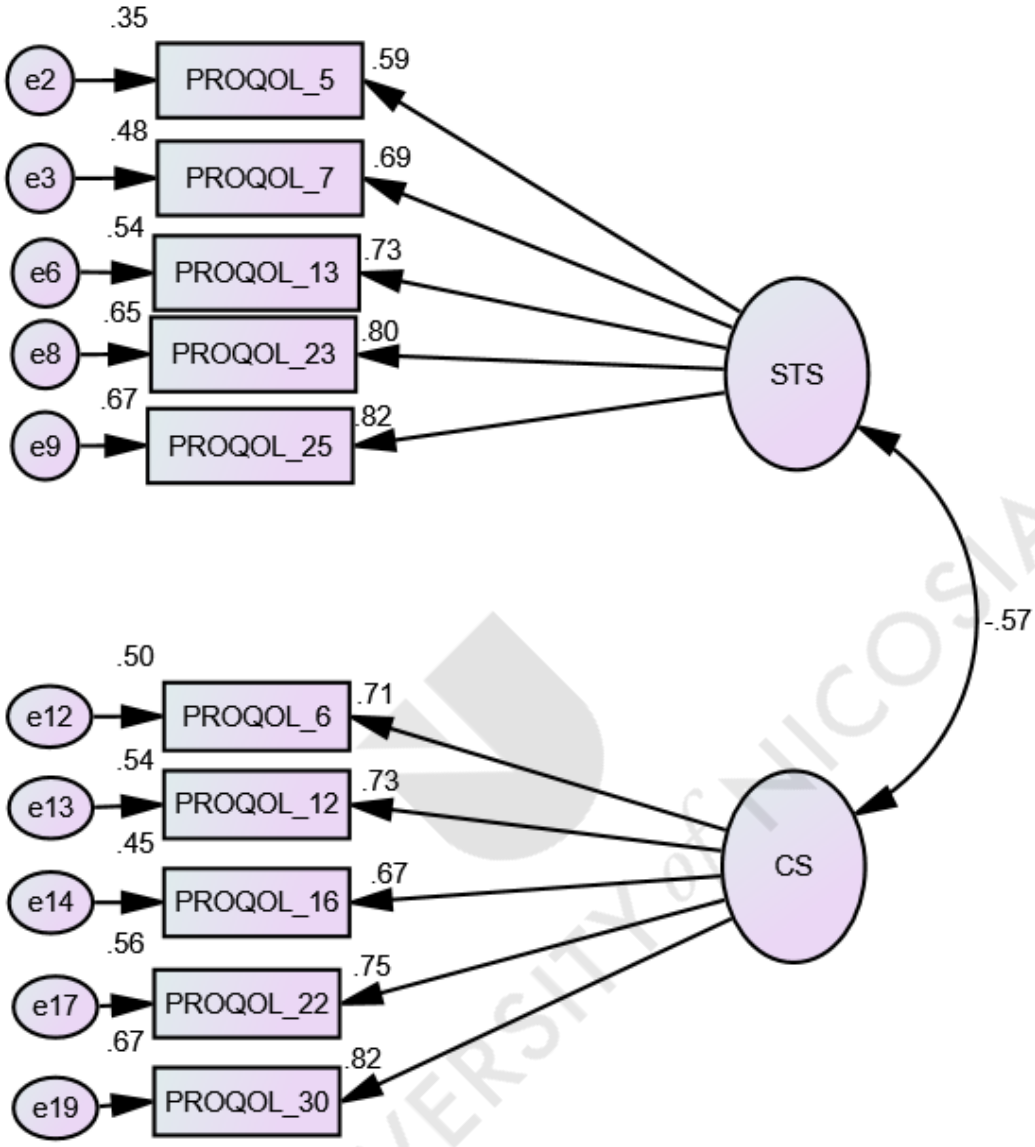

Figure 9. Measurement Model for STS and CS measures of N-ProQOL-5

5.5.3 Goodness-of-Fit Results for CFA of STS and CS scales of N-ProQOL-5

The post-hoc analysis of CFA for the STS and CS scales of N-ProQOL-5 found that all the items of both STS and CS have factor loadings over .59. The values of R^2 from the measurement model were over .40 for all items except one (see details in Figure 9). The correlation between STS and CS was measured as moderately strong, with a positive correlation coefficient value of .57.

The negative correlation between the items of the two measures, as the theory propounds, clearly demonstrates that the negative impacts of STS can be reduced with high CS. The negative correlations between STS and CS were stronger than in similar studies conducted previously (Duarte, 2017). The goodness-of-fit indices for the post-hoc CFA test for the STS and CS scales of N-ProQOL-5 were calculated. They are presented in Table 21.

Table 23. CFA Goodness-of -Fit of STS and CS scale of ProQOL-5 (N = 547, p <.001)

Model	CMIN/df	NFI	TLI	GFI	CFI	RMR	SMRs	RMSEA	P-Close	Hölter Kriterium
ProQOL-5-N	3.133	.956	.960	.959	.970	0.064	.0469	0.062	.059	288

Note. NFI = Normed-Fit Index, TLI = Tucker-Lewis Index, GFI = Goodness-of-Fit Index, CFI = Comparative-Fit Index, RMSR = Root mean square residuals, SMRs = Standardised root mean square residuals, RMSEA = Root mean square error of approximation, Hölter Kriterium for number of required samples with p = 0.01

The fit indices of CFA for the measurement model of N-ProQOL-5 without BO and adjusted items of STS and CS produces good fit scores of absolute fit indices (RMSEA, GFI, etc.), incremental fit indices (NFI, TLI, CFI, RMR, SMRs, etc.) and parsimonious fit indices (CMIN/df). These indices are presented in Table21. Fit indices scores for SMRs, RMR, and RMSEA measured less than 0.08, and the scores for NFI, TLI, AGFI, and CFI were above .90. The fit indices scores presented are statistically justifiable to accept the model fit for this CFA (Hu & Bentler, 1999; Ahmad, Zulkurnain, & Khairushalimi, 2016; Ockey & Choi, 2015).

5.5.4 Unimodality, Validity and Reliability of the STS and CS measures of N-ProQOL-5

Unimodality. The proposed STS and CS measures of N-ProQOL-5 Nepali version without BO represent unimodality because the factor loading of every item for both measures is above 0.5.

Reliability. The reliability coefficient (Cronbach alpha), CR, AVE, and factor loading of each item are presented in Table 17. CR values for STS and CS measures were 0.850 and .856 respectively. The Cronbach alpha (α) score for STS was 0. 855 (p = 0.05), and that for CS, 0.852 (p = 0.05). The reliability scores for STS and CS were better than those of previous studies (Duarte, 2017; Stamm, 2010). The reliability analysis of the STS and CS measures of N-ProQOL-5 was met.

Table 24. Factor Loadings, Reliability and Validity of STS and CS measures (N = 547)

Construct	Item	Factor loading	Cronbach alpha	CR	AVE
Secondary Traumatic Stress (STS)	PROQOL-5	0.59	0.855	0.850	0.534
	PROQOL-7	0.69			
	PROQOL-13	0.73			
	PROQOL-23	0.80			
	PROQOL-25	0.82			
Compassion Satisfaction (CS)	PROQOL-6	0.71	.852	0.856	0.544
	PROQOL-12	0.73			
	PROQOL-16	0.67			
	PROQOL-22	0.75			
	PROQOL-30	0.82			

Note. AVE = average variance extracted, CR = composite reliability

Validity. The convergent validity of the STS and CS measures of N-ProQOL-5 was analysed. The AVS scores of STS and CS, 0.534 and 0.544 respectively, were above 0.5. No discriminant

validity was explored, as STS and CS, were negatively correlated. As a result, the validity of the STS and CS measures of N-ProQOL-5 was established.

5.6 Summary

In this chapter, the CFAs of SSS-8, HSCL-25, and ProQOL-5 were presented. The measurement model and fit indices of each tool were discussed in-depth and the outcomes of the fit indices described. The validity and reliability of each tool in the Nepali language were discussed and presented. The tools finalised through the CFA process were then integrated into a structural model and the hypothesis of the study was tested.

Chapter 6 Results: Structural Model of Personal and Professional Distress

"Conflict between work and personal life is a key risk factor for mental health problems in doctors."
—Society of Occupational Medicine, U.K.

6.1 Introduction

In Chapter Five, CFA was applied to determine the model fit of SSS-8, HSCL-25 and ProQOL-5 measures. Measurement models for the three measures were tested and the necessary reliability and validity verified. Once all the measures of personal and professional distress were verified through CFA, the model was tested in SEM to explore the proposed hypothesis testing purpose. This chapter outlines the SEM and model fit testing of the personal and professional distress of the studied population. AMOS software was used to measure the model fit. The results of the fit indices of the proposed and adjusted models are also presented. Last, the impact of the professional distress measures on the personal distress of Nepali doctors was tested. To do so, path analysis, regression weights, covariances and standard errors were tested. They are presented below.

6.2 Structural Equation Model of Personal and Professional Distress

An SEM of personal and professional distress was created. The latent factors were ProQOL to represent professional distress and a combination of anxiety, depression and psychosomatic burden to represent personal distress. The BO measures of ProQOL could not be justified through CFA and were removed from the SEM. STS and CS were taken as exogenous variables, and anxiety, depression and psychosomatic burden were taken as endogenous variables. Each measure contains a residual error.

Using AMOS, a path analysis was drawn for multivariate analysis. The measurement model of psychosomatic burden contains three factors (pain, cardiopulmonary, fatigue) and was adjusted

accordingly in the structural model. STS and CS were assumed to have an effect on personal distress (anxiety, depression and psychosomatic burden). The relationships among the measures of professional and personal distress were tested through the SEM. The SEM drawn as per the CFA outcomes of SSS-8, HSCL-25, and ProQOL-5 is presented in Figure 10. It is the initial model used to test the model fit for the proposed theoretical model.

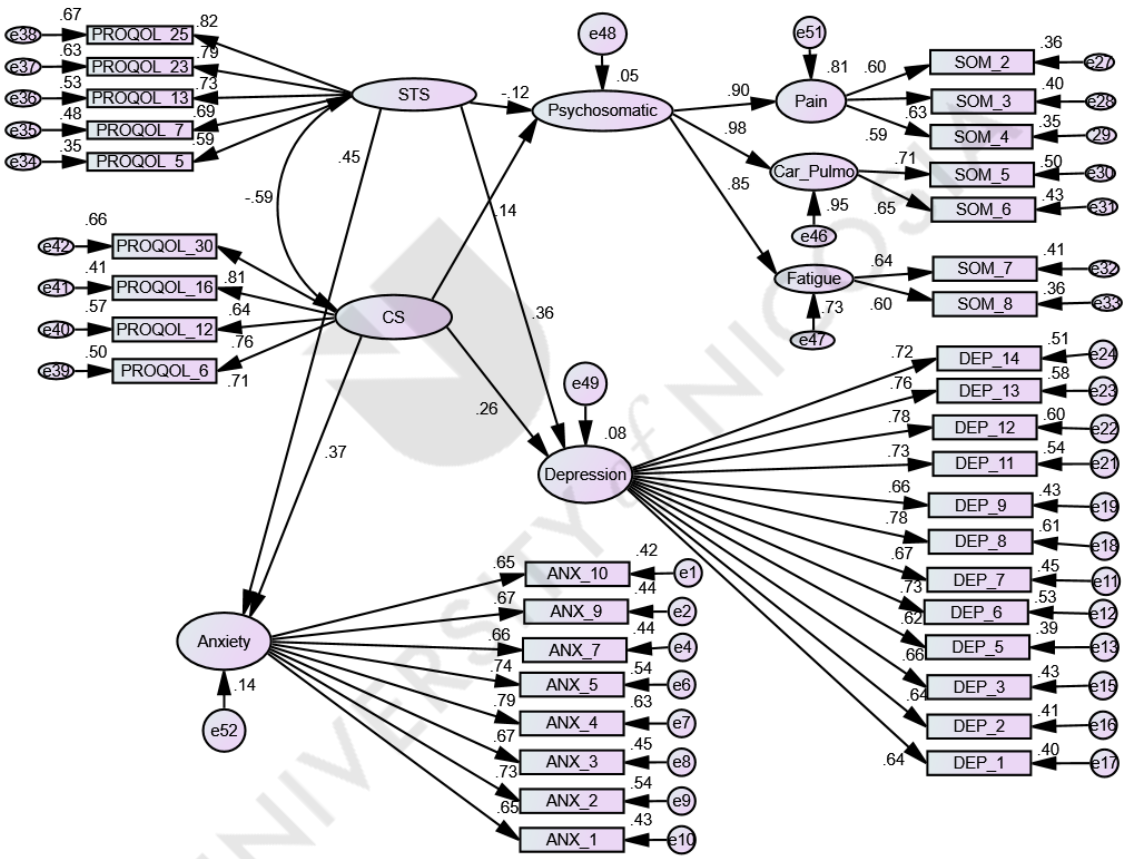

Figure 10. Initial Model of SEM for Measures of ProQOL and Personal Distress.

CS = compassion satisfaction, STS = secondary traumatic stress, DEP = depression, ANX = anxiety, SOM = psychosomatic

The model outlined a total of 86 endogenous variables, 36 of which were observed and 50 of which were not, as well as 44 exogenous. The outcome of the test in AMOS outlined 666 distinct sample moments and 77 estimated parameters. The degree of freedom was 589. The overall fit indices of the initial model are presented in Table 23.

Table 25. Fit indices of Initial Model of ProQOL and Personal Distress (N = 547, p <.001)

Model	CMIN/df	NFI	TLI	GFI	CFI	RMR	SMRs	RMSEA	P-Close	Hölter Kriterium
Initial Model	3.104	.809	.852	.849	.862	0.096	.1545	.062	.840	277

Note. NFI = Normed-Fit Index, TLI = Tucker-Lewis Index, GFI = Goodness-of-Fit Index, CFI = Comparative-Fit Index, RMSR = Root mean square residuals, SMRs = Standardised root mean square residuals, RMSEA = Root mean square error of approximation, Hölter Kriterium for number of required samples with p = 0.01

The initial model had a poor fit. The fit indices values for the default model were, χ^2 = 1828.274, χ^2/df = 3.104, TLI = .852, GFI = .849, CFI = .862, and RMSEA = 0.062. The chi- square value and a few other indices were within the parameters of the recommended values. However, the fit indices for TLI, GFI, and CFI were lower than the recommended cut-off values (Hu & Bentler, 1999). Therefore, the model was modified using a maximum likelihood method for diffeent indices. These modificaiton were carried out in the next phase. The results are presented in the section below on the final model.

6.3 Final Structural Model

The final structural model of personal and professional distress was a modification of the model in Figure 10. It had a total of 139 parameters, out of which 55 were fixed and 84 were

unlabeled. Eight co-variances and 44 variances were measured, and 84 variables, 44 exogenous and 42 endogenous, were outlined. A total of 666 distinct sample moments with 84 distinct parameters to estimate and 582 degrees of freedom were examined. The final model is presented in Figure 11.

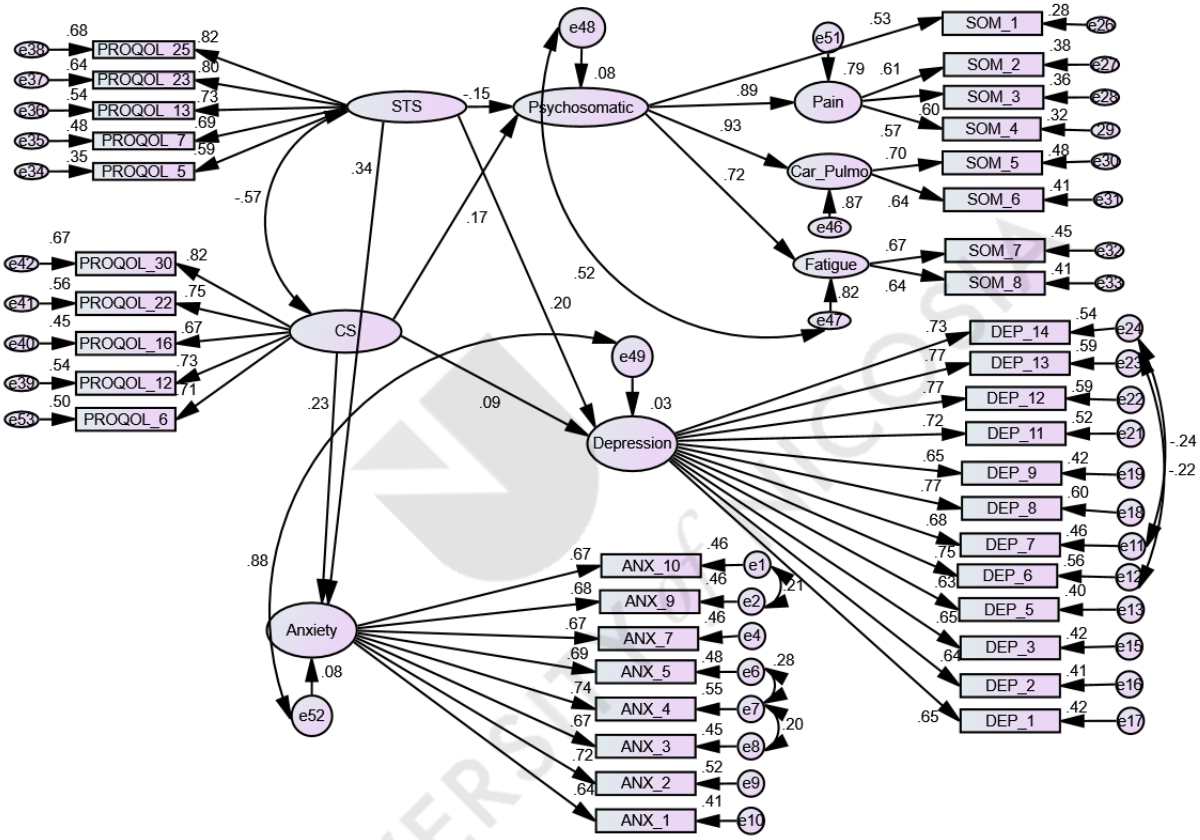

Figure 11. Final Model of SEM for Measures of ProQOL and Personal Distress.
CS = compassion satisfaction, STS = secondary traumatic stress, DEP = depression, ANX = anxiety, SOM = psychosomatic burden

The goodness-of-fit statistics for the final model (Figure 11) revealed that the error variance between and among some of the items and variables had a significant impact on the model for the best fit. Therefore, the error variances between DEP_6 and DEP_13, and DEP_7 and DEP_14 were covaried. Similarly, ANX-3 and ANX_4, ANX_4 and ANX_5, and ANX_9 and ANX_10 were

covaried and adjusted. The chi-square value of the model was 1191.007, and its degree of freedom measured 582. After necessary adjustments in the modified indices, the goodness-of-fit indices in the final structural model were analysed. They are presented in Table 24.

Table 26. Final Model Fit Indices for Professional and Personal Distress (N = 547, p <.001)

Model	CMIN/ df	NFI	TLI	GFI	CFI	RMR	SMRs	RMSEA	P-Close	Hölter Kriterium
Final Model	2.046	.876	.926	.888	.932	0.052	.0570	.044	0.998	305

Note. NFI = Normed Fit Index, TLI = Tucker-Lewis-Index, GFI = Goodness-of-Fit-Index, CFI = Comparative Fit Index, RMSR = Root mean square residuals, SMRs = Standardized Root mean Square Residuals, RMSEA = Root mean square error of approximation, Hölter Kriterium for number of required sample with p = 0.01

The indices presented above and obtained from the analysis of the final structural model of the study have the following values: $\chi 2 = 1191.007$, $\chi 2/df = 2.046$, TLI = .926, GFI = .888, CFI = .932 and RMSEA = 0.440. Schumacker & Lomax (2004) demonstrated that chi-square values are inflated in studies with a large sample size and therefore create statistically significant chi-square results. As postulated, the test results of the final SEM show significant values of chi-square scores (p <001). The values of GFI and NFI were below the cut-off scores of .90. This model is the most optimal model for representing the professional and personal distress of Nepali doctors with the given data.

6.4 Influence of Professional Distress on Personal Distress

The influence of professional distress measures on personal distress measures was tested through path analysis. The direct effect of STS and CS on psychosomatic, depression, and anxiety

are presented below. See Figure 12 and Table 25 for the statistics and explanations of the influence of professional distress measures on personal distress measures.

As expected, STS has a positive significant effect on depression and anxiety. The influence of STS on depression was measured at $r = 0.20$, $R^2 = 0.027$, $p < 0.001$, while the influence of STS on anxiety was measured as $r = 0.34$, $R^2 = 0.079$, $p < 0.001$. However, the influence of STS on psychosomatic burden was measured as negative but significant: $r = -0.15$, $R^2 = 0.079$, $p = 0.028$. The indirect effects on psychosomatic burden and other factors that can account for the negative effect of STS on psychosomatic burden are unknown, but the outcome did not support the theoretical concepts of correlation between STS and psychosomatic burden. The total variance (R^2) for psychosomatic burden was only 8%.

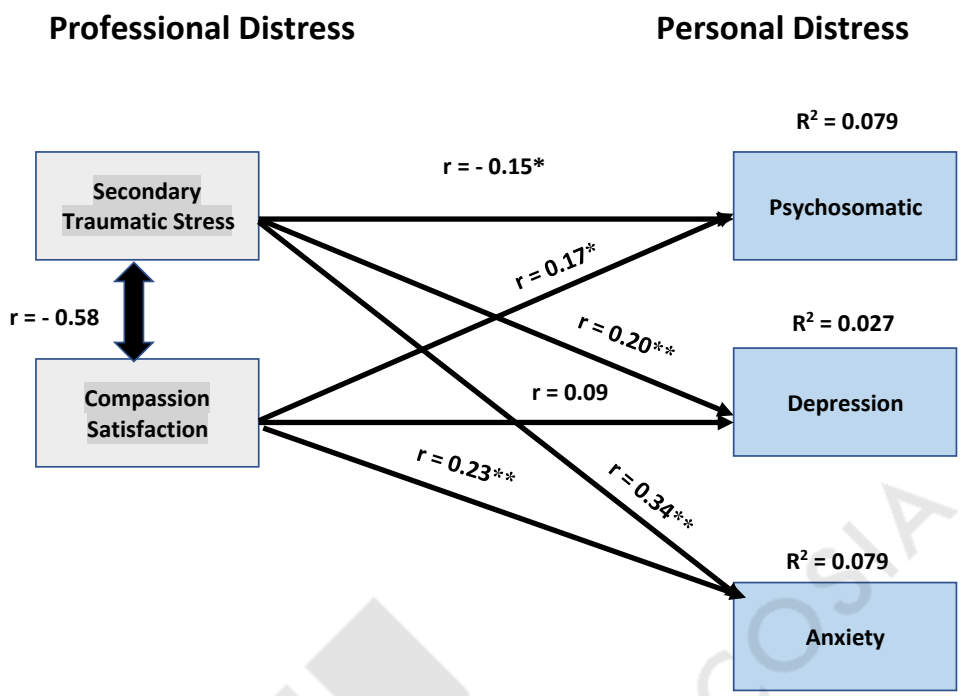

Figure 12. Path Diagram of the Influence of Professional Distress on Personal Distress
r = effect or correlation coefficient, R^2 = variance, * = p <.05, ** = p <.001

Psychosomatic burden and anxiety were directly and significantly affected by CS but the impact of CS on depression, while positive, was insignificant. CS has been perceived and measured as a moderator of distress, so the significant and positive effects of CS on anxiety and psychosomatic were unexpected. The positive effect of CS on depression was also unexpected. Therefore, the hypothesis of a negative and significant effect of CS on personal distress could not be justified. The estimation of regression weights and significant estimates of various measures of personal and professional distress are presented in Table 25.

Table 27. Estimation of regression weights and significant estimates for different measures

Constructs*	Estimate	S.E.	C.R.	p
Psychosomatic <--- CS	.117	.049	2.394	0.017
Psychosomatic <--- STS	- .072	.033	- 2.196	0.028
Depression <--- CS	.074	.051	1.445	0.148
Depression <--- STS	.115	.035	3.281	0.001
Anxiety <--- CS	.163	.047	3.501	<.001
Anxiety <--- STS	.164	.032	5.176	<.001

Note. *Constructs are represented by: CS = compassion satisfaction, STS = secondary traumatic stress, psychosomatic burden, depression, and anxiety

6.5 Summary

In this chapter, a structural model of professional distress (STS and CS measures) was tested with personal distress (psychosomatic, depression and anxiety measures). The model fit indices for the final model, after making necessary adjustments in the initial model, showed a moderate level of fit. The effect of STS and CS on personal distress measures was tested. The result was that STS has a significant and positive influence on the anxiety and depression of the studied population. However, the relationships between STS and psychosomatic burden were opposite and did not support theoretical concepts. The influence of CS on depression was insignificant. Though CS did have a significant influence on psychosomatic burden and anxiety, it was a positive one, a finding that did not support the theoretical understanding of the relationships among the measures. In summary, the influence of the professional distress measures on the personal distress measures of

Nepali doctors proved to be significant only to show that STS has a positive influence on anxiety and depression measures.

Chapter 7. Discussion, Recommendations and Conclusions

"Future physicians need to imbue with different values on self-calibration and self-care as necessary skills."
—Dr. Tait Shanafelt, Chief Wellness Officer at WellMD Center

7.1 Introduction

Chapters 4, 5 and 6 presented the results of this study. Chapter 4 outlined and explored the pilot study on N-SSS-8 and its testing using CFA. The prevalence of anxiety, depression, suicide, and psychosomatic burden in Nepali doctors was also presented and analysed, as was the ProQOL of the studied population. Both professional and personal distress was analytically compared with socio-economic variables characterising the medical doctors' population in Nepal.

Chapter 5 outlined and presented the CFA outcomes of three measures, SSS-8, HSCL-25, and ProQOL-5 in the population of Nepali doctors. The fit indices, reliability, and validity of the measures were also outlined. Chapter 6 explored and presented a structural model of the combined measures of professional and personal distress and an SEM diagram with fit indices. The hypothesised relationships between the model of professional distress and the personal distress of the studied population were analysed, discussed and presented.

This chapter provides an in-depth discussion and analysis of the study findings in comparison with available studies of the chosen population and discussed the limitations and delimitations of this study. It also provides recommendations for addressing mental health challenges based on the professional and personal distress of Nepali doctors. The recommendations include the use of professional and personal distress identification tools as per the findings from this study. The recommendations also incorporate future directions for research for scholars and practitioners. At the end of the chapter, conclusive findings and further research areas are both elaborated.

7.2 Discussion

The purpose of this study was to measure the prevalence of professional and personal distress among Nepali medical doctors and to explore the interrelationships among the measures of such distress. The negative emotional state of any medical doctor has an impact on the care and services he or she provides to patients and affects his or her ProQOL (Huggard, Stamm, & Pearlman, 2013; Sodeke-Gregson et al., 2013). The CF and CS model of understanding the negative and positive impacts on medical doctors was chosen as the best theoretical model to assess such impacts (Cieslak et al., 2014). The personal distress of doctors was evaluated using the widely used measures of anxiety, depression and psychosomatic burden (Baird, LeMaster, & Harding, 2016; Gierk et al., 2014; Kleijn, Hovens, & Rodenburg, 2001). The findings of this study help fill gaps in both clinical and research arenas related to Nepali medical professionals.

The high level of participation, 547 doctors out of an estimated 15,000, is one strength of this study. The high rates of anxiety, depression, suicidal ideation, and psychosomatic burden found, as are presented in the results section, are corroborated by similar studies in China, Pakistan, and India (Dave et al. 2018; Gong et al. 2014; Nisar et al., 2012). One out of four Nepali doctors faces the comorbidity of anxiety and depression. Suicidal ideation is high in one out of twenty doctors and one in three doctors has a high level of depression. Young doctors, female doctors, and doctors working outside of Kathmandu Valley are at risk of a high level of depression and suicide. The literature reviewed in this study also demonstrated the high rate of depression and suicide among female doctors. Suvedi et al. (2009) outlined, the depression and suicide burden among childbearing-aged women in Nepal is extremely high, 6% of the below 30 years. The fact that Nepali female doctors have even higher rates of depression, suggest that they undergo a great deal of social and familial distress.

The prevalence of depression in the Nepali population ranges from 30.9% to 40.6% (Cousins, 2016; Luitel et. al, 2013; Kane et al., 2018; Risal et al., 2016). Despite the fact that some studies in the literature review conclude that the depression and anxiety of doctors is higher than that of the general population (Elliot & Tan, 2010), however this study findings shown, the prevalence of depression and anxiety of Nepali doctors are slightly lower than the range experienced by the general Nepali population.

The proportions of Nepali doctors at high risk of BO and STS found by this study were lower than those found in other populations of doctors in other, similar studies in developing countries (Bhutani et al., 2012; Chan et al., 2015; Khan et al., 2015). The CS of Nepali doctors is slightly higher than that found in other studies (Dasan et al.; 2015; Oo & Htun, 2014), a fact suggesting that Nepali doctors are more resilient than doctors elsewhere. However, over 50% of Nepali doctors are found at moderate risk of BO and STS. Doctors working with over 50 clients per week or without clinical supervision and young doctors working in private and teaching hospitals were found to be at risk of CF. Over 90% of Nepali doctors were found to have a high level of CS, a finding suggesting that the profession of medical doctor is a dignified one that provides satisfaction to those who provide support to patients. These findings have clearly outline huge differences on the lower job satisfaction and higher level of burnout in other studies conducted in developed countries (Markwell & Wainer, 2009; McCain at al., 2018).

It is possible that family, peer and community support in developing countries like Nepal is stronger, even in clinical settings, than it is in developed countries (Galek, Flannelly, Greene, & Kudler, 2011; Killian, 2008; Moos, 2013). Only 18 doctors out of 1,000 were found to be dissatisfied with their service and profession. However, the outcomes show that Nepali doctors are at risk of CF and that preventive measures need to be put in place. As was found elsewhere, the

prevalence of both professional and personal distress was higher among medical doctors with no clinical supervision, female doctors, young doctors working in private and teaching hospitals, doctors dealing with very high numbers of clients each week, and doctors who have not participated in self-care training (Oo and Htun, 2014; Marzouk et al.; 2018).

The psychometric properties of N-PoQOL-5 were critically reviewed to validate it. However, the analysis showed that no items on the BO scale could be retained as a separate measure due to the poor factor loadings each had in the CFA. Researchers in many other contexts faced similar difficulties: they, too, found low factor loadings for most BO items and a few STS items (Galiana, Arena, Oliver, Sansó, & Benito, 2017; Samson, Iecovich, & Shvartzman, 2016; Shen, Yu, Zhang, & Jiang, 2015). In a recent critical inquiry of the psychometric properties of ProQOL-5, Hemsworth, Baregheh, Aoun, and Kazanjian, (2018) suggested using an alternative tool to screen BO symptomology in healthcare professionals. The BO measure of N-ProQOL-5 could not be justified by the outcomes of this study. Thus, it was removed for the SEM.

Only two factors of ProQOL-5, STS and CS, were confirmed through CFA. The CFAs of the STS and CS measures were also heavily impacted. Only five items of each CS (ProQOL-6, ProQOL-12, ProQOL-16, ProQOL-22, and ProQOL-30) and STS (ProQOL-5, ProQOL-7, ProQOL-13, ProQOL-23, and ProQOL-25) were retained and validated. However, the CFA and model fit to validate the five items each for the CS and STS measures justified the model's further use in the Nepali context.

SSS-8 was, for the first time, translated and tested in the Nepali language. Each item of SSS-8, except SSS-1, had a factor loading above 0.60 at the 0.05 significance level. The analysis of the psychometric properties of N-SSS-8 suggests that it ought to be used further for clinical and research purposes. Through CFA, the reliability and validity indicators for three-factor model of N-

SSS-8 without SSS-1 for Gastro, were also justified and found in line with the study of Gierk et al. (2014).

N-HSCL-25 was applied to measure anxiety and depression. N-HSCL-25 was contextualised in the Nepali speaking population earlier by Thapa and Hauff (2005) and Baird, LeMaster, & Harding (2016). In both studies, the original 10 items for anxiety and 15 items for depression were retained by their statistical analysis results for which an exploratory factor analysis was applied. The present study was probably the first study in the Nepali population in which CFA was used to examine and test the factors of the measures of HSCL-25.

As per the qualitative evaluation of the translation and cultural adaptation of HSCL-25, Baird, LeMaster, and Harding (2016) explain that ANX_4 and ANX_6 items were very difficult to translate exactly into Nepal and often the meaning of the words 'nervousness' and 'trembling' were hard to understand. Similarly, DEP_4, which asks respondents to rate 'interest in sex/sexual desire' was also not well responded by participants, probably due to sex-related taboos in Nepali context. DEP_10, which reads 'thoughts of ending your life,' is also culturally difficult to feel. Many people have no hope but are afraid of ending their lives and do not express such suicidal thoughts. DEP_15 item is also difficult to translate: the word 'worthlessness' has been also misunderstood in the Nepali context. People internalise it as 'I did nothing' rather than 'every effort I made was meaningless or had no positive results.' These interpretations, which were provided by the Nepali language-speaking Bhutanese refugee population in Eastern Nepal, may also be reflected among the population studied in this study. The study of Baird, LeMaster, and Harding (2016) suggests that the low factor loading values of these items need further explorations. Thus, a post-hoc CFA was conducted after deleting the problematic items (i.e. two from the anxiety measure and three from the depression measure) for the final testing.

The results from this study could not retain items no. 6 and no. 8 of the anxiety measure or items no. 4 and no.15 of depression measure was excluded due to poor factor loadings. Item no. 10 of depression measure that screens suicidal ideation could not be retained too. The prescribed HSCL-20 scale includes 12 items for depression and 8 items for anxiety for future use. The psychometric properties of HSCL-20 obtained through CFA are presented in the results section. The researcher suggests to use an alternative measure for the screening of suicidal ideation rather than using an item no. 10 of HSCL-25, which did not have a sufficient factor loading in this study.

The influence of ProQOL measures (STS and CS) on distress (anxiety, depression and psychosomatic) measures was tested through using a SEM technique. The items for all measures except BO that were retained during the CFA process were kept as variables to fit the model. Model indices were tested. The prescribed model fit outcomes suggested a strong positive correlation between depression and anxiety scales (alpha = 0.87), a finding which supports previous findings (Atif et al., 2016). The findings suggested that the symptomatic coverages of both depression and anxiety measures were similar to the coverage of STS. STS had a linear correlation with depression and anxiety. The correlation of STS was moderately, but significantly, correlated with depression ($r = 0.20$, $p < 0.001$) and anxiety ($r = 0.34$, $p < 0.001$). Despite the theoretical understanding of positive correlations between psychosomatic and STS measures, the results showed that psychosomatic measures were poorly and negatively correlated with STS ($r = -0.15$, $p = 0.028$). These outcomes need critical qualitative and quantitative evaluations in the future.

Surprisingly, anxiety, depression and psychosomatic measures were positively correlated with CS (see Figure 12). These results, which are explored above, are the opposite of the general theoretical understanding (Huggard, Stamm, & Pearlman, 2013; Sodeke-Gregson et al., 2013) and therefore need monitoring in future research (Hofmann, 2008; Stamm, 2010). Studies on the

professional and personal distress of Nepali doctors are very rare, so this study has many limitations to concretely explain such opposite findings. Any theoretical, cultural or social factors interlinking to such findings needs further studies. The few studies on the conceptual similarities between BO and depression symptoms in medical doctors in other contexts (Ahola, Hakanen, Perhoniemi, & Mutanen, 2014) could not be tested due to the omission of BO from the CFA due to poor model fit.

The findings of this study in terms of measuring the impact of professional distress on personal distress have to be referenced with various limitations, and the replicability of a similar theoretical basis in another context is very low. As the interrelationships among the professional and personal distress of Nepali medical doctors were not strong, a null hypothesis on the strong influence of professional distress on personal distress could not be justified. The research findings, therefore, suggest screening both professional and personal measures at once to understand the reverse causation until other studies in future suggests differently, while providing medical care to Nepali doctors who are experiencing personal or professional distress.

7.3 Limitations and Delimitations

This study has several limitations. The response rate of online respondents was difficult to trace and the response rate for the paper-and-pencil form of data collection was just under 60%. The sample size was diverse: it represented rural and urban doctors, senior and junior doctors, doctors of different ages, and doctors working at different types of institutions. The targeted sample size was fulfilled, but doctors in remote areas without internet facility may have been left out (O'Neill, 2004). The data collection tools, mainly ProQOL-5, were translated into Nepali and tested on mental health and psychosocial support professionals. The use of non-validated tools, both SSS-8 and ProQOL-5, pose certain limitations on the replicability of the findings. In any online survey, the respondent

generally provides a socially desirable answer, a tendency which is often difficult to control but which impacts study outcomes (Braun, Jackson, Wiley, 2001).

A cross-sectional survey design has many limitations. Such a study cannot provide insight into the causation of a problem (Jepsen et al., 2004; Mann, 2003). Because the data was cross-sectional, a diverse range of socio-demographic variables such as age, gender, type of institution, and level of support (supervision, training, etc.) was compared to present the significant differences in the outcomes of both personal and professional distress. Nevertheless, it was difficult to measure the causation of such differences. In terms of the ethical ground of the research, using a cross-sectional design prevented participants form being repeated exposed to distress measures, as is generally the case with a longitudinal design. Ultimately, the findings of this research do not provide a causal link with respect to the significant differences in the outcomes of both personal and professional distress.

N-ProQOL-5 as translated and used previously (Adhikari, 2017) could not be validated. The measures of BO did not significantly load the factors. Some items of STS and CS could not be retained either. In the depression scale of HSCL-25, a question measuring suicidal ideation could not be retained in the validation process. Thus, alternative tools for screening BO and suicidal ideation have to be further analysed before replicating ProQOL-5 and HSCL-25 in other studies in the future.

The studied population is highly educated and represents the higher strata of socio-economic groups in Nepali society. The researcher clearly outlined in the inclusion criteria that the respondent should be fluent in English and Nepali language. Since most of the doctors had probably studied in English language medium institutions since high school, some of the terminology translated into Nepali on the data collection tools may have been difficult for them to fully understand. Thus, the

results based on the collected data and its analysis might have some bias in this regard. The study findings must be analysed with such caveats in mind.

7.4 Recommendations

This study found that one out of four medical doctors in Nepal faces the challenges of anxiety and depression, a finding which indicates that it is urgent to find appropriate measures for addressing the psychological distress of medical doctors. The burden of suicide is alarming, with 2% of doctors reporting an 'extremely high' desire to self-harm and female doctors more affected than their male counterparts. The burdens of BO and STS are relatively low but concerns about professional distress still need proper attention. The researcher would like to propose some recommendations for addressing these concerns.

First, studies have proven that doctors do not seek support for mental health concerns due to stigma, the lack of trustworthy supportive institutionalised care, and fear of losing their licenses to practice (Center et al., 2003; Schwenk, 2018). The fact that professional and workplace distress impacts the mental and physical health of healthcare professionals including medical and dental doctors must be taken into serious consideration. The NMC and Medical Association (NMA), an umbrella organisation of medical and dental doctors, must advocate that an independent and credible institution address the mental health concerns of Nepali doctors.

Second, doctors working in teaching and private hospitals, female doctors, and young doctors (below the age of 25 years), and doctors working in remote locations experience a high level of personal distress. The researcher recommends that the boards of directors of private and teaching hospitals look into this fact and adopt concrete measures to address it. The depression and suicide burden among Nepali women is alarming (Cousins, 2016). The fact that female doctors report a higher level of depression and suicide than men suggest that socio-economic and cultural factors

compound the distress they feel due to the hectic nature of the medical profession. Concerned institutions should initiate relevant prevention and response actions without any delay.

Third, doctors who provide care and treatment to over 50 patients per week have poorer outcomes in terms of professional and personal distress than their counterparts who have fewer patients. The researcher recommends that doctors consider their wellbeing and initiate self-care actions to prevent distress and enhance their ProQOL. Inadequate clinical supervision was a major concern. Limited opportunities for clinical supervision not only impact the self-esteem and efficiency of medical doctors but also increase the medical errors. Attacks on medical institutions and medical doctors are an additional burden to Nepali healthcare professionals. Clinical supervision and lifelong learning opportunities for doctors could both prevent distress and minimise medical errors. Concerned institutions should make clinical supervision mandatory (Reynolds III, & Clayton, 2009).

Fourth, young doctors, mainly resident doctors, reported a high level of distress and psychosomatic pain. The findings suggest that immediate action be taken to address workplace conditions, working hours and other distress-causing factors. Young doctors are the foundation of healthcare services in the future, so the prevention and cure of the ongoing burden is essential.

Fifth, STS was higher among doctors who serve over 50 patients per week and have no or limited clinical supervision than among other doctors. Workloads and issues related to insufficient clinical supervision should be addressed immediately in order to mitigate the STS burden.

Sixth, assessment tools and intervention guidelines on the professional and personal distress of medical doctors in Nepali context are new. Professional institutions and the Ministry of Health are recommended to establish a panel of experts for the development, training, and implementation of evidence-based and contextualised tools for the assessment and treatment of the professional and

personal distress of Nepali doctors in order to enhance a wellbeing-based workforce. The process will both improve the quality of care provided to patients and enhance the overall wellbeing of Nepali doctors (Kumar, 2016).

Seventh, qualitative research on understanding workplace distress and the causes of professional and personal distress and evidence-based approaches to dealing with such difficulties should be in place. The lack of research grants to investigate mental health in the workplace and the distress of healthcare professionals is a challenge. Institutions such as the University Grants Commission (UGC) and Nepal Health Research Council (NHRC) should make provisions to fund such research.

Eighth, BO measures could not be validated through this research. The researcher recommends reviewing the available BO and suicide-screening tools. Furthermore, it is recommended to adapt and validate those tools for use in the Nepali population in the future. N-HSCL-20 was found to be reliable and valid to use for the screening of anxiety and depression and is recommended for use for screening purposes. Three-factor model of N-SSS-8 without SSS-1, too, is reliable and valid for the research and diagnostic purposes.

Ninth, the researcher recommends using the Nepali version of the STS tool with five items and the CS tool with five items to screen for STS and CS. As the concepts of BO, STS, and CS could not be well derived from the ProQOL-5 measures, further research on understanding the theoretical and practical grounds of ProQOL measures in the Nepali context is recommended. As the BO and STS of medical professionals is understudied in collective societies like Nepal, a qualitative approach in adapting and defining ProQOL might further fill the gap on the issue.

Tenth, trends over the past years shows that over 50% of the young doctors' dram of migrating and settling in developed countries, where the professional and personal distress of

medical doctors is higher than that of Nepali doctors. Nepali doctors are found to be more satisfied with their professional outcomes and the service they bring to people. The factors associated with such a high level of satisfaction should be examined further through qualitative understanding and proper research. The dissemination of positive findings about PRoQOL in Nepal to young doctors may help prevent them from migrating and, in the long run, improve healthcare in Nepal because so many satisfied doctors choose to remain in the county.

Eleventh, doctors are not immune to the negative impacts of professional and personal distress. Often, young doctors are not aware of the signs and symptoms of the fatigue caused by their professional care to the people. In addition, the lack of trustworthy systems and structures to address their mental health concerns prevents them from seeking support if they do recognise they have a problem. Therefore, the medical institutions in Nepal are recommended to include the professional and personal distress of healthcare professionals in their curriculum and training.

7.5 Conclusions

As far as the researcher knows, this is a first study conducted in Nepal in to understand and explore the professional and personal distress of Nepali doctors. The prevalence of depression, anxiety and psychosomatic burden in the studied population showed that the level of distress among Nepali medical doctors is slightly above that found by other studies carried out in Asian context. The burden of distress in medical doctors must be taken as a serious and immediate concern. The depression and suicide of female doctors and the psychosomatic burden and depression of young doctors as well as the inadequacy of clinical supervision and the lack of self-care programmes are major concerns that warrant immediate attention.

The outcomes of ProQOL measured through this research suggest that Nepali doctors have lower levels of BO and STS but higher levels of CS than the levels found by studies conducted in

Western contexts. These facts suggest that doctors in Nepal are relatively more resilient than those in the West. This study could not, however, confirm the indicators or factors associated with such results.

Distress- related screening tools for clinical and research purposes were additional outcomes of this research. The testing and validation of N-SSS-8 will help Nepali researchers and clinicians employ it into the Nepali population. N-HSCL-25 was tested using CFA and it was found that a 12-item depression scale and 8-item anxiety scale have the desired psychometric properties. It is recommended that clinicians and researchers apply the resultant validated N-HSCL-20 in the future. Since the screening question for suicidal thoughts and/or intention could not be justified through the single item on HSC-25, further research on suicidal ideation screening tools, either to validate an existing tool or develop a new one in the Nepali context, is advisable.

The valuation and model fit of N-ProQOL-5could not be well justified because the BO sub-scale of ProQOL did not have sufficient factor loadings from the collected data. The psychometric analysis of the BO measure of N-ProQOL-5 did not support the data. Further research and adaptation of a new BO screening tool is recommended. The use of the STS and CS scales, each with five items, is recommended for screening purposes. In the end, the study did verify the use of different measures concerning professional and personal distress and provided ample outcomes justifying the future use of these tools.

The study concludes a reiteration of the high prevalence of personal distress, moderate risk of CF, and high compassion satisfaction among Nepali medical doctors. A strong influence of professional distress measures on personal distress measures was not verified. The study concludes that further research on the influence of and interrelationships among measures of professional and

personal distress in the population of medical doctors is needed. It also suggests screening both personal and professional distress while providing treatment and care to medical doctors.

Despite having some methodological, statistical, and practical limitations, this study provides ample opportunities for understanding the professional and personal distress among Nepali doctors, the interrelationships among the measures of distress, and the applicability of the adapted tools. The study outcomes also suggest that screening for personal distress (anxiety, depression and psychosomatic burden) is important while looking at the professional distress of medical doctors in clinical settings. The study findings also show that there is an immediate need for action in addressing the distress of doctors to sustain the limited workforce and provide uninterrupted good-quality care to patients and exploring the qualitative aspects of distress faced by the Nepali doctors.

References

Acharya, S. (2014). *Gender, jobs, and education: Prospects and realities in Nepal*. Kathmandu, Nepal: UNESCO.

Aday, L. A., & Cornelius, L. J. (2006). *Designing and conducting health surveys: A comprehensive guide*. New Jersey, US: John Wiley & Sons.

Adhikari, B., & Mishra, S. R. (2016). Urgent need for reform in Nepal's medical education. *The Lancet*, *388*(10061), 2739–2740. doi: 10.1016/S0140-6736(16)32423-0

Adhikari, Y. (2017). A comparative study of professional-quality-of-life factors of mental health and psychosocial support (MHPSS) professionals working with earthquake victims and other trauma victims in Nepal. (Masters of Science dissertation, University of Liverpool).

Ahmad, S., Zulkurnain, N. N. A., & Khairushalimi, F. I. (2016). Assessing the validity and reliability of a measurement model in structural equation modeling (SEM). *Journal of Advances in Mathematics and Computer Science*, 1–8. doi: 10.9734/BJMCS/2016/25183

Ahola, K., Hakanen, J., Perhoniemi, R., & Mutanen, P. (2014). Relationship between burnout and depressive symptoms: A study using the person-centred approach. *Burnout Research, 1*(1), 29-37. doi: 10.1016/j.burn.2014.03.003

Alexander, A. G., & Ballou, K. A. (2018). Work-life balance, burnout, and the electronic health record. *The American Journal of Medicine, 8*(1), 857-858. doi: 10.1016/j.amjmed.2018.02.033

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. USA: American Psychiatric Publication.

Andrews, G., Goldberg, D. P., Krueger, R. F., Carpenter, W. T., Hyman, S. E., Sachdev, P., & Pine, D. S. (2009). Exploring the feasibility of a meta-structure for DSM-V and ICD-11:

could it improve utility and validity? [Paper 1 of 7 of the thematic section: 'A proposal for a meta-structure for DSM-V and ICD-11']. *Psychological Medicine, 39*(12), 1993-2000. doi: 10.1017/S0033291709990250

Anon, A. (1994). Burnished or burn out the delights and dangers of working in health. *Lancet, 344*, 1583-1584. Retrieved from www.ncbi.nlm.nih.gov

Atif, K., Khan, H. U., Ullah, M. Z., Shah, F. S., & Latif, A. (2016). Prevalence of anxiety and depression among doctors: The unscreened and undiagnosed clientele in Lahore, Pakistan. *Pakistan Journal of Medical Sciences, 32*(2), 294-298. doi: 10.12669/pjms.322.8731

Awang, Z. (2012). *A handbook on structural equation modeling*. Shah Alam : Universiti Teknologi MARA Publication.

Bailey, E., Robinson, J., & McGorry, P. (2018). Depression and suicide among medical practitioners in Australia. *Internal Medicine Journal*, *48*(3),254-258. doi: 10.1111/imj.13717

Baines, J. (2009). What are the factors that shape the careers decisions of LSE students? (Doctoral dissertation, University of Reading).

Baird M. B., LeMaster, J. W., Harding, A. (2016). Translation and cultural adaptation of the Hopkins Symptom Checklist-25 (HSCL-25) into Nepalese for use with Bhutanese refugees. *Online Journal of Cultural Competence in Nursing and Healthcare*, *6*(1), 14-30. doi: 10.9730/ojccnh.org/v6n1a2

Basnet, B., Jaiswal, M., Adhikari, B., & Shyangwa, P. M. (2012). Depression among undergraduate medical students. *Kathmandu University Medical Journal*, *10*(39), 56-59. doi: 10.3126/kumj.v10i3.8021

Bates, E. (1982). Doctors and their spouses speak: Stress in medical practice. *Sociology of Health and Illness*, *4*(1), 25-39. Doi: 10.1111/1467-9566.ep11345586

Baumeister, H., Hutter, N., Bengel, J., & Härter, M. (2011). Quality of life in medically ill persons with comorbid mental disorders: A systematic review and meta-analysis. *Psychotherapy and Psychosomatics*, *80*(5), 275–286. doi: 10.1159/000323404

Bergh, D. (2015). Chi-squared test of fit and sample size: A comparison between a random sample approach and a chi-square value adjustment method. *Journal of Applied Measurement*, *16*(2), 204-217. doi: 10.1007/978-3-662-47490-7_15

Bhutani, J., Bhutani, S., Balhara, Y. P. S., & Kalra, S. (2012). Compassion fatigue and burnout amongst clinicians: A medical exploratory study. *Indian Journal of Psychological Medicine, 34*(4), 332-337. doi: 10.4103/0253-7176.108206

Bianchi, R., Schonfeld, I. S., & Laurent, E. (2015). Burnout–depression overlap: A review. *Clinical Psychology Review, 36* (1), 28-41. doi: 10.1016/j.cpr.2015.01.004

Bourne, T., Wynants, L., Peters, M., Van Audenhove, C., Timmerman, D., Van Calster, B., & Jalmbrant, M. (2015). The impact of complaints procedures on the welfare, health and clinical practice of 7926 doctors in the UK: A cross-sectional survey. *BMJ Open*, *5*(1), e006687. doi: 10.1136/bmjopen-2014-006687

Braun, H. I., Jackson, D. N., & Wiley, D. E. (Eds.). (2001). *The role of constructs in psychological and educational measurement*. New York, USA: Routledge.

Brenninkmeyer, V., Van Yperen, N. W., & Buunk, B. P. (2001). Burnout and depression are not identical twins: Is decline of superiority a distinguishing feature?. *Personality and Individual Differences*, *30*(5), 873-880. Doi: 10.1016/S0191-8869(00)00079-9

Bride, B. E., Radey, M., & Figley, C. R. (2007). Measuring compassion fatigue. *Clinical Social Work Journal*, *35*(3), 155–163. doi: 10.1007/s10615-007-0091-7

Bride, B.E. (2012). Secondary traumatic stress. In C.R. Figley (ed.), *Encyclopedia of trauma* (pp. 600–602). Thousand Oaks, CA: Sage.

Bright, R. P., & Krahn, L. (2011). Depression and suicide among physicians. *Current Psychiatry*, *10*(4), 16-17. Retrieved from www.black-bile.com

Brooks, S. K., Gerada, C., & Chalder, T. (2011). Review of literature on the mental health of doctors: Are specialist services needed? *Journal of Mental Health*, *20*(2), 146–156. doi: 10.3109/09638237.2010.541300

Cangur, S., & Ercan, I. (2015). Comparison of model fit indices used in structural equation modeling under multivariate normality. *Journal of Modern Applied Statistical Methods*, *14*(1), 152–167. doi: 10.22237/jmasm/1430453580

Carlson, M. D., & Morrison, R. S. (2009). Study design, precision, and validity in observational studies. *Journal of Palliative Medicine, 12*(1), 77–82.doi:10.1136/emj.20.1.54

Caruana, E. J., Roman, M., Hernández-Sánchez, J., & Solli, P. (2015). Longitudinal studies. *Journal of Thoracic Disease, 7*(11), E537. doi: 10.3978/j.issn.2072-1439.2015.10.63

Center, C., Davis, M., Detre, T., Ford, D. E., Hansbrough, W., Hendin, H., ... & Michels, R. (2003). Confronting depression and suicide in physicians: A consensus statement. *Jama*, *289*(23), 3161–3166. doi: 10.1001/jama.289.23.3161

Chambers, R., & Campbell, I. (1996). Anxiety and depression in general practitioners: Associations with type of practice, fundholding, gender and other personal characteristics. *Family Practice*, *13*(2), 170–173. doi: 10.1093/fampra/13.2.170

Chan, A. O., Chan, Y. H., Chuang, K. P., Ng, J. S., & Neo, P. S. (2015). Addressing physician quality of life: Understanding the relationship between burnout, work engagement, compassion fatigue and satisfaction. *Journal of Hospital Administration, 4*(6), 46–55. doi: 10.5430/jha.v4n6p46

Chesanow, N. (2017). Does the Hippocratic Oath promote burnout? *Medscape*. Retrieved from www.medscape.com

Clark, S. A. (2018). The impact of the Hippocratic Oath in 2018: The conflict of the ideal of the physician, the knowledgeable humanitarian, versus the corporate medical allegiance to financial models contributes to burnout. *Cureus*, *10*(7): e3076. doi: 10.7759/cureus.3076

Cohen, D., Winstanley, S. J., & Greene, G. (2016). Understanding doctors' attitudes towards self-disclosure of mental ill health. *Occupational Medicine*, *66*(5), 383-389. doi: 10.1093/occmed/kqw024

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, *78*(1), 98–104. doi: 10.1037/0021-9010.78.1.98

Cousins, S. (2016). Nepal's silent epidemic of suicide. Lancet, 387(10013), 16-17. doi:10.1016/S0140-6736(15)01352-5

Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Dahlin, B., & Regmi, M. P. (1997). Conceptions of learning among Nepalese students. *Higher Education, 33*(4), 471–493. doi: 10.1023/A:1002992411868

Dasan, S., Gohil, P., Cornelius, V., & Taylor, C. (2015). Prevalence, causes and consequences of compassion satisfaction and compassion fatigue in emergency care: A mixed-methods

study of UK NHS Consultants. *Emergency Medical Journal*, *32*(8), 588–594. doi: 10.1136/emermed-2014-203671

Dave, S., Parikh, M., Vankar, G., & Valipay, S. K. (2018). Depression, anxiety, and stress among resident doctors of a teaching hospital. *Indian Journal of Social Psychiatry*, *34*(2), 163–171. doi: 10.4103/ijsp.ijsp_72_17

Davis, E., Davern, M., Waters, E., Boyd, R., Reddihough, D., Mackinnon, A., & Graham, H.K. (2013). *Cerebral palsy quality of life questionnaire for adolescents (CP QOL-Teen) manual*. Melbourne, Australia: University of Melbourne.

De Oliveira Jr., G. S., Chang, R., Fitzgerald, P. C., Almeida, M. D., Castro-Alves, L. S., Ahmad, S., & McCarthy, R. J. (2013). The prevalence of burnout, depression, and their association with adherence to safety and practice standards: A survey of United States anesthesiology trainees. *Anesthesia & Analgesia*, *117*(1), 182-193. doi: 10.1213/ANE.0b013e3182917da9

De Vaus, D. A., & de Vaus, D. (2001). *Research design in social research*. London, UK: Sage Publications.

Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H., & Covi, L. (1974). The Hopkins Symptom Checklist (HSCL): A self-report symptom inventory. *Systems Research and Behavioral Science, 19*(1), 1-15. doi: 10.1002/bs.3830190102

Dhar, N., Datta, U., & Nandan, D. (2008). Stress among doctors: A Review. *Health and Population: Perspectives and Issues*, *31*(4), 256-66. Retrieved from www.medind.nic.in

Dixit, H. (2009). Development of medical education in Nepal. *Kathmandu University Medical Journal*, *7*(1), 8–10. doi: 10.3126/kumj.v7i1

Doolittle, B. R., Windish, D. M., & Seelig, C. B. (2013). Burnout, coping, and spirituality among internal medicine resident physicians. *Journal of Graduate Medical Education*, *5*(2), 257–261. doi: 10.4300/JGME-D-12-00136.1

Duarte, J. (2017). Professional quality of life in nurses: Contribution for the validation of the Portuguese version of the Professional Quality of Life Scale-5 (ProQOL-5). *Análise Psicológica*, *35*(4), 529-–542. doi: 10.14417/ap.1260

Dyrbye, L. N., & Shanafelt, T. D. (2011). Physician burnout: A potential threat to successful health care reform. *Jama*, *305*(19), 2009-2010. doi: 10.1001/jama.2011.652

Dyrbye, L. N., Thomas, M. R., & Shanafelt, T. D. (2006). Systematic review of depression, anxiety, and other indicators of psychological distress among US and Canadian medical students. *Academic Medicine*, *81*(4), 354–373. doi: 10.1097/00001888-200604000-00009

Eckleberry-Hunt, J., & Lick, D. (2015). Physician depression and suicide: A shared responsibility. *Teaching and Learning in Medicine*, *27*(3), 341–345. doi: 10.1080/10401334.2015.1044751

Elliot, L, & Tan, J. (2010). *The mental health of doctors: A systematic literature review*. Hawthorne, Australia: The National Depression Initiative, beyond-blue.

Field, A. (2011). *Discovering statistics using SPSS* (3rd ed.). (pp. 15–18). Thousand Oaks, California: SAGE Publications

Field, A. (2016). *Discovering statistics using SPSS* (4th ed.). (pp. 1–21). Thousand Oaks, California: SAGE Publications

Figley, C. R. (1988). Toward a field of traumatic stress. *Journal of Traumatic Stress*, *1*(1), 3–16. doi: 10.1007/BF00974903

Figley, C. R. (1995). Compassion fatigue: Toward a new understanding of the costs of caring. In B. H. Stamm (Ed.), *Secondary traumatic stress: Self-care issues for clinicians, researchers, and educators* (pp. 3–28). Baltimore, US: The Sidran Press.

Figley, C. R. (2002). Compassion fatigue: Psychotherapists' chronic lack of self-care. *Journal of Clinical Psychology*, *58*(11), 1433–1441. doi: 10.1002/jclp.10090

Figley, C. R. (2013). *Compassion fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized*. New York, USA: Routledge.

Figley, C. R. (Ed.). (2002). *Treating compassion fatigue*. New York, USA: Brunner-Routledge.

Figley, Ch. R. (1995). Compassion fatigue as secondary traumatic stress disorder: An overview. In Ch. R. Figley (ed.), *Compassion fatigue: coping with secondary traumatic stress disorder in those who treat the traumatized*, (pp 1–20). New York, NY: Brunner/Mazel.

Ford, D. E., Mead, L. A., Chang, P. P., Cooper-Patrick, L., Wang, N. Y., & Klag, M. J. (1998). Depression is a risk factor for coronary artery disease in men: The precursors study. *Archives of Internal Medicine*, *158*(13), 1422–1426. doi: 10.1001/archinte.158.13.1422

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. doi: 10.2307/3151312

Freudenberger, H. J. (1974). Staff burn-out. *Journal of Social Issues*, *30*(1), 159–165. doi: 10.1111/j.1540-4560.1974.tb00706.x

Gagné, P., Moamai, J., & Bourget, D. (2011). Psychopathology and suicide among Quebec physicians: A nested case control study. *Depression Research and Treatment, 1*(1), 1–6. doi: 10.1155/2011/936327

Galek, K., Flannelly, K. J., Greene, P. B., & Kudler, T. (2011). Burnout, secondary traumatic stress, and social support. *Pastoral Psychology*, *60*(5), 633-649. doi: 10.1007/s11089-011-0346-7

Galiana, L., Arena, F., Oliver, A., Sansó, N., & Benito, E. (2017). Compassion satisfaction, compassion fatigue, and burnout in Spain and Brazil: ProQOL validation and cross-cultural diagnosis. *Journal of Pain and Symptom Management, 53*(3), 598–604. doi: 10.1016/j.jpainsymman.2016.09.014

Gerbing, D. W., & Anderson, J. C. (1988). An updated paradigm for scale development incorporating unimodality and its assessment. *Journal of Marketing Research*, *25*(2), 186–192. doi: 10.1177/002224378802500207

Gierk, B., Kohlmann, S., Kroenke, K., Spangenberg, L., Zenger, M., Brähler, E., & Löwe, B. (2014). The somatic symptom scale–8 (SSS-8): A brief measure of somatic symptom burden. *JAMA Internal Medicine, 174*(3), 399–407. doi: 10.1001/jamainternmed.2013.12179

Gierk, B., Kohlmann, S., Toussaint, A., Wahl, I., Brünahl, C. A., Murray, A. M., & Löwe, B. (2015). Assessing somatic symptom burden: A psychometric comparison of the Patient Health Questionnaire–15 (PHQ-15) and the Somatic Symptom Scale–8 (SSS-8). *Journal of Psychosomatic Research, 78*(4), 352–355. doi: 10.1016/j.jpsychores.2014.11.006

Gong, Y., Han, T., Chen, W., Dib, H. H., Yang, G., Zhuang, R., ... & Lu, Z. (2014). Prevalence of anxiety and depressive symptoms and related risk factors among physicians in China: A cross-sectional study. *Plos One*, *9*(7), e103242. doi: 10.1371/journal.pone.0103242

Graham, J., Potts, H. W. W., & Ramirez, A. J. (2002). Stress and burnout in doctors. *The Lancet*, *360*(9349), 1975–1976. doi: 10.1016/S0140-6736(02)11871-X

Grover, S., Sahoo, S., Bhalla, A., & Avasthi, A. (2018). Psychological problems and burnout among medical professionals of a tertiary care hospital of North India: A cross-sectional study. *Indian journal of psychiatry*, *60*(2), 175-188. doi: 10.4103/psychiatry.IndianJPsychiatry_254_17

Hair, J. F., Black, B., Babin, B., Anderson, R. E., and Tatham, R. L. (2005). *Multivariate data analysis*. Saddle River, NJ: Prentice Hall.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2013). *Multivariate data analysis: Pearson new international edition*. New York, USA: Pearson Higher Education.

Harvey, S.B., Laird, B., Henderson, M., & Hotopf, M. (2009). *The mental health of health care professionals: A review for the Department of Health*. London, UK: National Clinical Assessment Service.

Hawton, K., Agerbo, E., Simkin, S., Platt, B., & Mellanby, R. J. (2011). Risk of suicide in medical and related occupational groups: A national study based on Danish case population-based registers. *Journal of Affective Disorders*, *134*(1–3), 320–326. doi: 10.1016/j.jad.2011.05.044

Hawton, K., Clements, A., Sakarovitch, C., Simkin, S., & Deeks, J. J. (2001). Suicide in doctors: A study of risk according to gender, seniority and specialty in medical practitioners in England and Wales, 1979–1995. *Journal of Epidemiology & Community Health*, *55*(5), 296–300. doi: 10.1136/jech.55.5.296

Hemsworth, D., Baregheh, A., Aoun, S., & Kazanjian, A. (2018). A critical enquiry into the psychometric properties of the professional quality of life scale (ProQol-5) instrument. *Applied Nursing Research*, *39*(1), 81–88. doi: 10.1016/j.apnr.2017.09.006

Hofmann, S. G., & Asmundson, G. J. (2008). Acceptance and mindfulness-based therapy: New wave or old hat?. *Clinical psychology review*, *28*(1), 1-16. doi: 10.1016/j.cpr.2007.09.003

Holmes-Smith, P., Coote, L., & Cunningham, E. (2006). Structural equation modeling: From the fundamentals to advanced topics. Melbourne, Australia: Streams.

Hooper, D., Coughlan, J., & Mullen, M. R. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*, *6*(1), 53-60. Retrieved from www.ejbrm.com

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. doi : 10.1080/10705519909540118

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. doi: 10.1080/10705519909540118

Huggard, P., & Unit, G. (2013). A systematic review of the measurement of compassion fatigue, vicarious trauma, and secondary traumatic stress in physicians. *Australasian Journal of Disaster and Trauma Studies*, *2013*(1), 37–44. Retrieved from trauma.massey.ac.nz/issues/2013-1/AJDTS_2013-1_Nimmo.pdf

Huggard, P., Stamm, B. H., & Pearlman, L. A. (2013). Physician stress: Compassion satisfaction, compassion fatigue and vicarious traumatization. In C. Figley, P. Huggard, & C. E. Rees (Eds.) *First do no self-harm: Understanding and promoting physician stress resilience* (pp. 127–145). New York, NY, US: Oxford University Press. doi: 10.1093/acprof:oso/9780195383263.003.0007

Hulley, S. B., Cummings, S. R., Browner, W. S., Grady, D. G., & Newman, T. B. (2013). *Designing clinical research*. Philadelphia, US: Lippincott Williams & Wilkins.

ICRC (2016*).* Hateymalo accompaniment programme: ICRC's comprehensive psychosocial support programme to the families of missing persons in Nepal (2010-2016). Retrieved from https://www.icrc.org/en/download/file/26584/hateymalo_accompaniment_report.pdf

Imo, U. O. (2017). Burnout and psychiatric morbidity among doctors in the UK: A systematic literature review of prevalence and associated factors. *BJPsych bulletin*, *41*(4), 197 ICRC (2016*).* 204. doi: 10.1192/pb.bp.116.054247

IsHak, W., Nikravesh, R., Lederer, S., Perry, R., Ogunyemi, D., & Bernstein, C. (2013). Burnout in medical students: A systematic review. *The Clinical Teacher*, *10*(4), 242 ICRC (2016*).* 245. doi: 10.1111/tct.12014.

Jacobs, F. (2016). The patients per doctor map of the world. Retrieved from http://bigthink.com/strange-maps/185-the-patients-per-doctor-map-of-the-world

James, L. E., Noel, J. R., & Roche Jean Pierre, Y. M. (2014). A mixed-methods assessment of the experiences of lay mental health workers in post-earthquake Haiti. *American Journal of Orthopsychiatry*, *84*(2), 152 ICRC (2016*).* 63. doi:10.1037/h0099387

Jepsen, P., Johnsen, S. P., Gillman, M. W., & Sørensen, H. T. (2004). Interpretation of observational studies. *Heart*, *90*(8), 956-960. doi: 10.1136/hrt.2003.017269

Kane, J. C., Luitel, N. P., Jordans, M. J. D., Kohrt, B. A., Weissbecker, I., & Tol, W. A. (2018). Mental health and psychosocial problems in the aftermath of the Nepal earthquakes: findings from a representative cluster sample survey. *Epidemiology and Psychiatric Sciences*, *27*(3), 301–310. doi: 10.1017/S2045796016001104

Khan, A. A., Khan, M. A., & Malik, N. J. (2015). Compassion fatigue amongst health care providers. *Pakistan Armed Forces Medical Journal*, *65*(2), 286–289. Retrieved from https://www.pafmj.org/index.php/PAFMJ/article/view/862

Khanna, R., & Khanna, R. (2013). Is medicine turning into unhappy profession?. *Indian Journal of Occupational and Environmental Medicine*, *17*(1), 2–6. doi: 10.4103/0019-5278.116363

Killian, K. D. (2008). Helping till it hurts? A multimethod study of compassion fatigue, burnout, and self-care in clinicians working with trauma survivors. *Traumatology*, *14*(2), 32-44. doi: 10.1177/1534765608319083

Kleijn, W. C., Hovens, J. E., & Rodenburg, J. J. (2001). Posttraumatic stress symptoms in refugees: assessments with the Harvard Trauma Questionnaire and the Hopkins Symptom Checklist–25 in different languages. *Psychological Reports*, *88*(2), 527–532. Doi: 10.2466/pr0.2001.88.2.527

Kroenke, K. (2003). Patients presenting with somatic complaints: epidemiology, psychiatric co-morbidity and management. *International Journal of Methods in Psychiatric Research*, *12*(1), 34–43. doi: 10.1002/mpr.140

Kroenke, K., & Rosmalen, J. G. (2006). Symptoms, syndromes, and the value of psychiatric diagnostics in patients who have functional somatic disorders. *Medical Clinics*, *90*(4), 603–626. doi: 10.1016/j.mcna.2006.04.003

Kumal, A. B., Mahato, R. K., Gupta, R. P., & Ghimire, J. (2013). Human resource for health production capacity in Nepal: A glance. *Journal of Nepal Health Research Council*. Retrieved from https://www.odi.org

Kumar, S. (2016). Burnout and doctors: Prevalence, prevention and intervention. In *Healthcare* (Vol. 4, No. 3, p. 37). Multidisciplinary Digital Publishing Institute. Doi: 10.3390/healthcare4030037

Kunwar, D., Risal, A., & Koirala, S. (2016). Study of depression, anxiety and stress among the medical students in two medical colleges of Nepal. *Kathmandu University Medical Journal*, *53*(1), 22-26. Retrieved from www.m.kumj.com.np

Kurlansik, S. L., & Maffei, M. S. (2016). Somatic symptom disorder. *American Family Physician*, *93*(1), 49-54. Retrieved from www.ncbi.nlm.nih.gov

Lakhey, M., Lakhey, S., Niraula, S. R., Jha, D., & Pant, R. (2009). Comparative attitude and plans of the medical students and young Nepalese doctors. *Kathmandu University Medical Journal*, *7*(2), 177-182. doi: 10.3126/kumj.v7i2.2717

Lamichhane, N. (2015). Professional burnout: How caring for ourselves helps us care for others. *Journal of Psychiatrists' Association of Nepal*, *4*(2), 1-3. doi: 10.3126/jpan.v4i2.18315

Lamichhane, S. (2016). Doctors under threat. Retrieved from http://kathmandupost.ekantipur.com/printedition/news/2016-07-01/doctors-under-threat.html

Li, Y., Li, Y., & Cao, J. (2012). Factors associated with suicidal behaviors in mainland China: A meta-analysis. *BMC Public Health*, *12*(1), 524. doi: 10.1186/1471-2458-12-524

Lindeman, S., Läärä, E., Hakko, H., & Lönnqvist, J. (1996). A systematic review on gender-specific suicide mortality in medical doctors. *The British Journal of Psychiatry*, *168*(3), 274-279. doi: 10.1192/bjp.168.3.274

Lochman, J. E., Evans, S. C., Burke, J. D., Roberts, M. C., Fite, P. J., Reed, G. M., ... & Elena Garralda, M. (2015). An empirically based alternative to DSM–5's disruptive mood

dysregulation disorder for ICD–11. *World Psychiatry*, *14*(1), 30-33. doi: 10.1002/wps.20176

Lomax, R. G., & Schumacker, R. E. (2004). *A beginner's guide to structural equation modeling.* London: Lawrence Erlbaum Associates.

Löwe, B., Spitzer, R. L., Williams, J. B., Mussell, M., Schellberg, D., & Kroenke, K. (2008). Depression, anxiety and somatization in primary care: Syndrome overlap and functional impairment. *General Hospital Psychiatry*, *30*(3), 191–199. doi: 10.1016/j.genhosppsych.2008.01.001

Luitel, N. P., Jordans, M. J., Sapkota, R. P., Tol, W. A., Kohrt, B. A., Thapa, S. B., ... & Sharma, B. (2013). Conflict and mental health: a cross-sectional epidemiological study in Nepal. *Social Psychiatry and Psychiatric Epidemiology*, *48*(2), 183–193. doi: 10.1007/s00127-012-0539-0

Ma, Y., Mazumdar, M., & Memtsoudis, S. G. (2012). Beyond repeated measures ANOVA: Advanced statistical methods for the analysis of longitudinal data in anesthesia research. *Regional Anesthesia and Pain Medicine*, *37*(1), 99–105. doi: 10.1097/AAP.0b013e31823ebc74

Maercker, A., Brewin, C. R., Bryant, R. A., Cloitre, M., Ommeren, M., Jones, L. M., ... & Somasundaram, D. J. (2013). Diagnosis and classification of disorders specifically associated with stress: proposals for ICD–11. *World Psychiatry*, *12*(3), 198–206. doi: 10.1002/wps.20057

Maneesriwongul, W., & Dixon, J. K. (2004). Instrument translation process: A methods review. *Journal of Advanced Nursing*, *48*(2), 175–186. doi: 10.1111/j.1365-2648.2004.03185.x

Mann, C. (2003). Observational research methods. Research design II: Cohort, cross sectional, and case-control studies. *Emergency Medicine Journal*, *20*(1), 54-60. doi: 10.1136/emj.20.1.54

Markwell, A. L., & Wainer, Z. (2009). The health and wellbeing of junior doctors: insights from a national survey. *Medical Journal of Australia*, *191*(8), 441–444. Retrieved from https://www.mja.com.au/system/files/issues/191_08_191009/mar11478_fm.pdf

Marzouk, M., Ouanes-Besbes, L., Ouanes, I., Hammouda, Z., Dachraoui, F., & Abroug, F. (2018). Prevalence of anxiety and depressive symptoms among medical residents in Tunisia: a cross-sectional survey. *BMJ open*, *8*(7), e020655.

Maslach, C. (2003). *Burnout: The cost of caring*. California, USA: ISHK.

Maslach, C., Jackson, S. E., & Leiter, M. P. (1986). *Maslach Burnout Inventory (2 ed.).* Palo Alto: Consulting Psychologists Press

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*(1), 397–422. doi: 10.1146/annurev.psych.52.1.397

Mata, D. A., Ramos, M. A., Bansal, N., Khan, R., Guille, C., Di Angelantonio, E., & Sen, S. (2015). Prevalence of depression and depressive symptoms among resident physicians: A systematic review and meta-analysis. *Jama*, *314*(22), 2373–2383. doi: 10.1001/jama.2015.15845

McCain, R. S., McKinley, N., Dempster, M., Campbell, W. J., & Kirk, S. J. (2018). A study of the relationship between resilience, burnout and coping strategies in doctors. *Postgraduate Medical Journal*, *94*(1107), 43–47. doi: 10.1136/postgradmedj-2016-134683

McDonald, R. P., & Ho, M. H. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods*, *7*(1), 64–82. doi: 10.1037/1082-989X.7.1.64

McManus, I. C., Winder, B. C., & Gordon, D. (2002). The causal links between stress and burnout in a longitudinal study of UK doctors. *The Lancet*, *359*(9323), 2089–2090. doi: 10.1016/S0140-6736(02)08915-8

McManus, I. C., Winder, B. C., & Gordon, D. (2002). The causal links between stress and burnout in a longitudinal study of UK doctors. *The Lancet*, *359*(9323), 2089–2090. Retrieved from www.ncbi.nlm.nih.gov

Ministry of Finance. (2016). Economic survey. Singhadarbar: Kathmandu. Nepal. Retrieved from http://www.mof.gov.np

Moos, L. (2013). Prelude: Tuning the instrument. In *Transnational Influences on Values and Practices in Nordic Educational Leadership* (pp. 1-16). Springer, Dordrecht.

National Health Service (2015). *Staff survey 2015*. London, United Kingdom: National Health Service.

National Institutes of Health (NIH, 2019). *Sample size calculators.* Retrived from http://www.sample-size.net/

Nimmo, A., & Huggard, P. (2013). A systematic review of the measurement of compassion fatigue, vicarious trauma, and secondary traumatic stress in physicians. *Australasian Journal of Disaster and Trauma Studies*, *2013*(1), 37–45. Retrieved from http://trauma.massey.ac.nz/issues/2013-1/AJDTS_2013-1_Nimmo.pdf

Nisar, K., Khan, K. H., & Shah, M. (2012). Anxiety and depression in doctors undergoing postgraduate training courses at armed forces postgraduate medical institute Rawalpindi. *Journal of Ayub Medical College Abbottabad*, *24*(3–4), 171–173. Retrieved from www.ncbi.nlm.nih.gov

Ockey, G. J., & Choi, I. (2015). Structural equation modeling reporting practices for language assessment. *Language Assessment Quarterly*, *12*(3), 305–319. doi: 10.1080/15434303.2015.1050101

O'Neill, B. (2004). Collecting research data online: Implications for extension professionals. *Journal of Extension*, 42(3), 1-2. Retrieved from http://www.joe.org/joe/2004june/tt1.php

Oo, W. M., & Htun, T. T. (2014). Health hazards, job satisfaction and quality of life of health professionals working at government hospitals in Mandalay city, Myanmar. *Burma Medical Journal*, *56*(3), 19–25. Retrieved from www.researchgate.net

Oosthuizen, P., & Van der Bijl, H. (2007). Anxiety, depression, health attitudes and coping strategies in doctors and teachers in a Cape Town setting. *South African Journal of Psychiatry*, *13*(2), 46–51. doi: 10.1080/20786204.2013.10874418

Pereira-Lima, K., & Loureiro, S. R. (2015). Burnout, anxiety, depression, and social skills in medical residents. *Psychology, Health & Medicine*, *20*(3), 353–362. doi: 10.1080/13548506.2014.936889

Phuyel, B. R. (2013). *Doctor's Brain Drain in Nepal: Exploring the Patterns, Causes, Consequences and Solutions* (Doctoral dissertation, University of Tokyo).

Pilowski, L., & O'Sullivan, G. (1989). Mental illness in doctors. *BMJ: British Medical Journal*, *298*(6669): 269–270. Retrieved from www.ncbi.nlm.nih.gov

Pines, A., & Aronson, E. (1988). *Career burnout: Causes and cures*. New York, US: Free Press.

Ping, R. A. (2009). "*Is there any way to improve Average Variance Extracted (AVE) in a Latent Variable (LV) X (Revised)?"* [on-line paper]. Retrieved from http://www.wright.edu/~robert.ping/ImprovAVE2.doc

Pompili, M., Innamorati, M., Narciso, V., Kotzalidis, G. D., Dominici, G., Talamo, A., ... & Tatarelli, R. (2010). Burnout, hopelessness and suicide risk in medical doctors. *La Clinica Terapeutica*, *161*(6), 511–514. Retrieved from www.ncbi.nlm.nih.gov

Prajapati, R., Baral, B., Karki, K. B., & Neupane, M. (2013). Perception of security by health workforce at workplace in Nepal. *Journal of Nepal Health Research Council*, *11*(24), 153–157. Retrieved from www.ncbi.nlm.nih.gov

Prins, J. T., Gazendam-Donofrio, S. M., Tubben, B. J., Van der Heijden, F. M., Van de Wiel, H. B., & Hoekstra-Weebers, J. E. (2007). Burnout in medical residents: A review. *Medical Education*, *41*(8), 788–800. doi: 10.1111/j.1365-2923.2007.02797.x

Raphael, B., Singh, B., Bradbury, L., & Lambert, F. (1984). Who helps the helpers? The effects of a disaster on the rescue workers. *OMEGA - Journal of Death and Dying*, *14*(1), 9-20. doi: 10.2190/5J74-H2QM-FEPM-JNEP

Ratnakaran, B., Prabhakaran, A., & Karunakaran, V. (2016). Prevalence of burnout and its correlates among residents in a tertiary medical center in Kerala, India: A cross-sectional study. *Journal of Postgraduate Medicine*, *62*(3), 157–161. doi: 10.4103/0022-3859.184274

Reynolds III, C. F., & Clayton, P. J. (2009). Commentary: out of the silence: confronting depression in medical students and residents. *Academic Medicine*, *84*(2), 159–160. doi: 10.1097/ACM.0b013e31819397c7

Risal, A., Manandhar, K., Linde, M., Steiner, T. J., & Holen, A. (2016). Anxiety and depression in Nepal: prevalence, comorbidity and associations. *BMC psychiatry*, *16*(1), 102–110. doi: 10.1186/s12888-016-0810-0

Rodrigues, H., Cobucci, R., Oliveira, A., Cabral, J. V., Medeiros, L., Gurgel, K., ... & Gonçalves, A. K. (2018). Burnout syndrome among medical residents: A systematic review and meta-analysis. *Plos One*, *13*(11), e0206840. doi: 10.1371/journal.pone.0206840

Rosenstein, A. H. (2012). Physician stress and burnout: what can we do?. *Physician Executive*, *38*(6), 22–30. Retrieved from www.researchgate.net

Rout, U. R. (2018). *Understanding stress in doctors' families*. London, United Kingdom: Routledge.

RSS (2016). 2,000 doctors produced annually in Nepal. *The Rising Nepal.* Retrieved from http://therisingnepal.org.np/news/12556

Sakinofsky, I. (1980). Suicide in doctors and wife of doctors. *British Medical Journal*, *26* (1), 837–844. doi: 0.1136/bmj.281.6236.386

Samson, T., Iecovich, E., & Shvartzman, P. (2016). Psychometric characteristics of the Hebrew version of the Professional Quality-of-Life Scale. *Journal of pain and symptom management*, *52*(4), 575–581. doi: 10.1016/j.jpainsymman.2016.03.019

Schattner, P., Mazalin, D., Pier, C., Wainer, J., & Ling, M. Y. (2010). GP registrar well-being: A cross-sectional survey. *Asia Pacific Family Medicine*, *9*(1), 1–7. Retrieved from http://www.apfmj.com/content/9/1/2

Schaufeli, W. B., Maslach, C., & Marek, T. (1993). The future of burnout. *Professional burnout: Recent developments in theory and research*, *253*-259. Retrieved from https://www.wilmarschaufeli.nl/publications/Schaufeli/045.pdf

Schernhammer, E. S., & Colditz, G. A. (2004). Suicide rates among physicians: a quantitative and gender assessment (meta-analysis). *American Journal of Psychiatry*, *161*(12), 2295–2302. doi: 10.1176/appi.ajp.161.12.2295

Schonfeld, I. S., & Bianchi, R. (2016). Burnout and depression: Two entities or one? *Journal of Clinical Psychology*, *72*(1), 22-37. doi: 10.1002/jclp.22229

Schwenk, T. L. (2018). Physician Well-being and the Regenerative Power of Caring. *Jama*, *319*(15), 1543–1544. doi: 10.1001/jama.2018.1539

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2018). *Mindfulness-based cognitive therapy for depression*. New York, USA: Guilford Publications.

Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L. N., Sotile, W., Satele, D., ... & Oreskovich, M. R. (2012). Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Archives of Internal Medicine*, *172*(18), 1377–1385. doi:10.1001/archinternmed.2012.3199

Shanafelt, T. D., Mungo, M., Schmitgen, J., Storz, K. A., Reeves, D., Hayes, S. N., ... & Buskirk, S. J. (2016). Longitudinal study evaluating the association between physician burnout and changes in professional work effort. In *Mayo Clinic Proceedings* (Vol. 91, No. 4, pp. 422–431). Elsevier.

Shen, J., Yu, H., Zhang, Y., & Jiang, A. (2015). Professional quality of life: A cross-sectional survey among Chinese clinical nurses. *Nursing & Health Sciences*, *17*(4), 507–515. doi: 10.1111/nhs.12228

Silva, V., Costa, P., Pereira, I., Faria, R., Salgueira, A. P., Costa, M. J., ... & Morgado, P. (2017). Depression in medical students: Insights from a longitudinal study. *BMC Medical Education*, *17*(1), 184-193. doi: 10.1186/s12909-017-1006-0

Silverman, M. (2000). Physicians and suicide. In: Goldman LS, Meyers M, Dickstein et al. (2000). *The handbook of physician health: Essential guide to understanding the heath care needs of physicians.* Chicago, USA: American Medical Association.

Sinclair, S., Raffin-Bouchal, S., Venturato, L., Mijovic-Kondejewski, J., & Smith-MacDonald, L. (2017). Compassion fatigue: A meta-narrative review of the healthcare literature. *International Journal of Nursing Studies*, *69*(1), 9-24. doi: 10.1016/j.ijnurstu.2017.01.003

Skogen, J. C., Øverland, S., Smith, O. R., & Aarø, L. E. (2017). The factor structure of the Hopkins Symptoms Checklist (HSCL-25) in a student population: A cautionary tale. *Scandinavian Journal of Public Health*, *45*(4), 357-365. doi: 10.1177/1403494817700287

Smart, D., English, A., James, J., Wilson, M., Daratha, K. B., Childers, B., & Magera, C. (2014). Compassion fatigue and satisfaction: A cross-sectional survey among US healthcare workers. *Nursing & Health Sciences*, *16*(1), 3-10. doi: 10.1111/nhs.12068

Smith, F., Goldacre, M. J., & Lambert, T. W. (2017). Adverse effects on health and wellbeing of working as a doctor: Views of the UK medical graduates of 1974 and 1977 surveyed in 2014. *Journal of the Royal Society of Medicine*, *110*(5), 198–207. doi: 10.1177/0141076817697489

Sodeke-Gregson, E. A., Holttum, S., & Billings, J. (2013). Compassion satisfaction, burnout, and secondary traumatic stress in UK therapists who work with adult trauma clients. *European Journal of Psychotraumatology*, *4*(1), 1–10. doi:10.3402/ejpt.v4i0.21869. eCollection 2013

Sousa, V. D., & Rojjanasrirat, W. (2011). Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: A clear and user-friendly guideline. *Journal of Evaluation in Clinical Practice*, *17*(2), 268–274. doi: 10.1111/j.1365-2753.2010.01434.x

Sreeramareddy, C. T., Shankar, P. R., Binu, V. S., Mukhopadhyay, C., Ray, B., & Menezes, R. G. (2007). Psychological morbidity, sources of stress and coping strategies among

undergraduate medical students of Nepal. *BMC Medical Education, 7*(1), 26. doi: 10.1186/1472-6920-7-26

Stamm, B. H. (2002). Measuring compassion satisfaction as well as fatigue: Developmental history of the Compassion Satisfaction and Fatigue Test. In C. R. Figley (Ed.), *Treating compassion fatigue* (pp. 107–119). New York, USA: Brunner-Routledge.

Stamm, B. H. (2005). *The ProQOL manual. The professional quality of life scale: Compassion satisfaction, burnout & compassion fatigue/secondary trauma scales.* Retrieved from http:// www.compassionfatigue.org/pages/ProQOLManualOct05.pdf

Stamm, B. H. (2010). *The concise proqol manual*. Retrieved from http://www.proqol.org/uploads/ProQOL_Concise_2ndEd_12-2010.pdf

Stearns, S., & Benight, C. C. (2016). Organizational factors in burnout and secondary traumatic stress. In *Secondary Trauma and Burnout in Military Behavioral Health Providers*. 85–113 (online). New York, US: Palgrave Macmillan. doi: 10.1057/978-1-349-95103-1_5

Suvedi, B. K., Pradhan, A., Barnett, S., Puri, M., Chitrakar, S. R., Poudel, P., ... & Hulton, L. (2009). Nepal maternal mortality and morbidity study 2008/2009: summary of preliminary findings. *Kathmandu, Nepal: Family Health division, Department of Health Services, Ministry of Health, Government of Nepal*.

Swami, M. K., Mathur, D. M., & Pushp, B. K. (2013). Emotional intelligence, perceived stress and burnout among resident doctors: an assessment of the relationship. *The National Medical Journal of India*, *26*(4), 210–213. Retrieved from www.ncbi.nlm.nih.gov

Thakur, A., & Koirala, G. A. D. S. (2007). Medicine as a career choice: motivating factors in Nepalese medical students. *Journal of Institute of Medicine, 21*(1). Retrieved from www.jiom.com.np

Thapa, S. B., & Hauff, E. (2005). Psychological distress among displaced persons during an armed conflict in Nepal. *Social Psychiatry and Psychiatric Epidemiology*, *40*(8), 672–679. doi: 10.1007/s00127-005-0943-9

Thomas, P., Billon, R., Chaumier, J. A., Barruche, G., & Thomas, C. H. (2014). Psycho-social hazards for staff in geriatrics and geriatric psychiatry. *Open Journal of Psychiatry*, *4*(02), 91–98. doi:10.4236/ojpsych.2014.42013

Toussaint, A., Kroenke, K., Baye, F., & Lourens, S. (2017). Comparing the Patient Health Questionnaire–15 and the Somatic Symptom Scale–8 as measures of somatic symptom burden. *Journal of Psychosomatic Research*, *101*, 44–50. doi: 10.1016/j.jpsychores.2017.08.002

Van Ommeren, M., Sharma, B., Thapa, S., Makaju, R., Prasain, D., Bhattarai, R., & de Jong, J. (1999). Preparing instruments for transcultural research: Use of the translation monitoring form with Nepali-speaking Bhutanese refugees. *Transcultural Psychiatry*, *36*(3), 285-301. doi: 10.1177/136346159903600304

Ventevogel, P., De Vries, G., Scholte, W. F., Shinwari, N. R., Faiz, H., Nassery, R., ... & Olff, M. (2007). Properties of the Hopkins Symptom Checklist–25 (HSCL–25) and the Self-Reporting Questionnaire (SRQ–20) as screening instruments used in primary care in Afghanistan. *Social Psychiatry and Psychiatric Epidemiology*, *42*(4), 328–335. doi: 10.1007/s00127-007-0161-8

Vijendren, A., Yung, M., & Sanchez, J. (2015). Occupational health issues amongst UK doctors: A literature review. *Occupational Medicine*, *65*(7), 519–528. doi: 10.1093/occmed/kqv088

Wheaton, B. (1987). Assessment of fit in overidentified models with latent variables. *Sociological Methods & Research*, *16*(1), 118–154. doi: 10.1177/0049124187016001005

Wijerupa, J., Weerakkody, R., & Street, R. (n. d.). Professional quality of life among doctors: Cross-sectional study. Retrieved at https://www.researchgate.net/

Wind, T. R., & Knipscheer, J. (2017). The assessment of psychopathology among traumatized refugees: measurement invariance of the Harvard Trauma Questionnaire and the Hopkins Symptom Checklist-25 across five linguistic groups. *European Journal of Psychotraumatology*, *8*(sup2), 1321357-1321357. doi: 10.1080/20008198.2017.1321357

Wittchen, H. U., & Einsle, F. (2012). Depression, anxiety, and somatic complaints: Is it all psychosomatic? *Medicographia, 34*(3), 307–314. doi:10.1002/ 14651858

Wurm, W., Vogel, K., Holl, A., Ebner, C., Bayer, D., Mörkl, S., ... & Hofmann, P. (2016). Depression-burnout overlap in physicians. *PLoS One, 11*(3), e0149913. doi: 10.1371/journal.pone.0149913

Yahaya, S. N., Wahab, S. F. A., Yusoff, M. S. B., Yasin, M. A. M., & Rahman, M. A. A. (2018). Prevalence and associated factors of stress, anxiety and depression among emergency medical officers in Malaysian hospitals. *World Journal of Emergency Medicine, 9*(3), 178-186. doi: 10.5847/wjem.j.1920–8642.2018.03.003

Yanartaş, Ö., Kani, H. T., Kani, A. S., Akça, Z. N. D., Akça, E., Ergün, S., ... & Sayar, K. (2019). Depression and anxiety have unique contributions to somatic complaints in depression, irritable bowel syndrome and inflammatory bowel diseases. *Psychiatry and Clinical Psychopharmacology*, 1–9. doi: 10.1080/24750573.2019.1589177

Yee, J. L., & Niemeier, D. (1996). Advantages and disadvantages: Longitudinal vs. repeated cross-section surveys. *Project Battelle*, *94*, 16. Retrieved from http://ntl.bts.gov/data/letter_am/bat.pdf

Zijlema, W. L., Stolk, R. P., Löwe, B., Rief, W., White, P. D., & Rosmalen, J. G. (2013). How to assess common somatic symptoms in large-scale studies: A systematic review of questionnaires. *Journal of Psychosomatic Research*, *74*(6), 459–468. doi: 10.1016/j.jpsychores.2013.03.09

APPENDICES

Appendix- A Research Announcement

UNIVERSITY OF NICOSIA
DOCTORAL PROGRAMME IN PSYCHOLOGY

Research Announcement

Dear respected Medical and Dental Doctor,
Namaskar and Greetings

This is Yuba Raj Adhikari, a Ph.D. student in the psychology programmes at the University of Nicosia Cyprus. I am conducting my Ph.D. on 'Study on Prevalence and Influence of Measures of Professional Quality of Life to the Psychological Distresses of Medical Doctors in Nepal'. I have acquired your email through Nepal Medical Council. I am writing to notify you about my research and would like to request for your participation as follows.
This research is purely for the academic purpose and will support me to fulfill the requirements of the Ph.D. dissertation to be submitted to the University of Nicosia, Cyprus. In this research, I would like to collect information about the experiences, feelings and reflections in relation to your medical services to the people in need.

If you have completed a medical degree (MBBS or above), registered with the Nepal Medical Council, and are in the regular practice of medical care services to the clients; you can participate and support to me. This study will collect the data on your socio-economic and demographic situation, some specific information about your work or training, your experiences on personal and professional challenges or satisfaction felt in professional life, personal experience of secondary trauma, and personal distress situations you have been observed since last two weeks.

As a respondent of this research, your participation will be exclusively on the voluntary basis, you will not be compensated for your time and support neither in financial nor in any other forms. You will be requested to return the questionnaire through online or email attachment. The following link in a google form will directly submit your contribution to the researcher. Here is the link to follow for this process.
https://docs.google.com/forms/d/e/1FAIpQLSe1nJNXbFp6AseA2u-ccPqFIBG9f3ly55S-UwXp5pf0Hd9NHQ/viewform?usp=sf_link

It will take about 30-35 minutes to complete the questionnaire including the consent forms. The researcher will be available to respond to your queries if any and can be contacted at the following address.

Yubaraj Adhikari,
Principle Researcher,
Ph.D. Scholar,

University of Nicosia, Cyprus
Email: yubaraj.mhpss@gmail.com

I believe and expect that you will contribute to this process and contact me in case of need. It would be my pleasure to share the 'consent form and participant's information sheet' for your review and necessary approval. Participant's information sheet will further elaborate on this research in detail to you. Please kindly accept my sincere thanks for your generous support and participation in this research.

With kind regards,

Yuba Raj Adhikari, Signed on 07.07.2018

Appendix- B Participant's Information Sheet

UNIVERSITY OF NICOSIA
DOCTORAL PROGRAMME IN PSYCHOLOGY

Participant's Information Sheet

Introduction

I would like to kindly invite you to take part in a study which aims to understand and analyze the prevalence of professional quality of life and distress factors that exists among the Medical Doctors from Nepal. This is an academic study. Primarily, the outcomes of this study will support the researcher in accomplishing his Ph.D. in Psychology from the University of Nicosia, Cyprus. Taking part in this study is a voluntary decision for you. You can at any time decide to withdraw or pull out your participation or decide not to take part from the beginning. While doing so, you will not be asked for the reason behind your decision and your decision will not create any harm to you too. If you wish to take part in the later stage, this is also possible and you can remind the researcher through an email notification if you felt in need of a set of questionnaire and consent forms to do so too.

This information sheet is prepared for you to provide an in-depth knowledge about this study, which will enable you in deciding either you would like to take part in this study or not. This document explores the reasons for choosing this study, possible benefits or harm in participating in the study, and the ways in how the study findings will be utilized. I would humbly request you to go through this information sheet and approach the principal investigator if you have any further queries about this research. You are requested to decide at any time to take part in the study. You can also discuss with your colleagues, family members and friends before deciding to take part or not.

After your decision to take part in this study, you will be asked to fill out a 'consent form' which can be found after this information sheet. You can keep a pdf version or hard copy of both the documents (information sheet and consent form) with you. I would like to kindly request you to thoroughly read and understand the given information before making the decision to provide the consent.

Why is this study essential?

Many studies across the globe have shown that the Medical Doctors has to face several psychological, emotional and metal heath unmet needs induced by the care and treatment providing to the people in need. The level of burnout and secondary trauma is found to be higher in medical professionals including medical doctors. Many studies have emphasized that the sufferings of depression and suicide rate are comparatively high as of general public of these countries.

Medical doctors in Nepal has to face uncertainties due to attacks in the medical institutions, caregivers and relatives of the patients are creating pressures on the treatment processes, and provisions of insurance in case of death of a patient due to medical services are unclear. Nepali doctors have to be overstretched their duty hours as few thousands of medical doctors have to deliver the services to the millions of population. There are inconsistencies in the policy, and practices which vary from private to public institutions. Above all, the trauma and financial shortcoming of the relatives to bear the treatment cost of any patients have to be constantly observed. In some cases, the doctors have limited capacity to save the life of patients as patients came very late to the medical facilities. These unseen factors have the direct effect of the personal, professional, family and social life of medical doctors too; which are often not taken into the considerations.

Despite many studies carried out in developed world to understand the various psychological and professional factors such as compassion fatigue, secondary trauma, anxiety, depression, and suicide of the medical doctors and developing the ways to support the medical doctors, Nepali society has not so far thought about this and limited research are carried out in these regards. Therefore, the researcher has chosen this subject so that the situation can be assessed and sensitized to the concerned actors to establish ways of addressing the burnout, secondary trauma, and distress of the medical doctors. The researcher believes that the research findings can help the medical doctors to develop insights on the self-care provisions and continuation of service delivery to the people in need in an uninterrupted way.

Purpose of the study

The purpose of this study are:

- To assess the prevalence of Burnout (BO), Secondary Traumatic Stress (STS) and level of compassion satisfaction (CS) among the Nepali medical doctors.
- To measure the psychological distress (anxiety, depression and psychosomatic problems) prevalent among the Nepali medical doctors.
- To examine the effects of BO, STS and CS on anxiety, depression and psychosomatic problems, among Nepali medical doctors.
- To contribute to the steps towards the validation of ProQOL measures into Nepali context

Why have you been chosen for this study?

You have been chosen to participate in this study because:

- You are a medical doctor with MBBS or above degree in medical science
- You have been registered with Nepal Medical Council, and providing medical care facilities to the people in need
- Your mental health condition has not impaired your medical practice and
- You are not retired from the clinical care services

As a medical doctor, you have to deal with the patients on a daily basis. You have managerial and clinical responsibilities too. The sorrows, pain and difficulties of the patients also gradually affect your personal and professional life. As a human being, you have also a personal, family and social life, and you have to also engage on a daily basis with the family and social life. Medical doctors, as a service provider, are equally vulnerable to the stress and psychological

distress, which affects the personal, family and social life. Therefore, you have been chosen for this study to participate and provide your experiences and feelings of work and individual distress. Your participation as a respondent of this study is on a voluntary basis, there will be no financial or monitory benefits out of your participation. Nevertheless, your contribution in this study will further help to sensitize the institutions, departments and service providers to take into consideration of the distress of the Medical Doctors, which will further support to develop policies, regulations or guidelines on addressing the concerns of the medical doctors.

What is expected from you?

This research anticipates a minimum of 400 response from the Nepali Medical Doctors. The numbers of response have been calculated to effectively cover all the strata of the medical doctors' population in Nepal. You, as a respondent of this study, have been asked to fill out the questionnaire, which consists of your socio-economic and professional information, professional quality of life questionnaire and a set of questions related to the distress. The socio-demographic and professional questions include age, sex, qualification, your position, level of supervision and any training taken related to stress management. Additionally, you are requested to provide your ratings on 30 questions of professional quality of life scale and 25 questions related to the anxiety and depression. The entire questionnaire will be in Nepali and it will take 30-35 minutes to complete. Your name, and other personal details such as phone numbers, your institution of affiliation etc. are not asked. You can send the filled out questionnaire as a hard copy or the scanned copies as an email attachment directly to the researcher. The researcher will download the attachment and immediately deletes the email without further storing your private or official mail address.

Are there any potential risks for taking part in this study?

There are no serious threats directly associated with your participation in this research. Your identity will remain anonymous and confidential. The researcher will not, at any cost, share your information with the third party and will only use for the research and academic purpose. You have the right to ask any questions or doubts before deciding to participate in this research to the researcher.

The researcher could not see any direct physical threat as a respondent to this research. The time given to this research may disturb your daily schedule and your priorities. The researcher would like to kindly request you to take your time and decide on which period of the day might be feasible for you to support in this process. As this research will eventually try to support the practitioners like you, your support is a vital and rewarding contribution to the medical professionals too.

You will be responding to the distress and stress related to you, your working environment and traumatic experiences of your clients that you faced with; therefore you have to recall you're your memory on challenges, distressful events and flashbacks you may have persisted within a month. Certain emotional reactions or feelings after recalling distressful memories are absolutely normal, which will gradually be normalized. If you have faced any prolonged psychological and emotional challenges in doing so, you can approach the researcher or any psychological service providing institution or individuals in seeking support. The researcher can also guide you the available services nearby to your location and facilitate the required procedures to follow in

obtaining these supports. Despite these potential problems or risks, your contribution will eventually contribute to understanding the collective situation of burnout, secondary traumatic stress, compassion satisfaction, anxiety and depression situations of the medical doctors in Nepal. Gradually, the findings of this research may support to have a better workplace, with supportive supervision and self-care facilities so that the Medical Doctor's working conditions be improved across the time. As compared to the minimal risks, your participation in this research will contribute to a larger extent to your professional group.

How the results of this study will be utilized?

The primary aim of this research is to accomplish a Ph.D. degree for the researcher from the University of Nicosia, Cyprus. The research outcomes as a collective analysis of the study with appropriate recommendations and further research areas will be presented to the medical doctors, healthcare managers, institutions and concerned department with the support from Nepal Health Research Council (NHRC) and Nepal Medical Council. The dissemination sessions with the summary of the research might help the healthcare managers, institutions and concerned departments to enhance, and develop the trauma care and care for caregivers' activities to prevent burnout, secondary trauma and distress of the medical doctors in days to come. The researcher also disseminates the findings through write-ups and academic articles so that the researchers, medical college students and practitioners can benefit from this research. Most importantly, the anonymity and confidentiality of the individual data will be fully respected throughout the process, and synthesized collective findings will only be shared or published.

The ethical process and permissions

This research has been granted an ethical permission from the Research Ethics Committee of the University of Nicosia. Additionally, the researcher has received ethical clearance from the National Health Research Council (NHRC), located in Ramsahahapath, Kathmandu.

How to contact the researcher?

After above descriptions about the scope, objective, participation criteria, possible harm and possible benefits, I believe this ample information might have given you insights to make decisions on participating in this study. If you have any doubts or queries exists, you can contact the research at the following address:

Yubaraj Adhikari,
Principal Researcher
PhD Student
University of Nicosia
Telephone: 977-1-5202282 (Home)
Email: yubaraj.mhpss@gmail.com

How to contact the supervisor of this research?

If you have any concerns, allegations or any important issues pertaining to this research and would like to report to the supervisor of this study, here are the details of the supervisor of this study.

Birgit Senft. Ph. D.
Associate Professor and Principal Supervisor of this study
Doctoral Programme in Psychology
University of Nicosia
Email: office@statistix.at

Information:

Lastly, if you are unreservedly satisfied with the explanations and further clarifications on your doubts with this research and researcher if any, I would like to kindly request you to proceed further and provide your consent to take part in this study. The consent form is attached along with the questionnaire.

'Thank You'

Appendix- C Consent Form

CONSENT FORM*
For Participation in a Research Study
(These documents consist of 11 pages)

You are requested to participate in a research program. Below (please see **"Information for Patients and/or Volunteers"**) you will be provided with all the details and explanations, in simple language, regarding your participation in the study and what may happen to you, if you agree to participate. All the dangers concerning your health and rights, resulting from your participation in the study, will be explained to you in full detail. In addition, you will be warned for any possible discomfort that you may suffer. You will be informed on the information and/or material that you will be asked to provide voluntarily for the study and who will have access to this information and material. The duration, for which the investigators will have access to the information and/or material that you will provide, will be specified to you. The aims of the study, will be explained and what is hoped to be achieved as a result of your participation. Also, the benefits of the investigators and the financial sponsors, which may result from the study, will be outlined. **You should not consent to participate in the study should you have any doubts concerning the study and your health and rights. You should not consent to participate if the study if you find it unclear.** Should you decide to participate, you must provide information and details on whether you participated in any other research study within the last 12 months. Furthermore, if you decide to participate and you are a patient, your treatment will not be altered nor affected by your decision. **You are free to withdraw from the study at any time you wish.** If you are a patient, your decision to withdraw from the study, will have absolutely no repercussions on your present or future treatment. If you participate in the study, you are free to file substantiated complaints on any aspect or against any investigator of the study. These complaints may be filed/reported to the Research Ethics Committee.

All the pages of these consent documents should bare your name and signature.

Short title of the Program you are asked to participate
Study on Prevalence and Influence of Measures of Professional Quality of Life to the Psychological Distresses of Medical Doctors in Nepal
Principal Investigator of the Program you are asked to participate
Yuba Raj Adhikari

Last name:	…….	First name:	…… ..
Signature:		Date:	

* Source: Cyprus National Bioethics Committee, www.bioethics.gov.cy

UNIVERSITY OF NICOSIA
DOCTORAL PROGRAMME IN PSYCHOLOGY

INFORMED CONSENT FORM FOR RESEARCH STUDIES
For Participation in a Research Study
(These documents consist of 11 pages)

Short title of the Program you are asked to participate
Study on Prevalence and Influence of Measures of Professional Quality of Life to the Psychological Distresses of Medical Doctors in Nepal

Are you providing consent for yourself or someone else?	
If you are providing consent for someone else give details and his/her name.	

Question	Yes or No
Did you complete the consent documents yourself?	
Within the last 12 months, did you participate in any other research study?	
Did you read and fully understand the information provided regarding the Study?	
Did you have a chance to ask questions you may have regarding the Study?	
Did you receive adequate answers and explanations to your questions?	
Do you understand that you can withdraw from the study at any time you wish?	
Do you understand that, should you withdraw from the study you do not have to provide any explanation for your decision to any one?	
Do you understand that, should you withdraw from the study there will be no consequences on possible therapeutic treatment you are receiving or may receive in the future?	
Do you agree to participate in the Study?	
With whom did you meet and discuss the study?	

Last name:	…….	First name:	……..
Signature:		Date:	

Appendix- D Agreement with Research Officer

AGREEMENT WITH RESEARCH OFFICER

Mr. ……, from ……..hereunder the Research Officer, and Mr. Yuba Raj Adhikari, Doctoral Student of University of Nicosia, hereunder Principal Investigator of this study, agree the following:

1. **Job Title:** Research Officer for the 'Study on Prevalence and Influence of Measures of Professional Quality of Life to the Psychological Distresses of Medical Doctors in Nepal' under the University of Nicosia, Cyprus

2. **Contract:** July 25, 2018 to Nov 15, 2018 (part time)

3. **Remuneration:** as mutually agreed by both parties.

4. **Reporting and Communication:**
   - Research Officer consults and reports to the Principal Investigator of the study.
   - Provides copy of each external correspondence and email to the Principal Investigator
   - Applies the research ethics in to the practice.
   - Adheres the dignity, privacy, and confidentiality of personal information collected in course of this study.

5. **General objectives of the job**
   1) To learn and understand the scope, methods, and approaches of the study.
   2) To approach the potential respondents, inform and educate them about the study as per the research announcement, participant's information sheet and debriefing document of the research.
   3) Collect data as per the data collection tools and consolidate hard copies of the responses in sealed envelopes, and transfer the data to the principal investigator,
   4) Communicates any obstacles or any queries of the participants to the principal investigator and provides necessary feedbacks to the respondents if any.

6. **Required qualification**
   1) Master's Degree in research or social sciences
   2) Good command in English language, computer operation (MS Office), and email communication
   3) Best knowledge of geographical areas and medical facilities including medical doctors' population in Nepal

Agreed and signed:

…….	……..
Research Officer	Principal Investigator
Date: ……	Place: ……..

Appendix- E Data Collection Questionnaire Nepali Version

UNIVERSITY OF NICOSIA
DOCTORAL PROGRAMME IN PSYCHOLOGY

Data Collection Questionnaire Nepali Version

STRICTLY CONFIDENTIAL

Study on Prevalence and Correlation of Measures on Professional Quality of Life with the Psychological Distress of Medical Doctors in Nepal

Brief information about the study

I am, Mr Yubaraj Adhikari, a Ph.D. student of psychology programmes from the University of Nicosia, Cyprus. As a principal researcher of this study, I can be approached at yubaraj.mhpss@gmail.com for any queries.

The main aim of this research is to understand the prevalence of professional quality of life (ProQOL) factors and distress factors in Nepali Medical Doctors; and equally to test the correlations among the factors of ProQOL with the depression, anxiety and psychosomatic disorders which exists in the assessed population.

Your participation in this study is voluntary. You were chosen to take part in this study after following the criteria in the research announcement and you were notified through the participant's information sheet as an attachment to your email or through a telephonic conversation. Kindly check the following criteria which are applicable to you.

You fall under the following requirements:

- You are a Medical Doctor and registered with the Nepal Medical Council.
- You have a good understanding of Nepali, both writing, and reading.
- You are a Nepali citizen staying, and practicing your medical doctor's action in Nepal or aboard
- You are at least 18 years of age or older.

and

- You **have not** retired from the medical doctor's profession and practice.
- You **do not** have any critical mental illnesses impeding your present functionality to practice as a medical doctor's duty.

When you have completed all the process above, **please kindly proceed to the next page**. If you still do not prefer to take part in this study, please kindly notify the researcher via email at Yubaraj.mhpss@gmail.com

Instructions to the participants of this study

First of all, thank you for your participation in this study.

Please kindly complete all the questionnaire as much as possible for you, please do it thoroughly.

After completion of the filling out process, the questionnaire can send the researcher through an email attachment, or a scanned copy or can also be sent through a prepaid envelope provided to you along with the questionnaire.

The answers you have provided will be kept entirely confidential. The researcher will only use for the research purpose and only the collective findings without any names of the respondent will be used for the academic or publication processes.

Thank you very much for your support in this process.

व्यवसायिक जीवनको गुणस्तर सम्बन्धि अध्ययन :
भावनात्मक सहयोग प्रदानबाट हुने सन्तुष्टि तथा भावनात्मक सहयोग प्रदानबाट हुने थकान
Nepali version of Professional Quality of Life (N-PROQOL-5) Scale, 2016

जब तपाईं अन्य व्यक्तिहरूलाई सहयोग गर्नुहुन्छ तब तपाईं उनीहरूका जीवनसँग प्रत्यक्ष जोडिनुहुन्छ । तपाईंले अनुभव गर्नु भए अनुसार तपाईंले अन्य व्यक्तिलाई सहयोग गर्दा त्यसले तपाईंलाई सकारात्मक वा नकारात्मक रूपमा अवश्यै प्रभावित पार्दछ । तल केही प्रश्नहरू छन्, जुन तपाईंका सकारात्मक र नकारात्मक दुवै अनुभवका बारेमा सोधिएका छन् । एक सामाजिक कार्यकर्ता र सहयोगीका नाताले तल उल्लेखित प्रश्नहरूका उत्तरको अपेक्षा गरिएको छ ।

यहाँ तल केही बुँदाहरु उल्लेख गरिएका छन्, जसको जवाफ स्वरुप पाँच विकल्पहरु दिईएका छन् । विगत ३० दिन या १ महिना भित्रमा कति पटक ती कुराहरु अनुभव गर्नुभयो, आफुले अनुभव गरेको आधारमा कुनै एक विकल्पमा चिन्ह लगाउनुहोस ।

१) कहिल्यै भएन २) विरलै ३) कहिलेकाहीँ ४) प्राय ५) धेरै जसो

		१) कहिल्यै भएन	२) विरलै	३) कहिलेकाहीँ	४) प्राय	५) धेरैजसो
1	म खुसी छु ।					
2	म एकभन्दा बढी सेवाग्राहीहरूको बारेमा सोचिरहन्छु ।					
3	म अरूलाई सहयोग गर्न सकेकोमा सन्तुष्टि महसुस गर्छु ।					
4	म अन्य व्यक्तिहरूसँग आत्मीयता र सहजता महसुस गर्दछु ।					
5	आकस्मिक रूपमा आएको आवाज वा होहल्लाबाट म झसङ्ग हुन्छु ।					
6	मैले सेवाग्राहीलाई पुऱ्याएको सहयोगले म प्रोत्साहित महसुस गर्दछु ।					
7	मेरो व्यक्तिगत जीवन र सहयोगकर्ताको भूमिका बीचमा भिन्नता महसुस गर्न मलाई कठिन हुन्छ ।					
8	मैले आघातजन्य घटनाबाट प्रभावित हरूलाई सहयोग गर्दाको असरबाट भएको अनिद्राले मेरो कार्य प्रगतिमा बाधा भएको महसुस गर्दछु ।					
9	मैले आघातजन्य घटनाहरूबाट प्रभावित व्यक्तिहरूलाई सेवा पुऱ्याएकाले आफूलाई पनि असर पुगेको महसुस गर्दछु ।					
10	मेरो सहयोगकर्ताको पेशाका कारण आफूलाई बाँधिएको वा फन्दामा परेको महसुस गर्दछु ।					
11	मेरो सहयोगकर्ताको भूमिकाको कारणले म तनाव महसुस गर्दछु ।					
12	मलाई सहयोगकर्ताको भूमिका अत्यन्तै मन पर्छ ।					
13	आघातजन्य घटनाबाट प्रभावित व्यक्तिका पीडाका कारण म आफूलाई निरन्तर उदास, दुःखी र खिन्न महसुस गर्दछु ।					

14	आघातजन्य घटनाबाट प्रभावित व्यक्तिहरूलाई सहयोग गर्दा उक्त व्यक्तिको पीडा आफ्नै जस्तो अनुभव गर्दछु ।					
15	मेरो विश्वासले मलाई कष्टहरूको सामना गर्न मद्दत पुऱ्याउँदछ ।					
16	म आफूले अरूलाई सहयोग गर्न आवश्यक ज्ञानलाई सुधार गर्न सकेकोमा खुसी महसुस गर्दछु ।					
17	म जस्तो हुन चाहन्थें त्यस्ते व्यक्ति भएको छु ।					
18	मेरो काम वा सेवाले मलाई सन्तुष्टि दिलाउँछ ।					
19	मेरो सहयोगकर्ताको कामको कारणले सहयोग गर्ने समग्र क्षमतामा ह्रास आएको महसुस गर्दछु ।					
20	म मेरा सेवाग्राहीहरूप्रति र मेरो सेवा गर्न सक्ने क्षमताप्रति आनन्दको भावना महसुस गर्दछु ।					
21	मेरो कामको बोझले गर्दा अर्थात् सेवाग्राही धेरै भएका कारण म मानसिक र भावनात्मक रूपमा थकित महसुस गर्दछु ।					
22	मेरो काममा म सकारात्मक परिवर्तन ल्याउन सक्छु भन्ने मलाई विश्वास छ ।					
23	म केही निश्चित स्थान, गतिविधि र अवस्थाबाट टाढा बस्छु, किनकि त्यसले मलाई मेरो सेवाग्राहीहरूका डरलाग्दा अनुभवहरूको याद दिलाउँछ ।					
24	म अरूलाई पुऱ्याउने सहयोगबाट आफूलाई गौरवान्वित महसुस गर्दछु ।					
25	मैले सहयोगको कार्य गरेका कारणले मैले नसोचेको वा डराउने किसिमका परिस्थितिहरू आइरहन्छन् ।					
26	म अरूलाई सहयोग पुऱ्याउने प्रक्रिया र प्रणालीबाट निराशा महसुस गर्दछु ।					
27	सहयोगकर्ताको भूमिकामा म सफल छु भन्ने मलाई लाग्दछ ।					
28	मैले आघातजन्य घटनाबाट प्रभावित व्यक्तिहरूसँग गरेका केही महत्वपूर्ण छलफल र कार्यहरूको सम्झना गर्न सक्दिन ।					
29	म अत्यन्तै दयालु र सहयोगी छु ।					
30	म खुशी छु किनकि मैले सहयोगकर्ताको रूपमा काम गर्ने पेशा छानें ।					

Items related to distress

तपाईलाई विगत दुई हप्ता भित्रमा तपाईले महसुस गर्नु भएका कठिनाईहरू बारे प्रश्न गर्दैछु । प्रत्येक प्रश्नको लागि तपाईलाई विगत दुई हप्तामा कति धेरै कठिनाई भयो बारेमा म प्रश्न गर्दैछु ।

Part I. कठिनाईहरू (HSCL-25)		(हुदै भएन) १	(कहिलेकाँहीभो) २	(अकसरभो) ३	(एकदमै धेरैभो) ४
A1.	विनाकारण एक्कासी डर लाग्ने भयो कि भएन? कत्तिको भयो?				
A2.	मनमा डरले डेरा जमाएको अनुभव भयो कि भएन? कत्तिको भयो?				
A3.	चक्कर लाग्ने, टाउको झन्न हुने वा कमजोरी महसुस हुने भयो कि भएन? कत्तिको भयो?				
A4.	मन हडवडाउने (त्रसित हुने) भयो कि भएन?				
A5.	मुटु छिटो छिटो ढुकढुक गर्ने, मुटु दगुर्ने समस्या भयो कि भएन? कत्तिको भयो?				
A6.	ह्रातखुट्टा वा पुरै शरीर काम्ने भयो कि भएन? कत्तिको भयो?				
A7.	टेन्सन वा तनावग्रस्त भएको अनुभव भयो कि भएन? कत्तिको भयो?				
A8.	टाउको दुख्यो कि दुखेन? कत्तिको दुख्यो?				
A9.	एकदमै डर लागेर दिमागले काम गर्न छोड्ने भयो कि भएन? कत्तिको भयो?				
A10.	चुपचाप लागेर एक ठाउँ बस्न नसक्ने गरी छट्पटी भयो कि भएन? कत्तिको भयो?				

Part II. कठिनाईहरू (HSCL-25)		(हुदै भएन) १	(कहिलेकाँहीभो) २	(अकसरभो) ३	(एकदमै धेरैभो) ४
A11.	कमजोरी भएको वा जिउ भारी भएको जस्तो अनुभव भयो कि भएन? यस्तो कत्तिको भयो?				
A12.	जे काम बिग्रे पनि आफ्नै गल्तिले बिग्रेको भन्ठान्नु भयो कि भएन? यस्तो कत्तिको भयो?				
A13.	छिट्टै रुन आउने/छिट्टै रुँरुँ लाग्ने भयो कि भएन? यस्तो कत्तिको भयो?				
A14.	यौन इच्छा वा आनन्दमा कमी भयो ? भयो भने कत्तिको भयो ?				
A15.	खान मन नलाग्ने भयो कि भएन? यस्तो कत्तिको भयो?				
A16.	निदाउन गाह्रो हुने वा निन्द्रामा बिउझिरहने भयो कि भएन? यस्तो कत्तिको भयो?				
A17.	अब म केही पनि गर्न सक्दिन, अब मेरो हालत के हुने होला भन्ने सोचाइ आयो कि आएन? यस्तो सोचाइ कत्तिको आयो?				

A18.	मन उदास वा खिन्न हुने भयो कि भएन? यस्तो कत्तिको भयो?				
A19.	मेरो आफ्नो भन्ने कोहि पनि छैन भनी एक्लोपनको महसुस गर्नुभयो कि भएन? यस्तो महसुस कत्तिको गर्नुभयो?				
A20.	आत्महत्या गर्ने, मरुँ मरुँ लाग्ने सोचाइ आयो कि आएन? यस्तो सोचाइ कत्तिको आयो?				
A21.	केही कुरामा आफु फसेको/अडकेको जस्तो सोचाइ आयो कि आएन? यस्तो सोचाइ कत्तिको आयो?				
A22.	जुनसुकै कामकुराको बारेमा पनि ज्यादा सुतां लाग्ने भयो कि भएन? यस्तो कत्तिको भयो?				
A23.	केहि कुरामा पनि मन नलाग्ने भयो कि भएन? यस्तो कत्तिको भयो?				
A24.	कुनै पनि कामकाज गर्दा धेरै गाह्रो भएको अनुभव/झन्झट लाग्ने भयो कि भएन? यस्तो कत्तिको भयो?				
A25.	आफूले आफैलाई निकम्मा, बेकारको मान्छे ठान्नुभयो कि भएन? यस्तो कत्तिको ठान्नुभयो?				

Part III: Somatic Symptom Scale–8 (SSS-8)

"म तपाईंलाई **विगत एक हप्ताभित्रमा** तपाईले महसुस गर्नु भएका कठिनाइहरुका बारेमा केही प्रश्नहरू गर्दैछु। **आजको दिनसहित विगत एक हप्तामा** तल उल्लेखित बिषयहरुमा कतिको कठिनाइ भयो ? म तपाईंलाई प्रत्येक प्रश्नमा सोध्छु।"

III कठिनाईहरू (SSS-8)		हुँदै भएन। ०	थोरै वा अलिअलि भएको छ। १	कहिलेकाहीं भएको छ। २	धेरै भएको छ। ३	एकदमै धेरै भएको छ। ४
S1.	तपाईंलाई पेट दुख्ने, वा (गडबड हुने, पखाला लाग्ने, वा,कब्जियत हुने) समस्याले कत्तिको गाह्रो भयो ?					
S2.	तपाईंलाई ढाड वा कम्मर दुख्ने समस्याले कत्तिको दुःख दियो ?					
S3.	तपाईंलाई हात, खुट्टा वा जोर्नी दुख्ने समस्याले कत्तिको दुःख दियो ?					
S4.	तपाईलाई टाउको दुख्ने समस्याले कत्तिको दुःख दियो ?					
S5.	तपाईलाई छाती दुख्ने वा सास फेर्न गाह्रो हुने समस्याले कत्तिको दुःख दियो ?					
S6.	तपाईलाई टाउको झनन्न हुने, रिंगटा वा चक्कर लाग्ने समस्याले कत्तिको दुःख दियो ?					
S7.	तपाईलाई शरीरमा कमजोरी (तागत नभएकोजस्तो) हुने वा आलश्य हुने समस्याले कत्तिको दुःखदियो ?					
S8.	निदाउन गाह्रो हुने वा निद्रामा बिउँझिने समस्याले कत्तिको दुःख दियो ?					

Socio and Demographic Details

Kindly fill the most appropriate response for you and provide the required information.

1. Sex	○ Female		○ Male	
2. Job Title: ……..				
3. Your Position	○ General Physician	○ Consultant	○ Senior Consultant	○ Director
4. Highest Qualification	○ MBBS or Bachelor's in Dental Surgery	○ Master's Degree in Medicine (MD)/MS /MDS	○ Doctor of Medicine	Please specify your specialization : …… ……..
5. Years of Work Experience	○ 0-2	○ > 2-5	○ > 5-10	○ > 10+
6. Type of Organisation	○ Government Hospital	○ Private Hospital	○ Teaching Hospital	○ Private Practice
7. Location of Job	○ Out of home location ○ Home location		○ Out of Kathmandu ○ Kathmandu Valley	
8. Age	○ 18-25	○ 26-45	○ 46-60	○ 60+

Additional Information about your job

Please be as accurate as much as possible.

9. Which type of services do you provide?	○ Emergency service	○ OPD
	○ Surgery or Post-Operative cases	○ Clients at Private clinic
10. How many clients do you support on a weekly basis	○ Below 25	○ 26-50
	○ 50-75	○ 75 or above
11. Do you regularly receive clinical supervision?	○ Yes	○ No
	○ Not heard about clinical supervision	
12. Have you received any stress management, care for caregivers or self-care training?	○ Yes	○ No
	○ If Yes: when - ……..Year and, ○ How long- ……days	

***Please return the questionnaire in the pre-paid envelope or email.**

Thank-You for your participation!

Appendix- F Debriefing Information

UNIVERSITY OF NICOSIA
DOCTORAL PROGRAMME IN PSYCHOLOGY

Debriefing Information

Dear respected Medical/Dental Doctor,
Namaskar and Greetings

Firstly, it is my utmost pleasure to receive your support and contribution through the participation in my research. I would like to provide my gratitude and heartfelt thanks for your support. The objective of this study was to understand and explore the professional quality of life and distress observed and experienced by the Nepali Medical Doctors. Secondly, the study analyses the interrelationships among the different factors of the professional quality of life and distress through examining the correlations among these factors. Finally, a culturally adapted Nepali version of Professional Quality of life also comes to be used by the professionals and researchers after completion of this study. The results of this study will be made available to the interested individuals and institutions and will be shared publicly shared through a national level of a workshop with the support from Nepal Medical Council in Kathmandu. The data you have provided to the researcher will be only used for the academic purposes. Consolidated findings of the study may be publicized without disclosing individual information and details. The researcher ensures the confidentiality and anonymity of the individual data gathered in this process. The collected data from the respondents will be stored in a locked cabinet and password protected computers for additional five years and will be destroyed.

Through this study, you were asked to provide your personal and professional experiences on burnout, secondary trauma, compassion satisfaction, anxiety, depression, suicidal ideation and psychosomatic complaints you have observed or felt. If you wish or felt to discuss and explore your individual psychological distress and emotional difficulties, you may contact the following institutions for further support. The services provided by these organizations may subject to charge any fee, the researcher refrains himself engaging on such matters. It would be your personal responsibility to obtain these available facilities. Contact details of the institutions are as follows:

Rhythm Neuro Psychiatry Hospital and Research Center
Ekantakuna, Jawalakhel, Lalitpur
Tel: +977 (1) 5000700, 5000711
Email: admin@rhythmneuropsychiatry.com

OR,

Transcultural Psychosocial Organization (TPO Nepal)
Baluwatar, Kathmandu Nepal
Toll Free Number for Phone Counseling: 1660 0102005
Email: tponepal@tponepal.org.np

Kindly contact to the researcher for further details of the study or if you wish to receive the summary findings of the research after its completion in 2019. The address is as follows:

Prevalence of ProQOL and Its Influence on the Personal Distress of Doctors in Nepal

Yuba Raj Adhikari
Mahalaxmi Municipality Ward-3, Lalitpur
Email: yubaraj.mhpss@gmail.com

Appendix- G Ethics Approval Letter from University of Nicosia

AAP
Österreichische Akademie
für Psychologie

Vienna, May 08th, 2018

Subject: Ethics Review

Dear Yubaraj Adhikari,

I am pleased to inform you that the Research Ethics Committee (REC) of the Austrian Academy of Psychology (AAP) has reviewed and approved your ethics application "*Study on Prevalence and Influence of Measures of Professional Quality of Life to the Psychological Distresses of Medical Doctors in Nepal*". No changes are required.

Please note that the approval of AAP's Research Ethics committee (REC) does **not** act as an alternative for the ethical evaluation for pharmaceutical products or medical treatment in Austria. For these cases, the approval of the responsible Ethics committees according the appropriate Austrian acts has to be given (AMG, LeitEKV, MPG, KAKuG, GTG, StrSchG, MedStrSchV, BSG, FMedG).

If any further information is required please do not hesitate to contact us.

Sincerely,

Dipl.-Ing. Dr. Martin Nechtelberger
Chair, Research Ethics Committee

AAP
Österreichische Akademie für Psychologie (AAP)
Angewandte Psychologie und Forschung GmbH
1020 Wien, Vereinsgasse 15
Internet: www.aap.co.at, www.aap.ac.at
Tel.: 01 / 406 73 70

UNIVERSITY of NICOSIA

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P.O.Box 24005, CY-1700, Nicosia, Cyprus

t +357 22 841500 | f +357 22 357281

university@unic.ac.cy | www.unic.ac.cy

May 14th, 2018

RE: Yuba Raj Adhikari

To whom it may concern,

This is to confirm that Yuba Raj Adhikari is currently a Ph.D. student (U174N3050) with the University of Nicosia Doctoral Programme in Psychology. He is required to complete a dissertation for the programme. The student has received proposal and ethics approval from the University of Nicosia for his dissertation titled: 'Study on Prevalence and Correlation of Measures on Professional Quality of Life with the Psychological Distress of Medical Doctors in Nepal'.

If you have any questions please do not hesitate to contact me at Ferreira.n@unic.ac.cy or at (357)22842211.

Yours Sincerely,

Nuno Ferreira

PhD coordinator

Appendix- H Ethics Approval Letter from NHRC

Government of Nepal
Nepal Health Research Council (NHRC)
Estd. 1991

Ref. No.: 3129

2 July 2018

Mr. Yuba Raj Adhikari
Principal Investigator
University of Nicosia
Cyprus

Ref: **Approval of thesis proposal** entitled **Prevalence and influence of measures of professional quality of life to the psychological distresses of medical doctors in Nepal**

Dear Mr. Adhikari,

It is my pleasure to inform you that the above-mentioned proposal submitted on **16 May 2018** **(Reg. no. 281/2018)** please use this Reg. No. during further correspondence) has been approved by Nepal Health Research Council (NHRC) Ethical Review Board on **27 June 2018**.

As per NHRC rules and regulations, the investigator has to strictly follow the protocol stipulated in the proposal. Any change in objective(s), problem statement, research question or hypothesis, methodology, implementation procedure, data management and budget that may be necessary in course of the implementation of the research proposal can only be made so and implemented after prior approval from this council. Thus, it is compulsory to submit the detail of such changes intended or desired with justification prior to actual change in the protocol. Expiration date of this proposal is **October 2019.**

If the researcher requires transfer of the bio samples to other countries, the investigator should apply to the NHRC for the permission. The researchers will not be allowed to ship any raw/crude human biomaterial outside the country; only extracted and amplified samples can be taken to labs outside of Nepal for further study, as per the protocol submitted and approved by the NHRC. The remaining samples of the lab should be destroyed as per standard operating procedure, the process documented, and the NHRC informed.

Further, the researchers are directed to strictly abide by the National Ethical Guidelines published by NHRC during the implementation of their project proposal and **submit progress report in between and full or summary report upon completion.**

As per your thesis proposal, the total research amount is **NRs 1,77,750** and accordingly the processing fee amounts to **NRs 10,000.** It is acknowledged that the above-mentioned processing fee has been received at NHRC.

If you have any questions, please contact the Ethical Review M & E Section at NHRC.

Thanking you,

Prof. Dr. Anjani Kumar Jha
Executive Chairperson

Appendix- I Dissertation Proposal

DISSERTATION PROPOSAL

PHD IN PSYCHOLOGY PROGRAMMES

UNIVERSITY OF NICOSIA, CYPRUS

Student Name: Yubaraj Adhikari
Dissertation Advisor: Birgit Senft, Ph.D.

Title
Study on Prevalence and Correlation of Measures on Professional Quality of Life with the Psychological Distresses of Medical Doctors in Nepal
Introduction and background
Medical doctors are those who provide treatment and care to the general populations and often work relentlessly to save the lives and human sufferings. Despite the immense care for others, studies have highlighted that the medical doctors have to go through overwhelming stress, burnout, traumatic transformations of the patients, depression and in the worst cases a deliberate action of self-harm (Bright & Krahn, 2011; Doolittle, Windish & Seelig, 2013; Hawton, Clements, Sakarovitch, Simkin & Deeks, 2001). 'Burnout in physicians is common, and studies show a prevalence of 30% to 78% of compassion fatigue (Doolittle, Windish, & Seelig, 2013 p.257). Depression and suicide among the medical doctors are increasing, and often the statistics are showing the higher level of prevalence as compared to the general population. The depression, anxiety, and suicidal ideation are often correlated with the burnout and secondary traumatic stress; however the symptoms of burnout and secondary stress are more caused by the work-related exhaustion, poor management style, internal conflicts and exposure to the trauma of patients (de Oliveira Jr et al., 2013; Graham, 2016**).** Nepal, as being the least among others regarding per capita per doctor, i.e., 4'800 population covered by one medical doctor (Jacobs, 2016), the medical doctors have to fulfill the healthcare demands of the general people. The prolonged stress, secondary trauma, and burnout further aggravate the isolation, helplessness, and hopelessness among the medical doctors; which further leads to the depression and suicide. The professional burnout, secondary traumatic stress and psychological distresses of the medical doctors are often neglected, which are not only affecting the quality of professional care, but also affecting the personal health, career growth, and family relationships (Kunwar, Risal & Koirala, 2016; Mata et al., 2015). Burnout and secondary traumatic stress are often related to the professional environment, whereas psychological distress such as depression, anxiety, and suicidal ideation can be caused by broader ecological factors. Often such interrelationships are different depending upon the organizational values, socio-cultural and economic contexts, and cannot be generalized (Maslach, Schaufeli & Leiter, 2001; Stearns & Benight, 2016). There are no such studies on the prevalence of professional quality of life and carried out in Nepali context to initiate a policy level discussions and establishment of support mechanisms to address such concerns.

Literature Summary

"An emotional exhaustion, depersonalization (lack of empathy), and reduced accomplishments at work" can be defined as burnout (Falkum, 2000, p. 1122). Compassion Fatigue (CF) is characterized as an emotional burden and negatives consequences of caring and treating others in need, which incorporates both burnout (BO) and secondary traumatic stress (STS) (Stamm, 2010). Often psychological distress such as anxiety, depression and suicidal ideation are also perceived as a mental health challenge, which may have caused by multiple personal, familial, societal and work-related causal factors. The rate of depression and suicide in medical doctors is 30-40% higher than the general population, out of which males are 1.4 times more likely commit suicide and women are even higher with 2.3 times greater than the general people (Graham, 2016). de Oliveira Jr et al. (2013) explored a positive the association between depression and burnout because the aestheticians used drinking and smoking as a coping strategy for the burnout, and the group of doctors with drinking and smoking behaviors was found a higher prevalence of depression and suicidal ideation.

A meta-analysis by Mata et al. (2015) outlined that 20.9% to 43.2% of medical doctors have been affected by depression and depressive disorders, the figures were depending on the screening tools. The professional quality of life (ProQOL) which includes compassion fatigue (CF) and compassion satisfaction (CS) of the Australian junior medical doctors was studied and explored that, 71% of doctors faced low job satisfaction, 69% were above the scores of burnout, and 54% had CF (Markwell & Wainer, 2009). In China, 37% female medical doctors faced the challenges of burnout where family and work balance, increased technological demands and continuous vocational training to maintain the competency were outlined as a major source of occupational distress (Wu, Li, Wang, Yang & Qiu, 2011). The causes of increased burnout, depression and suicide among the doctors are outlined as lack of sleep, difficult working relationships with the seniors, extra working hours, fear of making mistakes, dealing with critical cases, death of the patients and self-criticism (Bright & Krahn, 2011). In UK's study on occupational stress among the professionals, work-related stress only counts 37% of overall illness and 45% of days of working days of loss, in which welfare professionals including doctors are found with higher work-related stress (HSE, 2016).

Nepal lacks sufficient studies on burnout, secondary traumatic stress, depression and suicidal ideation in medical professionals in general and medical doctors in particular. A study with medical students (n = 206) in Nepal have revealed that 10.7% of the respondents had suicidal ideation within one year, 18.4% expressed suicidal ideation in their lifetime, whereas 1% students not only made plans but equally committed suicide in the past (Menezes et al., 2012). In post-earthquake context, 1 out of 5 medical doctors (n = 64) was studied having the diagnostic criteria for the PTSD. Female doctors were more affected as compared to male (Shrestha, 2015). In a separate study with undergraduate medical students from two medical colleges (n = 538), a higher prevalence of depression (29.9%), anxiety (41.1%) and stress (27%) were measured (Kunwar, Risal & Koirala, 2016).

Physicians often do not seek mental health treatment due to possible punitive actions, discrimination in medical licensing, barriers in professional and academic growths, and social stigma associated in most of the cultures (Center et al., 2003). There was a correlation found with a long working hour and higher prevalence of anxiety and depression among the civil servants in the UK (Virtanen et al., 2011). A higher level of emotional exhaustion was correlated with burnout, and psychological distresses in medical doctors too (McManus, Winder & Gordon, 2002). Increased attacks on hospitals and doctors by the relatives of patients died during the treatment are persisting threats, and often the doctors have to say that the person may die to prevent such retaliation. It is not often to

live in such chaotic and insecure situations, which causes debilitating consequences of stress, burnout, shame and guilt in Nepal (Magar, 2013).

A prevalence study on burnout and depression in Cape Town of South Africa revealed that burnout, depression and severe depression were interrelated into medical doctors (n =123). 76% of medical doctors reported burnout, 27% met the higher in cut-off BDI scores, and 3% were diagnosed with severe depression. Burnout was often associated with the increased workload, poor working conditions, increased working hours and system related frustrations, which were further fueling to the depression (Rossouw, Seedat, Emsley, Suliman & Hagemeister, 2013). Glass and McKnight (1996) reviewed that the depression and burnout have correlation, and burnout contributes to the depressive symptoms; however, the review proposed longitudinal studies and path analysis to verify the concept. Brenninkmeyer, Van Yperen, & Buunk (2001) explored that the burnout and depression are interrelated but do not resemble identical twins. Later, many researchers recommended that persistent burnout cause the depressive disorders to the working populations; therefore, burnout cannot be measured as a standalone component in clinical settings (Ahola et al., 2005; Ahola, Hakanen, Perhoniemi & Mutanen, 2014; Bakker et al., 2000).

Recently, Hegney et al. (2014) revealed that the CF is associated with the depression and anxiety among the nurses in Australia. Secondary trauma and anxiety among the clinical teams were found associated, where trauma was the major cause of anxiety to nearly half of the clinicians in Gaza-strip (Matter & Mousa Thabet, 2016). These studies clearly explored that the CF (BO and STS) triggers the level of anxiety and depression to the clinical population including medical doctors. In contrary, compassion satisfaction (CS) has a negative association with anxiety and depression; and CS often mediates the debilitating effects anxiety and depression (Hegney, Rees, Eley, Osseiran-Moisson, & Francis, 2015; Neff, 2012; Van Dam, Sheppard, Forsyth, & Earleywine, 2011). The burnout and depressive symptoms were found high among the Australian physicians ($r_s = 0.74$, $p < 0.001$), where more than half of the physicians (n = 531) found above the cutoff. Those physicians who were high with the depressive symptoms equally shown 87.5% of them were higher on burnout scores too (Wurm et al., 2016). As recommended by Glass and McKnight (1996), it is yet difficult to get the studies having structural modeling or path analysis to test the correlation among the CS, CF, anxiety and depression in general, and with the Nepali medical doctors in particular.

Therefore, this study, which aims to understand the prevalence and interrelationships among the burnout, secondary traumatic stress, anxiety, depression and suicide among the Nepali medical doctors is found relevant to fulfill the gap in understanding on this issue. Furthermore, the study complements the gap on the research relating to the professional quality of life and negative effects of care too. This study indeed potentially contribute to the resilience processes of the limited numbers of Nepali medical doctors, so that the support, treatment, and care can be continued without burnout and brain-drain of the medical doctors in Nepal.

Research Question

What is the current situation of Professional Quality of Life (ProQOL) and psychological distresses (anxiety, depression and psychosomatic burden) among the Nepali medical doctors? and,

which level of influence of Burnout (BO), Secondary Traumatic Stress (STS) and Compassion Satisfaction (CS) towards the measures of anxiety, depression and psychosomatic problems in Nepali medical doctors?.

Aim(s) and Objectives

The overall aim of this study is to measure the professional quality of life (ProQOL) factors, and psychological distresses (anxiety, depression and psychosomatic problems) of Nepali medical doctors. Furthermore, the study also examines the correlation between the factors associated with professional quality of life (ProQOL) and psychological distresses.

Specific Objective(s)

- To assess the prevalence of Burnout (BO), Secondary Traumatic Stress (STS) and level of compassion satisfaction (CS) among the Nepali medical doctors.
- To measure the psychological distress (anxiety, depression and psychosomatic problems) prevalent among the Nepali medical doctors.
- To examine the effects of BO, STS and CS on anxiety, depression and psychosomatic problems, among Nepali medical doctors.
- To contribute to the steps towards the validation of ProQOL measures into Nepali context

Methods

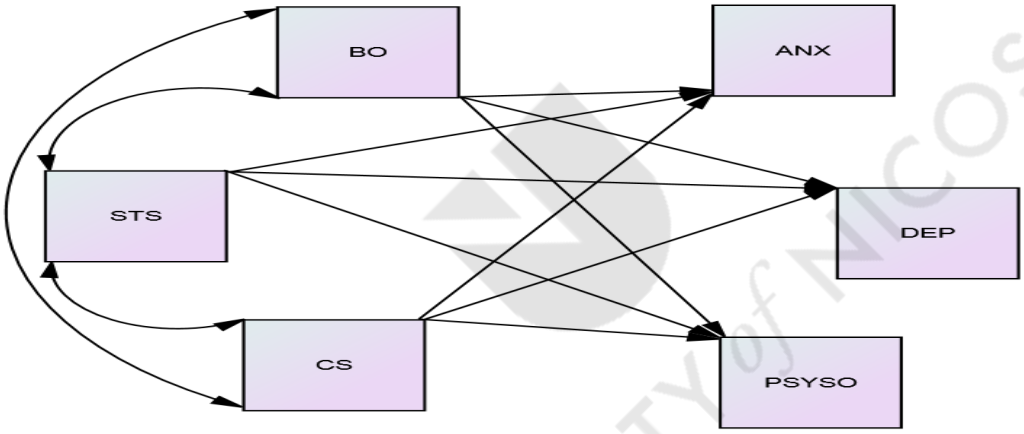
Design:

This study follows a cross-sectional quantitative design and carries out prevalence survey on psychological distresses and professional quality of life (ProQOL) factors among the Nepali medical doctors. A cross-sectional and prevalence study design is found appropriate in Nepali context with the medical doctor's population, as there is no availability of a comparative data. The Nepali version of professional quality of life (N-PROQOL-5) consisting 30 items (each ten item measuring CS, BO, and STS), which was contextualized by the author last year with mental health and psychosocial professionals, will be used to measure the burnout, secondary traumatic disorder, and compassion satisfaction. The distresses to measure the anxiety, depression and suicidal ideation will be collected by using the Hopkins Checklist (HSCL-25). The HSCL-25 consists of 10 items related to anxiety and 15 items with depression measures, whereas, one item within the depression measures the level of suicidal ideation too. Thapa and Hauff (2005) have validated HSCL-25 in Nepali population. Somatic Symptom Scale–8 (SSS-8) covers the somatic symptoms burden and has eight self-reported items in a 5-point Likert scale (0 = Not at all, 1 = a little bit, 2 = somewhat, 3 = quite a bit, and 4 = very much). SSS-8 is an abbreviated form of Patient Health Questionnaire (PHQ-15). PHQ-15 has been used in the Nepali population by Adhikari, Dutta, Sapkota, Chapagain, Aryal & Pradhan (2017) and Nowalk (2016) and found reliable to be used. A systematic transcultural translation of SSS-8 will be done through translation, lexical back translation, reviews from the

psychologists, and pilot testing (Van Ommeren, Sharma, Thapa, Makaju, Prasain, Bhattarai & de Jong, 1999) before its use for the full study.

Conceptual Framework:

The following framework provides an outline of the structural relationships among the various variables. Out of which, this study proposes to test the how the constructs of CF and CS are related with the constructs of anxiety and depression among the Nepali medical doctors'. The interrelationships will be tested using Structural Equation Modeling (SEM). SEM is a very general statistical technique, which is now widely used in behavioral research and combines the factor analysis and regression techniques (Hox & Bechger, 2007). The following path analysis framework will be used to test the hypothesis.



Participants:

Nepal Medical council has registered 15479 medical doctors and 1786 dental doctors by Dec 2015 (MoF, 2016). However, nearly 50% new graduates are migrating every year, and trends of permanent migration of medical doctors in 20 countries have been increased. Approximately 10000 doctors are available in the country, and over 40% are centralized in the capital city (Phuyel, 2013; Shankar, 2010).

The researcher has access to different web-based groups of Nepali doctors and has a good rapport with Nepal Medical Council too. Aday and Cornelius (2006) recommend applying $n = Z^2 1\text{-}\alpha/2 \text{ X } P (1\text{-}P)/d^2$, where the sample size has been chosen based on estimated proportions (P) and level of desired precision (d). The total sample size became 384, with an assumption of the value of 95% of a confidence interval, 50% of a true population and 5% of marginal error. Hulley, Cummings, Browner, Grady, & Newman (2013) have outlined the use of $N = [(Z\alpha+Z\beta)/C]^2 + 3$, to calculate the sample size in a correlational study. 319 sample was calculated, in which $\alpha = 0.05$, $\beta = 0.05$ and the expected correlation coefficient $r = 0.20$. Therefore, a sample size of 384 will be sufficient to

measure the correlation between the ProQOL and psychological distresses among the Nepali doctors *(See for detail: http://www.sample-size.net).*

In this study, Nepali doctors, both male and female, registered in Nepal Medical Council and practicing their work as a medical doctor will be included. Students perusing an undergraduate degree in medical science without having passed the medical council's registration will be excluded. Doctors with impaired functionality due to the critical mental health situations and retired individuals who are no more practicing their role as a doctor will not be included.

Method

Procedure

The data collection process follows a direct response from the participants, a set of the questionnaire through online (email attachment or online survey) will be sent to the recipient directly. The recruitment of the participants will be done through an online announcement in the social media and professional social networks. A direct email to Nepal Medical Council (NMC) will be sent and requested to circulate the NMC registered doctors. Large hospitals running inside or outside of Kathmandu valley will be approached through email and requested to circulate the research announcement to the medical doctors working in those hospitals.

An online data collection platform in google doc will be prepared, and disbursed through online social networks; media, facebook groups of medical doctors and a link will be requested to put on NMC website. As most of the medical doctors use the internet and social media Nepal, a small proportion of doctors living and working in remote districts might be excluded. Therefore, a voluntary circulation to the doctors from personal Administration Section of Ministry of Health will be requested. The circulation will include a link to data collection online address and a scanned copy of the data collection tool. This action will minimize the exclusion of the respondents living in remote working stations.

The online questionnaire package with N-ProQOL-5, HSCL-25, Somatic Symptom Scale–8 (SSS-8) and socio-demographic information will be taken through using ***Google Docs***. The data collection form will take approximately 30-35 minutes to be filled out for the respondents. The respondents will have right to withdraw or leave without any explanation from this survey. The filled out the questionnaire will automatically stores in an excel form directly from the ***Google Docs***. Any information related to personal identification (email, name) will be deleted, and coding will be introduced. The coding will prevent the confidential information and protects the privacy of data. The informants will be notified in a briefing note that the email address and phone numbers will be confidential and shall not be circulated or shared without the consent of the respondent. The researcher will duly respect the protection of individual data too.

All respondents will receive debriefing information automatically after completion of the survey. The debriefing note includes a thank you note, and information about the services available to seek emotional, counseling and therapeutic support if the respondent deemed so after participating in this study. Respondents can request to receive a summary report of the findings by providing their contact details to the researcher after receiving the debriefing letter. Confidentiality and anonymity will be maintained with contact details kept separately from the questionnaires and data for this purposes too.

Data Collection/Materials

An electronic form of data collection tolls includes a consent form, participants' information sheet, socio-demographic data questionnaires, Nepali version of HSCL-25 for anxiety, depression and suicidal ideation, and, finally, Nepali version of the professional quality of life scale for the

compassion satisfaction and fatigue (ProQOL, v5 N) will be prepared. A Nepali translated version of Somatic Symptom Scale–8 (SSS-8), comprising 8 items to cover the psychosomatic burden, will be used. A separate section on socio-economic-demographic information of the respondents includes sex, qualification, years of experience, age, designation, type of organization (private or public), and years of experiences. Respondents will be further asked if they have attended any stress management, self-care, and secondary trauma management training or not. Furthermore, the participants will also requested to report on the availability of supervision on their level of distresses, burnout and secondary trauma too.

N-ProQOL-5

ProQOL-5 consists of 30 items covering each 10 items for compassion satisfaction, burnout, and secondary traumatic stress. Each item consists of five points Likert scale (1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Very Often). Stamm (2010) outlined the cut-off scores follow below the 25th or above the 75th percentiles for each sub-scale. Sodeke-Gregson et al. (2013) outlined a good internal consistency reliability of ProQOL-5 including (CS α=0.88 [n=1,130]; Burnout α=0.75 [n=976]; CF α=0.81 [n=1,135]) for each subscales. According to Stamm (2010), the ProQOL-5 has been translated, contextualized, used and validated in more than a dozen languages. After following the guideline of van Ommeren et al. (1999), the researcher translated, used and contextualized a Nepali version of ProQOL5, namely N-ProQOL-5. The Pearson correlation in N-ProQOL-5 (n =112) was explored that the STS and CS; and BO and CS, were strongly but negatively correlated respectively with α = - 0.197 and - 0.689. A positive correlation was observed between the BO and STS with α = 0.614. The overall reliability was found modest with a reliability coefficient of 0.651 (Adhikari, 2017).

HSCL-25 Nepali version and Somatic Symptom Scale–8 (SSS-8)

HSCL-25 covers the symptoms of anxiety and depression, comprises total 25 items. The first 10 items of the scale are to measure the anxiety symptoms, and later 15 items measure the symptoms of depression including 1 item measuring suicidal ideation. The respondents have to choose one out of four categories, "Not at all," "A little," "A lot" "Extremely," that are rated 1 to 4 respectively. The internal consistency of the measures was studied high, and the reliability coefficient found out Cronbach α was measured between 0.84 to 0.87 (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974; Thapa & Hauff, 2005))

Thapa and Hauff (2005) applied HSCL-25 into Nepali population. The reliability coefficient found out Cronbach α for anxiety 0.89 for both the anxiety and depression scales with 1.75 of a cut-off score for each. Nepali version of HSCL-25 was used by the researcher with families of the disappeared persons (n=1442) for longitudinal monitoring of therapeutic support group based intervention between 2010-2016; and found consistent across the gender, geographical coverage and age of the population (ICRC, 2016). Recently, HSCL-25 was also adapted to Nepali Speaking Bhutanese refugees (Baird, LeMaster, & Harding, 2016).

As outlined above Somatic Symptom Scale–8 (SSS-8) covers the somatic symptoms burden. It has s eight self-reported items in a 5 point Likert scale (0 = Not at all, 1 = a little bit, 2 = somewhat, 3 = quite a bit, and 4 = very much). SSS-8 has measured a good reliability with Cronbach α = 0.81, and the internal consistency and reliability (Gierk, Kohlmann, Kroenke, Spangenberg, Zenger, Brähler & Löwe, 2014). Construct validity of the SSS-8 has measured a positive correlation with the symptoms of anxiety and depression. Tests on the confirmatory factorial analysis confirmed the somatic symptoms in four clusters to cover gastrointestinal, pain, cardiopulmonary and fatigue-related factors (Gierk et al., 2014). The content validity of SSS-8 has been found good and it also

includes cardiopulmonary related symptoms while measuring somatic symptoms as recommended by Zijlema, Stolk, Löwe, Rief, White & Rosmalen (2013). SSS-8 follows the cultural adaptation and translation into Nepali with appropriate pilot testing before its use for the final data collection process.

Analysis

Data analysis process follows a consistent approach to data entry, coding, cleaning and systematic management of the collected data. The collected data from ***Google Docs*** will be uploaded in AMOS and SPSS (Version 24) and will be analyses after ensuring the proper coding and path analysis design. Missing data will be addressed properly before applying the relevant tests of assumptions such as normality, homogeneity of the variance and co-variance and equally, linearity and multicollinearity. The socio-economic-demographic data, as well as the data collected through HSCL-25 and N-ProQOL-5, will be analyzed in SPSS.

Descriptive statistical analysis will be used to understand the differences on mean and standard deviations for continuous variables and frequencies for categorical variables. After checking the relevant tests of assumptions for the correlation, a Pearson's Product-Moment Correlation will be applied. While doing so, subscales of ProQOL, BO, STS and CS scores of the participants will be used as an independent variable (one at a time), and scores of anxiety, depression and somatic problems will be used as dependent variable. A structural equation model (SEM) will be applied to understand either CF has positive association and relationships on the depression and anxiety scores of the Nepali medical doctors or not. Similarly, the measures of CS should also have the negative correlation with the anxiety and depression symptoms, which needs to be tested. All assumptions will be prior tested before applying the multivariate regression.

Ethics

Respondents of this study will be Nepali medical doctors. A voluntary consent and right to withdraw at any time of the response without any explanation to the researcher will adhere while using the human subjects. The anonymity of the respondent's information and declaration of the rights of the respondents will be well explained and briefed through a briefing note, and the use of collective data for academic and publication of the collective findings will be notified before the survey to the participants. As the researcher is trained in Psychological First Aid (PFA), any queries or potential referral to the specialized care providers for the psychological concerns will be assured through debriefing note mentioning the contact details of the service providers too.

Permission to use of ProQOL was already taken by the researcher during his prior study, whereas, HSCL-25 is already an open psychological tool to be used by any institutions or individuals. Therefore, use of the data collection tools will not have any repercussions. The researcher will store the collected data and information for five years in locked cabinet, and the researcher in his personal computer will store electronic data, which will be a password-protected device. All the data will be securely destroyed after five years.

The study will follow necessary ethical approvals. The researcher will grant approval from the Research Ethics Committee (REC) of University of Nicosia, and the researcher will equally ensure the ethical clearance from National Health Research Council (NHRC). NHRC is a governing body for the ethical clearances of any health-related research in Nepal. NHRC may take a minimum of three months to grant the permission and charges necessary fees for this purpose too.

Research Outcomes

The outcomes of this research follow:

- A comparative understanding of the prevalence of psychological distresses and professional quality of life among the Nepali medical doctors. Furthermore, it will provide a correlation among the CS, CF, anxiety, depression and suicidal ideation in Nepali medical doctors.
- The study findings will potentially contribute to raising awareness among the healthcare institutions, Nepal medical council, academia and healthcare governing bodies on the management of the psychological distress, compassion fatigue and suicidal ideation of medical service providing professionals if required.
- The research findings contribute to fulfilling the research gap on quality of care for the care providers largely in Nepali context. A validated version of ProQOL-5 Nepali version will be an asset to the Nepali MHPSS practitioners and researchers.

Costs

The following costs of the research are based on the preparation of the tools, travel and associated costs for establishing contacts with various institutions, ethical approval fee, use of technology such as printing, fax, internet, telephone, etc. The researcher will recruit and mobilize necessary human resources (a research assistant and data support) in case of need. The student researcher may seek for funding support, and will notify in advance to the ethical approval committees in advance if granted from any institutions; otherwise, the researcher will bear the entire cost of the study.
Detail breakdown of the expenses is as follows.

Budget Breakdown	**In NPR**
Expenditure Category	
Human Resource (research assistant's fee etc.) = 6 months X 20000	120000
Research Work	
Transportation, tea, snacks (rapport building and support from the institutions)	15000
Internet/fax/Telephone cost	15000
Photocopies and printing (if needed)	5000
Sub-Total (A)	155,000
Management and coordination (Overhead Cost)-10%	15500
Miscellaneous (Unforeseen) Cost- 5%	7250
Sub-Total (B)	177'750
NHRC ethical approval fee (100 USD or 10% in case of funding)	17'775
Grand Total	195'525 NPR (1950 USD)

Timetable

Milestone	**Description**	**Due Date**	**Remarks**
1	Stage 1: Area of interest identified	Already met	
2	Stage 2: Specific topic selected	Already met	
3	Stage 3: Topic refined to develop dissertation proposal		

4	Stage 4.1: Proposal written and submitted Stage 4.1: Preparation of data collection tools and approval Stage 4.2 Submission for the Ethical approval	February 2018 February 2018 March 2018	
5	Stage 5.1: Receive ethical approvals Stage 5.2 Collection of data and information	End of June 2018 July–September 2018	Data collected only after securing ethical approval from the Ethics Approval Committee of the University and NHRC. The latter may take up to three months.
6	Stage 6: Analysis and interpretation of collected data/information	March 2019	
7	Stage 7: Writing up	September 2018–June 2019	
8	Stage 8: Final draft prepared—submission of dissertation	August 2019	
9	Final deadline—two years after the start date, September 2017	October 2019	

References

Aday, L. A., & Cornelius, L. J. (2006). *Designing and conducting health surveys: A comprehensive guide.* New Jersey, US: John Wiley & Sons.

Adhikari, A., Dutta, A., Sapkota, S., Chapagain, A., Aryal, A., & Pradhan, A. (2017). Prevalence of poor mental health among medical students in Nepal: a cross-sectional study. *BMC medical education*, *17*(1), 232. doi: 10.1186/s12909-017-1083-0

Adhikari, Y. (2017). *A Comparative Study of Professional-Quality-of-Life Factors of Mental Health and Psychosocial Support (MHPSS) Professionals Working with Earthquake Victims and Other Trauma Victims in Nepal.* (Master of Science dissertation, The University of Liverpool).

Ahola, K., Hakanen, J., Perhoniemi, R., & Mutanen, P. (2014). Relationship between burnout and depressive symptoms: a study using the person-centred approach. *Burnout Research*, *1*(1), 29-37. doi: 10.1016/j.burn.2014.03.003

Ahola, K., Honkonen, T., Isometsä, E., Kalimo, R., Nykyri, E., Aromaa, A., & Lönnqvist, J. (2005). The relationship between job-related burnout and depressive disorders—results from the Finnish Health 2000 Study. *Journal of Affective Disorders*, *88*(1), 55-62. doi: 10.1016/j.jad.2005.06.004

Ahola, K., Honkonen, T., Isometsä, E., Kalimo, R., Nykyri, E., Aromaa, A., & Lönnqvist, J. (2005). The relationship between job-related burnout and depressive disorders—results from the Finnish Health 2000 Study. *Journal of affective disorders*, *88*(1), 55-62. doi: 10.1016/j.jad.2005.06.004

Baird M. B., LeMaster, J. W., Harding, A. (2016). Translation and cultural adaptation of the Hopkins Symptom Checklist-25 (HSCL-25) into Nepalese for use with Bhutanese refugees.

Online Journal of Cultural Competence in Nursing and Healthcare, *6*(1), 14-30. doi: 10.9730/ojccnh.org/v6n1a2

Bakker, A. B., Schaufeli, W. B., Demerouti, E., Janssen, P. P., & Brouwer, J. (2000). Using equity theory to examine the difference between burnout and depression. *Anxiety, Stress and Coping*, *13*(3), 247-268. doi: 10.1080/10615800008415727

Brenninkmeyer, V., Van Yperen, N. W., & Buunk, B. P. (2001). Burnout and depression are not identical twins: is decline of superiority a distinguishing feature?. *Personality and individual differences*, *30*(5), 873-880. doi: 10.1016/S0191-8869(00)00079-9

Bright, R. P., & Krahn, L. (2011). Depression and suicide among physicians. *Current Psychiatry*, *10*(4), 16-30. Retrieved from www.black-bile.com

Center, C., Davis, M., Detre, T., Ford, D. E., Hansbrough, W., Hendin, H., ... & Michels, R. (2003). Confronting depression and suicide in physicians: A consensus statement. *Jama*, *289*(23), 3161-3166. doi: 10.1001/jama.289.23.3161

de Oliveira Jr, G. S., Chang, R., Fitzgerald, P. C., Almeida, M. D., Castro-Alves, L. S., Ahmad, S., & McCarthy, R. J. (2013). The prevalence of burnout, depression, and their association with adherence to safety and practice standards: A survey of United States anesthesiology trainees. *Anesthesia & Analgesia*, *117*(1), 182-193.

Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H., & Covi, L. (1974). The Hopkins Symptom Checklist (HSCL): A self-report symptom inventory. *Systems Research and Behavioral Science*, *19*(1), 1-15. doi: 10.1002/bs.3830190102

Doolittle, B. R., Windish, D. M., & Seelig, C. B. (2013). Burnout, coping, and spirituality among internal medicine resident physicians. *Journal of Graduate Medical Education*, *5*(2), 257-261.

doi: 10.4300/JGME-D-12-00136.1

Falkum, E. (2000). [What is burnout?]. *Tidsskrift for den Norske laegeforening: tidsskrift for praktisk medicin, ny raekke*, *120*(10), 1122-1128. Retrieved from www.europepmc.org

Gierk, B., Kohlmann, S., Kroenke, K., Spangenberg, L., Zenger, M., Brähler, E., & Löwe, B. (2014). The somatic symptom scale–8 (SSS-8): a brief measure of somatic symptom burden. *JAMA internal medicine, 174*(3), 399-407. doi: 10.1001/jamainternmed.2013.12179

Glass, D. C., & McKnight, J. D. (1996). Perceived control, depressive symptomatology, and professional burnout: A review of the evidence. *Psychology and Health*, *11*(1), 23-48. doi: 10.1080/08870449608401975

Graham, J. (2016). *Why are doctors plagued by depression and suicide? A crisis comes into focus.* Retrieved from http://www.huffingtonpost.com/stat/why-are-doctors-plagued-b_b_11137852.html

Hakanen, J. J., & Schaufeli, W. B. (2012). Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study. *Journal of affective disorders*, *141*(2), 415-424. doi: 10.1016/j.jad.2012.02.043

Hawton, K., Clements, A., Sakarovitch, C., Simkin, S., & Deeks, J. J. (2001). Suicide in doctors: A study of risk according to gender, seniority and specialty in medical practitioners in England and Wales, 1979–1995. *Journal of Epidemiology & Community Health*, *55*(5), 296-300. doi: 10.1136/jech.55.5.296

Health and Safety Executive, HSE (2016). *Work related Stress, Anxiety and depression statistics in Great Britain 2016.* Retrieved from http://www.hse.gov.uk/statistics/causdis/stress/stress.pdf

Hegney, D. G., Craigie, M., Hemsworth, D., Osseiran-Moisson, R., Aoun, S., Francis, K., & Drury,

V. (2014). Compassion satisfaction, compassion fatigue, anxiety, depression and stress in registered nurses in Australia: study 1 results. *Journal of Nursing Management, 22*(4), 506-518. doi: 10.1111/jonm.12160.

Hegney, D. G., Rees, C. S., Eley, R., Osseiran-Moisson, R., & Francis, K. (2015). The contribution of individual psychological resilience in determining the professional quality of life of Australian nurses. *Frontiers in Psychology*, 6: 1613. doi: 10.3389/fpsyg.2015.01613

Hox, J. J., & Bechger, T. M. (2007). An introduction to structural equation modeling. *Family Science Review, 1* (11), 354-373. Retrieved from http://joophox.net

Hulley, S. B., Cummings, S. R., Browner, W. S., Grady, D. G., & Newman, T. B. (2013). Designing clinical research. Philadelphia, US: Lippincott Williams & Wilkins.

ICRC (2016*). Hateymalo accompaniment programme: ICRC's comprehensive psychosocial support programme to the families of missing persons in Nepal (2010-2016).* Retrieved from https://www.icrc.org/en/download/file/26584/hateymalo_accompaniment_report.pdf

Jacobs, F. (2016). *The patients per doctor map of the World.* Retrieved from http://bigthink.com/strange-maps/185-the-patients-per-doctor-map-of-the-world

Kunwar, D., Risal, A., & Koirala, S. (2016). Study of depression, anxiety and stress among the medical students in two medical colleges of Nepal. *Kathmandu University Medical Journal, 53*(1), 22-6. Retrieved from www.m.kumj.com.np

Magar, A. (2013). Violence against doctors in Nepal. *Journal of Nepal Medical Association*, *52*(192). Retrieved from www.jnma.com.np/jnma/index.php/jnma/article/download/2422/1660

Markwell, A. L., & Wainer, Z. (2009). The health and wellbeing of junior doctors: insights from a

national survey. *Medical Journal of Australia, 191*(8), 441-444. Retrieved from https://www.mja.com.au/system/files/issues/191_08_191009/mar11478_fm.pdf

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*(1), 397-422. doi: 10.1146/annurev.psych.52.1.397

Mata, D. A., Ramos, M. A., Bansal, N., Khan, R., Guille, C., Di Angelantonio, E., & Sen, S. (2015). Prevalence of depression and depressive symptoms among resident physicians: a systematic review and meta-analysis. *Jama, 314*(22), 2373-2383. doi: 10.1097/SA.0000000000000237

Matter, N. A., & Mousa Thabet, A. Z. (2016). The relationship between war trauma, secondary traumatic stress, and anxiety among health professionals working at emergency departments in Gaza-Strip. *Journal of Nursing and Health Studies, 1* (1), 1-9. Retrieved from http://www.imedpub.com/

McManus, I. C., Winder, B. C., & Gordon, D. (2002). The causal links between stress and burnout in a longitudinal study of UK doctors. *The Lancet, 359*(9323), 2089-2090. doi: 10.1016/S0140-6736(02)08915-8

Menezes, R. G., Subba, S. H., Sathian, B., Kharoshah, M. A., Senthilkumaran, S., Pant, S., ... & Shankar, P. R. (2012). Suicidal ideation among students of a medical college in Western Nepal: a cross-sectional study. *Legal Medicine, 14*(4), 183-187. doi: 10.1016/j.legalmed.2012.02.004

Ministry of Finance, MOF (2016). *Economic Survey*. Singhadarbar: Kathmandu. Nepal. Retrieved from http://www.mof.gov.np

Neff, K. D. (2012). The science of self-compassion. *Compassion and wisdom in psychotherapy*, 79-92. Retrieved from http://texaspsyc.org

Nowalk, A. (2016). *Depression and somatization in Bhutanese-Nepali refugees* (Doctoral dissertation, University of Pittsburgh).

Phuyel, B. R. (2013). *Doctor's Brain Drain in Nepal: Exploring the Patterns, Causes, Consequences and Solutions* (Doctoral dissertation, The University of Tokyo).

Rossouw, L., Seedat, S., Emsley, R. A., Suliman, S., & Hagemeister, D. (2013). The prevalence of burnout and depression in medical doctors working in the Cape Town Metropolitan Municipality community healthcare clinics and district hospitals of the Provincial Government of the Western Cape: a cross-sectional study. *South African Family Practice*, *55*(6), 567-573. doi: 10.1080/20786204.2013.10874418

Shankar, P. R. (2010). Attracting and retaining doctors in rural Nepal. *Rural and Remote Health*, *10*(3), 1420-1428. Retrieved from http://www.rrh.org.au/

Shrestha, R. (2015). Post-traumatic stress disorder among medical personnel after Nepal earthquake, 2015. *Journal of Nepal Health Research Council*. 13(30), 144-148. Retrieved from https://www.researchgate.net/profile/Roshana_Shrestha/publication/290273374_Post-traumatic_Stress_Disorder_among_Medical_Personnel_after_Nepal_earthquake_2015/links/5695da3008ae3ad8e33d94a3/Post-traumatic-Stress-Disorder-among-Medical-Personnel-after-Nepal-earthquake-2015.pdf

Stamm, B. H. (2010). *The concise proqol Manual*. Pocatello, Id: Proqol. Org. Retrieved from: http://www.proqol.org/uploads/ProQOL_Concise_2ndEd_12-2010.pdf

Stearns, S., & Benight, C. C. (2016). Organizational Factors in Burnout and Secondary Traumatic Stress. In *Secondary Trauma and Burnout in Military Behavioral Health Providers*. 85-113 (online). Palgrave Macmillan US. doi: 10.1057/978-1-349-95103-1_5

Thapa, S. B., & Hauff, E. (2005). Psychological distress among displaced persons during an armed conflict in Nepal. *Social Psychiatry and Psychiatric Epidemiology*, *40*(8), 672-679. doi: 10.1007/s00127-005-0943-9

Van Dam, N. T., Sheppard, S. C., Forsyth, J. P., & Earleywine, M. (2011). Self-compassion is a better predictor than mindfulness of symptom severity and quality of life in mixed anxiety and depression. *Journal of anxiety disorders*, *25*(1), 123-130. doi: j.janxdis.2010.08.011

van Ommeren, M., Sharma, B., Thapa, S., Makaju, R., Prasain, D., Bhattarai, R., & de Jong, J. (1999). Preparing instruments for transcultural research: Use of the translation monitoring form with Nepali-speaking Bhutanese refugees. *Transcultural Psychiatry*, *36*(3), 285–301. doi:10.1177/136346159903600304

Van Ommeren, M., Sharma, B., Thapa, S., Makaju, R., Prasain, D., Bhattarai, R., & de Jong, J. (1999). Preparing instruments for transcultural research: use of the translation monitoring form with Nepali-speaking Bhutanese refugees. *Transcultural Psychiatry*, *36*(3), 285-301. doi: 10.1177/136346159903600304

Virtanen, M., Ferrie, J. E., Singh-Manoux, A., Shipley, M. J., Stansfeld, S. A., Marmot, M. G., ... & Kivimäki, M. (2011). Long working hours and symptoms of anxiety and depression: a 5-year follow-up of the Whitehall II study. *Psychological medicine*, *41*(12), 2485-2494. doi: 10.1017/S0033291711000171

Wu, S. Y., Li, H. Y., Wang, X. R., Yang, S. J., & Qiu, H. (2011). A comparison of the effect of work stress on burnout and quality of life between female nurses and female doctors. *Archives of Environmental & Occupational Health*, *66*(4), 193-200. doi: 10.1080/19338244.2010.539639

Wurm, W., Vogel, K., Holl, A., Ebner, C., Bayer, D., Mörkl, S., ... & Hofmann, P. (2016). Depression-burnout overlap in physicians. *PloS one*, *11*(3), e0149913. doi: 10.1371/journal.pone.0149913

Zijlema, W. L., Stolk, R. P., Löwe, B., Rief, W., White, P. D., & Rosmalen, J. G. (2013). How to assess common somatic symptoms in large-scale studies: a systematic review of questionnaires. *Journal of psychosomatic research*, *74*(6), 459-468. doi: 10.1016/j.jpsychores.2013.03.093