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Providing Care for Many in the Context of Few Resources: Secondary Traumatic Stress, Burnout and Moral Distress Experienced by Healthcare Providers in Rural Uganda

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PROVIDING CARE FOR MANY IN THE CONTEXT OF FEW RESOURCES: SECONDARY TRAUMATIC STRESS, BURNOUT AND MORAL DISTRESS EXPERIENCED BY HEALTHCARE PROVIDERS IN RURAL UGANDA

by

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ABSTRACT

Providing Care for Many in the Context of Few Resources: Secondary Traumatic Stress, Burnout and Moral Distress Experienced by Healthcare Providers in Rural Uganda

by

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In the context of the global nursing shortage, and particularly in low-resource settings, nurses are at an increased risk for work-related stress problems like secondary traumatic stress (STS), burnout, and moral distress. These three work-related mental health consequences, sometimes associated with absenteeism and intent to leave the profession, could potentially contribute further to the shortage of nurses. This two-part study is a longitudinal examination of the work-related mental health consequences experienced by healthcare providers in rural Uganda. In Study 1, participants (*n*=208; 159 students and 49 experienced health workers) completed self-report, psychosocial measures at baseline and 134 of the students completed the measures again 13-months later. Study 1, which was primarily quantitative, assessed the prevalence of mental health consequences and common coping strategies and examined associations among coping strategies and symptoms over time. In Study 2, participants (*n*=13) completed in-depth qualitative interviews about their experiences as healthcare providers. Qualitative data from both studies were used to contextualize and illustrate quantitative findings. Almost all participants endorsed clinically significant symptoms of at least STS, burnout or moral distress. Participants reported most commonly utilizing religion, planning, and other active, problem-focused coping strategies such as improvising in order to cope with challenging work circumstances. However,

based on follow-up data for students, symptoms of STS and burnout were stable across the 13 months and individual differences in coping strategies had little effect on the progression of symptoms. Findings underscore the need for increased mental health awareness and targeted stress reduction programs in addition to infrastructural changes within the healthcare and health education systems in rural Uganda and other low-resource settings. The implications and suggestions are discussed in light of Uganda's cultural context and plans for development.

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Introduction

According to the World Health Organization (WHO; 2006), 57 countries have a critical shortage of well-trained healthcare providers with a global total of 2.4 million too few physicians, nurses, and midwives to provide essential healthcare interventions. Since healthcare providers often concentrate in better-resourced urban areas or migrate to high-income countries, the healthcare shortage is particularly pronounced in low-resource settings, especially in rural areas (Munga & Maestad, 2009; World Health Organization [WHO], 2006). In turn, this concentration of healthcare providers in urban and higher-income areas results in a pattern whereby the areas of highest need have the smallest health workforces. For instance, although Africa has 25% of the world's burden of disease, it only has 3% of the world's healthcare providers, an imbalance illustrated by the fact that 36 of the 57 countries with critical shortages are in Africa (WHO, 2006). For example, in Uganda, one of the poorest countries in the world, there are only 3.6 doctors, 28 nurses, and 14 midwives per 100,000 people which is well under the 230 healthcare providers per 100,000 recommended by the WHO as being necessary to provide basic life-saving services in a consistent manner (WHO, 2006).

Many factors contribute to the shortage of healthcare providers. In high income countries, such as the U.S., the shortage reflects changing demographics marked by an increase in the number of older sick patients with chronic illnesses (Martin, Freedman, Shoeni, & Andreski, 2010; O'Brien & Gostin, 2011; Thorpe, Ogden, & Galactionova, 2010) and a health workforce that is rapidly aging toward retirement (Robert Wood Johnson Foundation, 2002; U.S. Department of Health and Human Services, 2008). Low-income and developing countries similarly face an increase in chronic diseases (Yach, Kellogg, & Voute, 2005) but they are also greatly impacted by high rates of infectious diseases (WHO, 2002). For instance, the HIV/AIDS

epidemic further burdens already under-resourced healthcae systems, especially in sub-Saharan Africa. These contributors to the nursing shortage are largely supply and demand issues and their impact is well established (Buchan & Calman, 2005).

However, some contributing factors are less clearly understood. For instance, across settings, it appears that the shortage of nurses reflects some level of general worker dissatisfaction and a decreasing attractiveness of the job, which has led to high rates of absenteeism and turnover (Bureau of Labor Statistics, 2012; Chaundry, Hammer, Kremer, Muralidharan, & Rogers 2006; Hayes et al., 2006; Zboril-Benson, 2002) as well as difficulties recruiting and training new nurses (Buerhaus, Staiger, & Auerbach, 2000; U.S. Agency for International Development [USAID], 2006). The difficulties with the recruitment and retention of nurses can be explained, in part, by the stressful conditions under which they work, which can lead to a variety of negative mental health consequences. For example, exposure to traumatic patient experiences can lead to *secondary traumatic stress (STS),* a severe stress reaction that involves symptoms that are similar to Posttraumatic Stress Disorder (PTSD), including the re-experiencing of events, heightened physiological responses, and the avoidance of reminders of work and patients. Additionally, because of the current shortage, nurses are often overworked which can lead to an emotional and physical exhaustion referred to as *burnout.* Finally, in carrying out their duties, nurses are sometimes caught in between the conflicting demands of their patients, their patients' family members, and/or institutional barriers at their place of employment. These conflicts may inhibit their ability to provide what they consider to be the most ethical course of treatment for the patient, which may then result in a form of psychological distress known as *moral distress*. Researchers have linked STS, burnout and moral distress with nurses' job dissatisfaction, absenteeism and intent to leave the profession (Laposa, Alden, &

Fullerton, 2003; Leiter & Maslach, 2009; Papathanassoglou et al., 2012; Peterson et al., 2011), especially among higher skilled workers (Toh et al., 2012), which contributes to the nursing shortage both in numbers and in skill level.

Nurses' mental health and retention problems may be exacerbated in low-resource settings (LRS), particularly rural areas, where lack of both human and material resources contributes to poor working conditions. The working conditions for healthcare providers in LRS often include high volume workloads of mandatory on-call or unpaid work, often in response to the shortage of providers. Another strategy to address the shortage of healthcare providers has been the redistribution of tasks whereby nurses perform tasks typically completed by physicians (Guberski, 2007; Munga, Kilma, Mutalemwa, Kisoka, & Malecela, 2012; WHO, 2007; 2010). This results in disparity between skill level and patient needs and increases stress and strain on nurses who may be required to perform jobs without training and with inadequate medical supplies (Lasebikan & Oyetunde, 2012; Lenthall et al., 2009) and for very low salaries (USAID, 2006). Providers in low income rural areas are also likely to work in isolation which can increase the risk to their personal safety, issues that are particularly salient for clinics run by single nurse providers (Lenthall et al., 2009; Opie et al., 2010). These unique stressors faced by nurses in LRS exist in addition to the already inherently stressful nature of their work. The gravity of these problems is evidenced by the difficulties recruiting and incentivizing the recruitment of healthcare providers to low-income rural areas (Awofeso, 2010; Guberski, 2007; Rouleau, Fournier, Philibert, Mbengue, & Dumont, 2012; USAID, 2006). Given the links among the mental health consequences of nurses, recruiting and retaining nurses, and providing quality healthcare, it is important to look at the factors that may impede or improve the psychological well-being of nurses in LRS. As such, this review will focus on STS, burnout and moral distress

among nurses as well as effective coping strategies. Particular attention will be paid to the mental health of nurses working in low-resource communities. For the purpose of this paper, LRS include low-income and lower-middle income countries and very rural/remote areas of any country if extreme poverty is a characteristic of the sample. The review will be followed by an examination of specific mental health consequences among nurses in rural Uganda and the ways in which these healthcare providers manage work stress.

Secondary Traumatic Stress as a Mental Health Consequence among Nurses

Secondary traumatic stress is defined as "the natural, consequent behaviors and emotions resulting from knowing about a traumatizing event experienced by a significant other - the stress resulting from helping or wanting to help a traumatized or suffering person" (Figley, 1995a, p. 7). Symptoms of STS can appear immediately after working with patients and can resolve quickly or they can take time to emerge and then linger (de Boer Lok, van't Veraat, Duivenvoorden, Bakker, & Smit, 2011; Figley, 1995b; Jourdain & Chênevert, 2010; Walsh & Buchanan, 2011). Symptoms of STS mimic the re-experiencing, avoidance and hyperarousal symptoms of PTSD, but they arise in response to indirect or secondary exposure to a traumatic event (Bride, 2007; Figley, 1995a). STS is conceptualized and assessed similarly to PTSD. In fact, other than sources of STS being vicarious or work-related trauma, the literature has not addressed how STS symptoms are distinct from PTSD symptoms.

Limited research suggests that some symptoms of STS are more common than others. For example, in studies of STS among nurses, intrusive thoughts about patients (Beck& Gable, 2012; Dmoniniquez-Gomez & Rutledge, 2009; Quinal, Harford, & Rutledge, 2009) and nightmares (Mealer, Burnham, Goode, Rothbaum, & Moss, 2009) are reported to be the most commonly

experienced symptoms. Avoidance symptoms of STS can manifest as avoidance of work and researchers have found that nurses who experience symptoms of STS sometimes respond by working part time or switching jobs (de Boer et al., 2011; Laposa, et al., 2003). For example, in one study of emergency nurses in the U.S. (*n*=51), 30% reduced their work hours and 20% considered changing jobs due to STS (Laposa, et al., 2003). This finding suggests that STS may be directly linked to the nursing shortage, and this connection may be more problematic in areas with fewer nurses.

Types of Secondary Trauma and Prevalence of STS Symptoms Experienced by Nurses

Some of the clinical events or secondary trauma ranked by nurses as the most traumatizing include the death and/or suffering or sexual abuse of children (Adriaenssens, du Gucht, & Maes, 2012; Burns & Harm, 1993; Komachi, Kamibeppu, Nishi, & Matsuoka, 2012; O'Connor & Jeavons, 2003), serious injuries and multiple casualties involving massive bleeding and dismemberment (Adriaenssens et al., 2012; Burns & Harm, 1993; Laposa et al., 2003), and performing painful procedures on patients (Happell, Pinikahana, & Martin, 2003; Maytum, Heiman, & Garwick, 2004). Others include late-term abortions or miscarriages (Hanna, 2005; Komachi et al., 2012), or labor and delivery that involve the death or serious injury of either the mother or baby (Beck & Gable, 2012; Leinweber & Rowe, 2010). Many of these types of patient experiences, especially issues of child and maternal health, are likely to be more commonly experienced among nurses in LRS. There are also likely to be patient experiences that are unique to LRS but to date, no known research has examined secondary trauma among nurses in LRS.

Given the nature of their work, most nurses will be exposed to patient trauma, however, relatively few will develop elevated symptoms of STS. By definition, some specialty nurses may

be more prone to experiencing secondary trauma than general hospital nurses and thus are more likely to experience symptoms of STS. Among emergency nurses across the U.S. (Dominiquez-Gomez & Rutledge, 2009), Belgium (Adriaenssens et al., 2012), and Canada (Laposa et al., 2003) and among critical care nurses in the U.S. (Mealer et al., 2007; Mealer, Burnham, Goode, Rothbaum, & Moss, 2009; Mealer et al., 2012) the prevalence rates of clinically significant symptoms STS range from 8.5% to 33%, with 73% to 85% experiencing at least one symptom of STS in the previous week (Dominiquez-Gomez & Rutledge, 2009; Mealer et al., 2012). Clinically significant STS refers to meeting a cut score or all criteria for a diagnosis of PTSD based on a secondary traumatic event. Rates of clinically significant symptoms of STS are also high among oncology nurses (38-47%; Potter et al., 2010; Quinal, Harford, & Rutledge, 2009) and hospice nurses (79%; Abendroth & Flannery, 2009). In comparison, the prevalence of STS among general nurses appears to be quite low, at least in the U.S. In the only known study to report the prevalence of STS among general nurses in the U.S. (*n*=491; Mealer et al., 2007), 14% reported experiencing *at least one* symptom of STS, thus the prevalence of clinically significant levels of STS is expected to be lower. Overall, findings suggest that specialties exposed to more patient trauma experience higher levels of STS than general nurses. It is less clear as to whether and how levels of STS vary between countries and regions as the studies reported thus far have been completed in high income countries and not in rural or low resource communities.

Secondary Traumatic Stress in Low-Resource Settings

No known studies specifically examine STS among nurses or physicians in LRS, but a few studies have examined STS among local mental health workers (e.g., social workers, trauma counselors, HIV counselors) in under resourced settings. Two of the studies took place in South Africa and results indicated that 10% of mental health workers who provided counseling to bank

employees who had been robbed on the job (*n*=130; Ortlep & Friedman, 2002) reported clinical levels of STS whereas 54% of lay counselors who worked with HIV+ individuals (*n*=71, Peltzer, Matseke, & Louw, 2014) reported clinical levels of STS. This suggests the content and type of work could be related to the incidence of STS. Although South Africa is categorized as an upper middle-income country (The World Bank, 2013), the specific settings in which the research took place were greatly affected by poverty. Perhaps a more fitting example of a study of STS in a LRS is a study of local mental health workers (*n*=44) in Sierra Leone (Akinsulure-Smith & Keatley, 2014). Whereas most of the studies reviewed used a measure of STS or of PTSD with modified instructions to reference to a work-related event, the researchers used a measure of PTSD to assess symptoms in relation to 'stressful experiences' and found that 64.3% reported elevated PTSD symptoms. This rate is not surprising given the war-torn setting and the fact that 90.1% of participants endorsed experiencing at least one potentially traumatizing event. That only 4 (9.1%) participants reported experiencing work-related trauma is surprising. Perhaps work-related trauma is relatively less prominent for individuals who have histories of extensive personal trauma than it is for individuals in higher resourced settings who have presumably experienced less personal trauma. Or, perhaps STS and PTSD are less similar than the literature on their measurement suggests, and adequately assessing STS and secondary traumatic events may require something other than the accepted measures of PTSD and trauma exposure.

In terms of nurses specifically, levels of STS might be higher among nurses in LRS than in high-income countries because LRS (and therefore patients in those settings) are generally more impacted by violence, trauma, and diseases (WHO, 2006). LRS also tend to have higher rates of maternal and infant mortality (CIA World Factbook, 2013). Given the information that maternal and infant deaths are associated with increased STS among nurses in higher resourced

settings (Beck & Gable, 2012), one might expect higher rates of STS among nurses in LRS because their patients experience more trauma. LRS are also disproportionately affected by the nursing shortage, thereby increasing the number of patients that each nurse is expected to treat and thus the amount of traumatic material to which each nurse is exposed. On the other hand, given the poor infrastructure and lack of resources that can plague healthcare systems in LRS (Kizza et al., 2011; Murthy & Adkihari, 2013), nurses may be less likely to be providing care for critically ill patients (e.g., patients suffering from vehicle accidents or cardiac arrest) than for more common, yet equally life-threatening, conditions such as stomach viruses and malaria. Therefore, rates of STS among nurses could be lower in LRS than in high-income countries.

Another consideration in understanding STS in LRS, particularly outside of the U.S. and other Western cultures, is the influence of culture on the presentation of symptoms of PTSD, which could presumably affect the presentation of STS. For example, a review of studies that focused on describing local conceptualizations of posttrauma reactions of individuals from primarily low-resource disaster settings outside of North America and Europe found few conceptualizations that mimicked the Western concept of PTSD and few avoidance symptoms (Rasmussen, Keatley, & Joscelyne, 2014). These findings highlight the importance of including qualitative methods in the assessment of traumatic stress outside of the U.S.

Burnout as a Mental Health Consequence among Nurses

Unlike STS, which develops in response to the exposure to the specific traumatic experiences of patients, the precipitating factors for burnout are working conditions and institutional stressors. Burnout refers to a psychological response to chronic job stress typically characterized by feelings of exhaustion (Maslach & Jackson, 1981; Pines & Aronson, 1988) and

is assumed to develop irrespective of one's occupation (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Enzmann, 1998). However, one of the most frequently cited definitions of burnout refers to it as the emotional exhaustion, depersonalization of clients or patients, and feelings of reduced personal accomplishment that can occur among individuals who do 'people work' of some kind (Maslach & Jackson, 1981; 1986) which indicates that burnout is also partially derived from the emotional burden taken on by those who provide care for others.

However, the three dimensional (emotional exhaustion, depersonalization, and feelings of inefficiency) definition of burnout has not been supported in the literature. Instead, research suggests that burnout is better understood as a two-dimensional syndrome of general *exhaustion* (i.e., physical, affective, and cognitive strain) and *disengagement* (Demourti, Bakker, Nachreiner, & Schaufeli, 2000; Qiao & Schaufeli, 2011). Exhaustion (i.e., feeling emotionally drained, feeling tired before work, not having enough energy for leisure activities) and disengagement (i.e., doing the job mechanically, feeling disconnected from the work, depersonalizing clients or patients) are considered the core symptoms of burnout and show the strongest relationships with work-related stressors (Maslach, 2001; Schaufeli & Enzmann, 1998; Shirom, 1989). More specifically and according to the *job demands-resources model* (Demourti et al., 2001), exhaustion stems from having too many job demands and being overworked, whereas disengagement develops from lacking job resources (i.e., appropriate compensation, recognition, participation in decision making, autonomy, social support). Many studies of nurses highlight the associations between job demands and exhaustion, and between limited resources and disengagement (Demerouti et al., 2001; Jourdain & Chênevert, 2010; Leiter & Maslach, 2009; Qiao & Schaufeli, 2011) both of which have consequences for individual nurses and for the

profession. However, the majority of studies in both high and low-resource settings use exhaustion symptoms as a proxy for burnout and less frequently report disengagement symptoms.

Research with nurses and other healthcare providers indicates that burnout is associated with occupational injuries and absenteeism (Halbesleben, 2010) decreased quality of patient care (McHugh et al., 2012; Poghosyan, Clark, Finlayson, & Aiken, 2010) and increased medical errors and mortality (Aiken et al., 2002). Furthermore, and of major importance given the nursing shortage, burnout is significantly associated with lower job satisfaction and an overall intent to leave one's job and the field of nursing (Demerouti et al., 2000; Jourdain & Chênevert, 2010; Leiter & Maslach, 2009; Liu et al., 2013). Therefore, examining the workplace stressors that contribute to burnout is integral to reducing burnout and retaining nurses.

Sources of Burnout and Prevalence of Burnout Symptoms among Nurses

Working conditions cited as factors leading to burnout among nurses are largely the result of inadequate staffing and can be understood in terms of the previously mentioned job demands-resources model. Excessive workloads (i.e., working long hours, large caseloads of patients with many demands) characterize the job demands of many nurses. In one of the largest studies to examine the relationship between shift length and burnout in the U.S. (n=22,275), nurses who worked shifts longer than 10 hours were up to 2.5 times more likely to experience burnout than nurses who worked shorter shifts (Witkoski et al., 2011). In addition to long work hours, burnout among nurses is also impacted by high caseloads, which result from inadequate staffing. Research from the U.S. (Aiken et al., 2002), Japan (Kanai-Pak, Aiken, Sloane, & Pogosyan, 2008), and China (You et al., 2013) indicates that hospitals and nursing units with higher patient-to-nurse ratios have significantly higher rates of nurse burnout and job

dissatisfaction. The strategies to address the shortage of healthcare providers often involve redistribution of tasks (e.g., nurses performing physician duties and medical technicians performing nurse duties). This results in disparity between skill level and patient needs increases stress and strain on nurses who may be asked to attend to patient needs by performing job tasks for which they have not been trained.

Job resources refer to compensation and recognition, autonomy, and social support. Absence of these resources can contribute to an overall unsupportive work environment and can lead to burnout (Demourti et al., 2001; Maslach, 2003). Work environments perceived as unfavorable by nurses, including high levels of dissatisfaction with salary and benefits, lack of managerial and supervisory support for nurses, low nurse capacity for leadership, and high rates of nurse-physician conflict were significantly associated with higher levels of burnout among nurses in the U.S. (*n*=95,499; McHugh et al, 2011), Japan (*n*=5,956; Kanai-Pak et al., 2012) and China (*n*=1104; Liu et al., 2012). In addition to the conflict between physicians and nurses, inter-conflict or 'bullying' among nurses can also contribute to an unsupportive and hostile work environment and significantly increase the likelihood of burnout among nurses (*n*=415, Laschinger, Grau, Finegan & Wilk, 2010; *n*=213, Rowe & Sherlock, 2005).

Overall, it appears that more than a third of nurses experience high levels of burnout. Researchers reported high levels of burnout among 56% of hospital nurses in Japan (*n* =5,956; Kanai-Pak et al., 2012), 40% of hospital nurse in Poland (*n*=227; Jaracz, Gorná, & Konieczna, 2005), 37%-40% of hospital nurses in China (*n*=1,104; Liu et al., 2012 and *n*=9,688; You et al., 2013) and 34%-38% of hospital and nursing home nurses in the U.S. (*n*=843, Erickson & Grove, 2007; *n*=68,724, McHugh et al., 2012). As with STS, hospice (*n*=216; Abendroth & Flannery, 2006) and critical care nurses (*n*=744; Mealer et al., 2012) appear to be at higher risk of burnout

than general nurses, with a prevalence rate of 61% in both studies. The higher rates among hospice and critical care nurses suggest that nurses whose work involves longer-term, life-sustaining care for terminal and critical patients in higher resourced settings may face the highest risk for burnout, but it is not clear how this might be relevant to LRS. Patients in LRS, while they may be disproportionately affected by chronic and life-threatening illnesses, do not receive the aggressive treatment common to the U.S. and other high-income countries. There may be other specialties that are at higher risk of burnout (and of STS) in LRS such as nurses who work with HIV/AIDS affected patients, with children, or in the maternal wards. Based on public health statistics for many low resource countries, nurses working in these specialties are likely to experience high patient caseloads and many patient deaths.

Burnout might also be connected to the level of resources available to the hospital or medical center setting (e.g., public or private) as well as the socioeconomic status of the patients, which may have direct implications for LRS. In a study examining prevalence rates of burnout across different specialties of physicians in the U.S. (n=7,288; Shanafelt, et al., 2012), the rates of burnout were significantly higher among specialty physicians who provided treatment for all segments of the population regardless of patient socioeconomic status (e.g., internal and family medicine). Rates of burnout were significantly lower in specialties that typically worked in private practice and/or served patients of higher socioeconomic status (e.g., dermatology, preventative medicine). Given the apparent role of patient socioeconomic status, patient caseload and the emotional demands of very sick, low income patients in burnout levels experienced by nurses in high income countries, it is expected that rates of burnout might be higher among nurses in LRS where the patient-to-nurse ratios are higher and there is a high number of critically sick and dying patients, especially in sub-Saharan Africa on account of HIV/AIDS.

Burnout in Low-Resource Settings

Research suggests that prevalence rates of burnout among nurses are higher in LRS, at least in sub-Saharan Africa, than some of the highest rates in high-income nations. The highest rates of burnout were found among Senegalese midwives (*n*=185) of which 80% reported experiencing high levels of emotional exhaustion and 60% reported intent to quit within the year (Rouleau et al., 2012). The Senegalese midwives cited high workloads, on-call work, and dissatisfaction with salary as contributing to their feelings of burnout. In Malawi (*n*=134; McAuliffe et al., 2009) and Zambia (*n*=42, Dieleman et al., 2007), the majority, 62% to 66%, of healthcare providers (i.e., nurses, medical assistants) reported experiencing moderate to high levels of exhaustion. Healthcare providers in these studies cited conflict among colleagues, poor management and supervision, lack of autonomy, and the general lack of appreciation by colleagues, patients and the public as contributing to burnout. Furthermore, healthcare providers from a range of hospitals and health facilities described the impact of high rates of HIV/AIDS that added new tasks and safety concerns to an already overburdened workforce (Dieleman et al., 2007; Guberski, 2007; McAuliffe et al., 2009).

Nurses working in the poorest (per capita) province of South Africa who solely worked with patients dying from HIV/AIDS, cited work overload due to poor staffing, inadequate material resources that interfered with patient privacy, and the emotional drain of informing patients of test results indicating positive HIV status as the main sources of their stress and burnout (*n*=20; interviews; Mudzusi, Netshandama, & Davhana-Maselesele, 2007). However, burnout levels were low and the majority of nurses in the study had never experienced many of the exhaustion and disengagement symptoms (*n*=174; self-report measures; Davhana-Maselesele & Igumbor, 2008). Instead, nurses reported high levels of personal accomplishment (i.e., feeling

like they are positively influencing others through their work). Despite this finding, depression was very common among the nurses with 34% reporting extreme depression and 43% reporting mild to extreme levels of depression (Davhana-Maselesele & Igumbor, 2008). The low rates of burnout are different from rates in the U.S., where prevalence was highest among nurses who work with dying patients. Perhaps feelings of personal accomplishment pertaining to one's work (although not reported in many of the studies from the U.S. and other high-income countries) are more effective in preventing symptoms of burnout among nurses in LRS or perhaps work stress more commonly manifests as depression in some cultures and the self-report measure of burnout did not accurately capture the emotional distress experienced by the nurses in these LRS.

With regard to nurses in Uganda, many researchers have described the stressful and challenging working conditions facing the health workforce in relationship to occupational stress, job satisfaction, and absenteeism (Chaundry et al., 2006; Fournier et al., 2007; Kizza et al., 2007; Mawa, 2012; Nabirye, Brown, Pryor, & Maples, 2011) but not in relationship to the specific construct of burnout. Primary challenges to the Ugandan healthcare system include understaffing, high patient to nurse ratios, and the resulting work overload (Kizza et al., 2011). A recent study of the state of public hospitals in Uganda reported that in the main national hospital in the capital city, there can be 80 babies born over night with only three midwives on duty. The patient-to-nurse ratios for the hospitals in the study were two to three times higher than the ratio recommended by the WHO (Mawa, 2012). In another urban hospital in Uganda, nurse-patient ratios were reported to be 1:50 during the day and 1:100 at night (Fournier et al., 2007). Through the use of interviews (n=23) and focus groups (n=7) with nurses in the largest hospital in Uganda, Kizza et al. (2011) also found that inadequate staffing, work overload and limited infrastructure (i.e., relying on paper records vs. computerized system, poorly functioning referral

system) to be some of the difficulties experienced by nurses. In addition, nurses reported that limited opportunities for training and lack of supervision and mentorship from more experienced nurses challenged the Ugandan health work force. In another study, some of these stressors were examined in relation to mental health consequences among nurses (n=333) from urban public and private hospitals in Uganda (Nabirye Brown, Pryor, & Maples, 2011). In their study of occupational stress (described as the harmful physical and emotion responses to a mismatch between the job and the worker) Nabirye et al. (2011) found occupational stress levels were significantly higher among nurses in public hospitals (with fewer material resources available and patients of lower income levels) than in private hospitals. Furthermore, nurses who worked longer shifts in a typical day experienced significantly higher levels of occupational stress.

The Ugandan government has recognized that the health workforce as a whole is very demoralized due to low and delayed pay and inadequate staff living quarters (Mawa, 2012; Ministry of Health, 2010). Although the construct of burnout is not specifically examined among healthcare providers in Uganda, the general sources of burnout are pervasive in the Ugandan healthcare system. It is likely that symptoms of burnout (and potentially other mental health consequences) may manifest as absenteeism among healthcare providers in Uganda. During unannounced spot checks over several months at 100 urban primary health centers in Uganda, at least 37% of healthcare providers were absent (Chaundry et al., 2006). The Ugandan government's efforts to combat this problem include plans to raise salaries, improve healthcare staff living quarters, and to increase their accountability through more frequent spot checks and harsher consequences for employees who do not report for work (Ministry of Health, 2010; 2012). However, directly addressing the mental health and well-being of the nurses has largely been absent from discussions about ways to retain nurses and improve the quality of health care.

Of note, a recent study examined burnout, depression, anxiety and PTSD among Ugandan national humanitarian aid workers (n=376) in northern Uganda, an area affected by decades of violence and conflict (Ager et al., 2012). Results indicated 45% experienced moderate to high levels of burnout and that exposure to chronic stressors (e.g., financial problems, work overload, separation from loved ones) were significant predictors of higher levels of burnout. Lack of social support and team cohesion also significantly predicted burnout among the sample. The sample was further defined by high rates of depression (68%) and PTSD (26%) and although secondary trauma (61% reported frequently listening to trauma stories at work) and direct trauma (51% experienced 5 or more traumatic events) were quite prevalent, neither were significant predictors of burnout, depression, anxiety, or PTSD. Rates of depression were higher than both burnout and PTSD, and may suggest that in Uganda, PTSD (and perhaps other mental health consequences such as burnout) may commonly co-occur with or present as depressive symptoms. Overall, research indicates that the same working conditions that lead to burnout in high-income countries are exacerbated in the healthcare systems of some LRS, particularly in sub-Saharan Africa. Although many of the findings do not explicitly state the associations, these working conditions are likely to contribute to burnout and other mental health consequences, as well as to the nursing shortage.

Moral Distress as a Mental Health Consequence among Nurses

Nurses practice in settings with demands that often conflict. They face ethical dilemmas when caught in the middle of obligations to their patients, their patients' family members, insurance company policies, and hospital administration. Nursing roles traditionally include being a trusted caregiver, comforter, and patient advocate (see Corley, 2002). However, what is best for a patient sometimes conflicts with what is best for the organization, the physician, and/or

the patient's family. When nurses are unable to provide the care they believe the patient deserves, they may experience what is referred to as moral distress (Jameton, 1984; Wilkinson, 1988).

Moral distress is defined as "the painful feelings and/or psychological disequilibrium that occurs when one knows the right thing to do, but institutional constraints make it nearly impossible to pursue the right course of action" (Jameton, 1984, p. 6). The nurse may accept moral responsibility for the outcome of the patient's situation and believe that his or her own action (or lack of action) contradicts his or her professional and personal ethical standards and constitutes moral wrongdoing. For instance, a nurse may be confined by having too little time with patients on account of understaffing or by having to withhold treatment because a patient lacks insurance (Zuzelo, 2007). Moral distress is typified by negative emotion a provider feels when he or she acts against his or her conscience in the context of providing patient care. Moral distress can arise in response to repeated exposure to morally distressing circumstances with multiple patients or to a single clinical situation with one patient.

Unlike STS and burnout, there is no specific list of symptoms or dimensional factors associated with the definition of moral distress. However, qualitative research with nurses in the U.S. has helped describe the experience of feeling morally distressed. Information gathered from 171 nurses through interviews and open-ended questions in seven different studies indicates that moral distress is characterized by anger, frustration, sadness, depression, and guilt, as well as feelings of helplessness and powerlessness (Davies et al., 1996; Elpern, 2005; Erlen & Frost, 1991; Guiterrez, 2005; Hanna, 2005; Weigand & Funk, 2012; Wilkinson, 1988). In six out of seven of those studies (excluding Erlen & Frost, 1991), nurses' descriptions of moral distress were marked by behavioral symptoms like crying and having nightmares and by physical symptoms such as heart palpitations, headaches, exhaustion, and nausea.

Researchers have found statistically significant relationships between moral distress and lower job satisfaction (*n*=365; Netherlands; deVeer, Francke, Struijs, & Willems, 2013) and between moral distress and intent to leave a nursing job or the nursing field (*n*=566; Italy; Karanikola et al., 2013; *n*=255, Papathanassoglou et al., 2012). A number of additional studies found that nurses have left a position as a result of moral distress (Davis, Schrader, & Belcheir, 2012; Hamric & Blackhall, 2007; Lazzarin, Biondi, & Di Mauro, 2012; Weigand & Funk, 2012). For example, among general nurses (*n*=1,144) in the U.S., 28% reported they left a job because of moral distress (Davis et al., 2012) and even more reported they had considered leaving (45%) or would leave (38%) if faced again with morally distressing situations (Weigand & Funk, 2012).

Sources of Moral Distress and Prevalence of Moral Distress among Nurses

Sources of moral distress may be different for each individual based on the interaction between one's moral beliefs and the particular clinical situation of the work environment. Like burnout, systemic factors related to the nursing shortage such as inadequate staffing and work overload, and factors related to medical hierarchy of power (i.e., lack of nurse autonomy, nurse-physician conflict) influence the ethics of the overall work environment and are implicated in the development and maintenance of moral distress. One of the most consistent findings in moral distress research among nurses in high-income countries is that nurses report inadequate staffing (in terms of number and competency level) that results in substandard patient care to be the most frequently occurring source of moral distress and to be related to the highest levels of intensity or severity of distress (Corley, 2005; deVeer et al., 2013; Ohnishi et al., 2010; Papthanassglou et al., 2012; Pauly, Varcoe, Storch, & Newton, 2009).

The other most common sources of moral distress are related to end of life care, perhaps due to sampling bias of critical care nurses (Guiterrez, 2005; Meltzer & Huckabay, 2004; Weingard & Funk, 2012; Zuzelo, 2007). Critical care and general nurses report feeling high levels of moral distress when the extended or aggressive treatment of dying patients prevents the nurses from delivering palliative care and does not allow the patients to die in a way that the patient believes is dignified (Davies et al., 1996; Ferrell, 2006; Weigand & Funk, 2012). For example, nurses most frequently report high levels of moral distress when a patient's wish to die peacefully is ignored in favor of their family members' desire to continue the patient on life support (Ferrell, 2006; Guiterrez, 2005; Hamric & Blackhall, 2007; Zuzelo, 2007). Nurses also report high levels of moral distress when valuable resources such as blood products and organs are wasted or misused in aggressive treatment of terminal patients (Elpern et al., 2005; Weingard & Funk, 2012) and when patients with poor prognoses request euthanasia (medically induced suicide) (Corley et al., 2005; Elpern et al., 2005). Although nurses also experience moral distress when patients are undertreated (e.g., when pain is poorly managed or discharged prematurely) the reverse may also be true in high resource environments. For examples, in one study (n=1,446) conducted in the U.S. regarding patient end of life decisions, four times as many nurses and physicians were concerned about overly aggressive care than were concerned about undertreatment (Solomon et al., 1993).

Although moral distress has been documented globally among both doctors and nurses and the experience is described in qualitatively similar ways, few studies provide information about the percentage of nurses who experience moral distress or how frequently they experience it. According to a U.S. study, 50% of critical care nurses (n=759) reported acting against their ethical standards and consciences when providing patient care (Solomon et al., 1993). Another

U.S. study indicated that within the one-year study period, 99% (*n*=229) of oncology nurses faced ethical dilemmas (e.g., pain management plans that allow unnecessary patient suffering, cost cutting efforts of hospital that prevent patient treatment; cost of aggressive care to society) and 35% experienced moral distress at least one time monthly (Raines, 2000).

Although studies show that nurses and physicians experience moral distress in response to the same types of situations (Förde & Aasland, 2008; Hamric & Blackhall, 2007), nurses are at a significantly higher risk for moral distress than are physicians (*n*=225, Hamric & Blackhall, 2007; *n*=135, Solomon et al., 1993). For example, compared to physicians' reports of moral distress, nurses perceived morally distressing situations as occurring more frequently and they reported experiencing higher levels of moral distress (Hamric & Blackhall, 2007). This may occur because nurses face a lack of autonomy in decisions regarding patient care as compared to physicians, yet nurses have a heightened and continued proximity to patients (Peter & Liaschenko, 2004) which might make it more difficult to disengage. It is unknown how moral distress may be experienced in LRS where providers are fewer and where inadequate material resources paired with high patient caseloads can act as barriers to providing a high quality of care.

Moral Distress in Low-Resource Settings

At least three qualitative studies examined moral distress in LRS, two with nurses in Uganda (Fournier, Mill, Kipp, & Walusimbi, 2007; Harrowing & Mill, 2010) and one with nurses in Malawi (Maluwa, Andrew, Ndebele, & Chilemba, 2012*).* Although the term 'moral distress' was not common to any of the settings, all participating nurses in Uganda (combined *n*=30) and 95% of participating nurses in Malawi nurses (*n*=20) reported experiencing negative feelings associated with being unable to provide the care they believed patients deserved. In

these settings, moral distress appeared to manifest in ways similar to reports from high-income countries (e.g., feeling frustrated, guilty, helpless; recurring thoughts about work, physical symptoms, sleep problems) and to affect nurses spiritually and in their personal lives (Fournier et al., 2007; Harrowing & Mill, 2010; Maluwa et al., 2012).

Similar to high-income nations, the main sources of moral distress reported by the nurses in LRS were a lack of human and material resources and insufficient infrastructure interfering with patient care. In Uganda, nurses reported that inadequate staffing prevented nurses from being able to carefully attend to their patients (Fournier et al., 2007). In Malawi, because of the shortage of and absenteeism among healthcare providers, nurses reported that patients often left the hospital without receiving care because of long waiting times or because a doctor was not present. However, nurses knew that if they referred the patient elsewhere the patient would not have transportation money to follow through with the referral due to poverty and lack of infrastructure (Maluwa et al., 2012). Furthermore, due to a lack of staff living quarters at Ugandan hospitals and high rents in town centers where hospitals are located, healthcare providers often must live far from the hospital, creating challenges for patient care when an 'on-call' healthcare provider who is summoned at night for an emergency and cannot arrive quickly (Mawa, 2012).

Improvising on account of inadequate human and material resources is standard in many underdeveloped settings though it is not clear how managing with such limited resources relates to feelings of moral distress. Hospitals in Uganda often require patients to arrive with a relative or friend who will act as a caretaker by performing nursing tasks for the patient (i.e., change dressings of wounds, administer medications) and require patients to bring their own bed linens, food, and any medical supplies (e.g., gloves, gauze) that will be needed for treatment (Martin,

2009; Mawa, 2012). In addition, lack of essential basic materials (e.g., thermometers, drugs, medical supplies and protective equipment, lighting, access to blood bank), interfered with providing patient care (Harrowing & Mill, 2010; Maluwa et al., 2012). For example, fear of infection and lack of protective gloves kept nurses from providing care to HIV-positive patients (Fournier et al., 2007). Ugandan nurses reported that due to a lack of supplies, they were unable to implement their skills and knowledge according to the ways they were taught and thus could not meet professional and ethical standards (Fournier et al., 2007; Harrowing & Mill, 2010). Furthermore, nurses in Malawi also reported feeling morally distressed on account of violating professional regulations in the name of patient care. For instance, when a doctor is not available a nurse might prescribe medication for a patient, taking on an increased scope of practice that was not formally sanctioned (Maluwa et al., 2012).

In sub-Saharan Africa, and likely in other LRS, it appears that inadequate human and material resources and overall poverty and lack of infrastructure interact and compromise the role of nurses, affecting patient care. The term "suffering" was commonly used by the nurses in Uganda to describe the experience, but their emphasis was not only on their own personal suffering, but the suffering of their patients, of the community, and of the nursing profession (Fournier et al., 2007; Harrowing & Mill, 2010). In terms of the effect on the nursing profession, research indicates that similar to high-income countries, moral distress and its causes have also been implicated in nurse recruitment and retention issues in settings with fewer resources (Fournier et al., 2007; Harrowing & Mill, 2010).

Integration of STS, Burnout and Moral Distress

STS, burnout and moral distress have generally been studied separately from one another even though several studies indicate they tend to co-occur and may influence the development of one another. For instance, in Mealer et al.'s (2009) study of critical care nurses (n=332), 98% of those who met criteria for STS also met criteria for burnout whereas only 21% of those who met criteria for burnout also met criteria for STS. Nurses who experienced STS and burnout co-morbidly reported that their work negatively impacted their relationships with family and friends, ability to do household chores, and general life satisfaction as compared to nurses who experienced only burnout. Ohnishi et al.'s (2010) study of psychiatric nurses (n=264) indicated that burnout and moral distress are significantly and positively correlated. Other researchers have suggested that moral distress may lead to feelings of burnout (Davis et al., 2012; Fourneir et al., 2007) and one study found that among critical care nurses (n=60), moral distress in response to providing futile care predicted burnout, particularly exhaustion (Meltzer & Huckabay, 2004). No known studies examined STS and moral distress together, but it is likely that there is overlap in that some of the same patient experiences could lead to both STS and moral distress. Each mental health consequence independently plays a role in the retention of nurses (Jourdain & Chênevert, 2010; Laposa et al., 2003; Lazzarin et al., 2012) and experiencing symptoms co-morbidly may have a stronger impact on nurses' overall mental health and a more detrimental effect on job satisfaction and retention. Therefore, examining the factors related to increased and decreased risk of developing all three mental health consequences will be important to prevention efforts and to addressing the nursing shortage.

Stress Management Strategies and Risk Factors Associated with Mental Health Consequences

STS, burnout and moral distress among nurses have been referred to as "occupational hazards" or "costs of caring" for those who provide care for others (Figley, 1995a), suggesting the symptoms are expected consequences, inherent to the profession of nursing. However, research suggests there are factors that may increase or decrease one's risk of developing these mental health consequences. Due to small sample sizes and an overall lack of studies, it is difficult to draw any strong conclusions regarding specific stress management interventions or risks for nurses in LRS. However, there are many studies that have examined these factors among nurses in high-income countries and this review will draw primarily from that literature.

Effective Personal Stress Management for Nurses

Self-care. Although methods of personal stress management vary widely between individuals, a common approach involves leading a more balanced life that sets aside time for enjoyable activities and self-care. Self-care refers to the use of any healthy practices with the goal of restoring the self and reducing stress (Norcross & Guy, 2007). Self-care strategies most commonly reported as useful by nurses include regular exercise, healthy eating, and preserving time to recuperate and relax with meditation or massage (Dominquez-Gomez & Rutledge, 2009; Koh, 2011). A number of studies found that among nurses and healthcare providers, the incorporation of self-care and stress management activities into their routines was significantly associated with lower levels of STS (n=185, Meadors et al., 2008; n=50, Monroe, 2008; n=43, Quinal et al., 2009) and burnout (n= 97, Koh, 2011).

Coping styles. Although there is no practical way to categorize coping styles into those that are adaptive and non-adaptive or into those that are right or wrong (Lazarus & Folkman, 1984), research consistently suggests that some coping styles may be generally more effective than others. For example, research suggests problem-solving (i.e., action oriented, active coping, planning), cognitive restructuring (i.e., adjusting one's view or perspective of the event), and support seeking (i.e., problem-focused and emotion-focused support seeking) as approaches to coping are generally associated with well-being whereas avoidance coping (i.e., emotional and/or behavioral escape or disengagement) are associated with adjustment problems and other negative health outcomes among diverse groups of individuals (Carver, 1993; Park & Adler, 2003; see Skinner et al., 2003).

These relationships appear to be generally consistent among nurses. Active use of problem-focused coping (i.e., trying to solve the problem by restructuring or altering the situation) was significantly related to lower levels of STS and burnout among nurses in (Adriaenssens et al., 2012; Jaracz et al., 2005). At least two research studies found that learning and implementing problem-solving and cognitive restructuring as coping strategies for work-related stress significantly decreased levels of burnout among experienced nurses (Günüsen and Üstün, 2010) and significantly reduced general stress levels among new nursing recruits (Brunero et al., 2008). In relation to the nursing shortage, greater use of problem solving and cognitive restructuring or adjusting one's perception of the event (i.e., acceptance and meaning-making) and less use of avoidance coping among nurses (n=190) has been found to be significantly related to greater job satisfaction (Welbourne, 2007). However, research examining the relationship between coping and burnout among nurses (n=1291) in Japan found significant gender differences whereby the use of problem-solving was related to significantly lower

burnout among men but to significantly higher burnout among women (Sasaki, Kitaoka-Higashiguchi, Morikawa, & Nakagawa, 2009). Among women in the study, the use of cognitive reinterpretation was significantly related to lower burnout (Sasaki et al., 2009). These findings illustrate the possibility of cultural differences and suggest differences in effective coping may also exist between highly resourced settings and LRS, or in settings with more traditional roles.

Support seeking and religion. Seeking emotional support from others by discussing work-related problems is effective for many nurses. In a study of oncology nurses in the U.S. (*n*=229), support from other nurses was ranked most important compared to support from family, friends, supervisors, and hospital administration (Raines, 2000). In the U.S., support from other nurses has been reported as beneficial for nurses in specifically reducing burnout (Maier, 2011) and moral distress (Davies et al., 2005; Rogers, Babgi, & Gomez, 2008; Weingard & Funk, 2012). As important as the role of support from co-workers is, supervisory support may be more influential in reducing negative mental health consequences of work. Support from a supervisor was found to be a better predictor of lower STS among emergency nurses than support from colleagues (Adriaenssens et al., 2012). Among Ugandan humanitarian aid workers, perceived social support and team cohesion appeared to act as protective factors and significantly predicted lower levels of burnout (Ager et al., 2011).

Many people find social support through religious activities. Research consistently finds associations between religious coping and well-being among diverse groups of individuals (Ano & Vasconcelles, 2005). The importance of religion in one's life was shown to be effective in protecting against burnout among hospital-based bedside nurses in Hungary (*n*=94; Kovacs & Kezdy, 2008) and among critical care nurses in the U.S. (*n*=60; Meltzer & Huckabay, 2004). Many researchers have suggested increasing the meaning of the work for healthcare providers as

a strategy for preventing STS (Maytum et al., 2004), burnout (Jourdain & Chênevert, 2010; Shanafelt, 2009), and moral distress (Davies et al., 2005) and the use of religion may be one way that people naturally use meaning-making to cope.

Seeking support, acceptance and religion may be particularly relevant to nurses in LRS or in settings with an emphasis on more traditional or family values. In a study of coping behaviors among caregivers for HIV/AIDS affected individuals (n=116) in Kenya, seeking social support was reported to be the coping style most commonly used followed by planning, active coping and acceptance (Kimemia, Asner-Self & Daire, 2006). In Maluwa et al,'s (2012) study of moral distress among nurses in Malawi, discussing the situation with colleagues and prayer were the primary coping mechanisms used by most nurses. Among nurses in Maluwa's study who used religion, some prayed for help and some prayed to be forgiven for their roles in the distressing patient care. Among nurses in Uganda (n=92), prayer was the most commonly reported method of coping with stress, followed by perseverance and discussion with colleagues (Baguma, 2001). For many people across settings, religion provides a framework for the major stress reduction strategies reviewed in this section, including setting time aside for self-care, cognitive reframing (through acceptance and meaning-making) and prayer-based meditation.

Meditation and mindfulness. The benefits of meditation long understood for general stress reduction (see Cheisa & Serretti, 2009; Kabat-Zinn, 2003) have increasingly been studied in relation to burnout among healthcare providers (Goodman & Shorling, 2012; Heard, 2011; Krasner et al., 2009; Oman, Hedberg, & Thoresen, 2006). A form of meditation, mindfulness, refers to the practice of paying attention to the present moment on purpose. Mindfulness has been defined as maintaining attention on the immediate experience and approaching the world with flexibility, curiosity, openness and acceptance (Bishop et al., 2004). In a study examining

how mindfulness can affect levels of burnout among nurses (*n*=186), Heard (2011) found nurses who reported being more mindful in their everyday activities reported significantly lower levels of burnout than nurses who reported acting less mindfully. Furthermore, research indicates that mindfulness can be taught to healthcare providers at different levels of experience in a group setting and can reduce their levels of burnout (*n*=70 physicians, Krasner et al., 2009; *n*=93 healthcare providers, Goodman & Schorling, 2009), anxiety, and depression (*n*=85 nursing students, Legget, 2010). Mindfulness programs generally include components of different exercises in meditation, breathing, and self-awareness and include discussions of how to practice mindfulness at work (Krasner et al., 2009; Legget, 2010). Legget found that a brief intervention in mindfulness could affect longer-term change (4 months) in young, inexperienced nursing students. Mindfulness could be key in protecting new nursing recruits from the work-related mental health consequences associated with the nursing shortage.

Risk Factors for STS, Burnout and Moral Distress

Personal stress and trauma history. Higher levels of personal stress outside the workplace (e.g., financial problems, personal responsibilities) are consistently associated with higher levels of STS and burnout among nurses and other healthcare providers in the U.S. (Abendroth & Flannery, 2006; Meadors & Lamson, 2008; Mealer et al, 2009) as well as burnout in China (Lin et al., 2009). No known research has examined the relationships of personal stress and trauma history on the mental health consequences of nursing in LRS, but Nabirye et al.'s (2011) study of nurses in Uganda indicated that nurses with the personal responsibilities of children also reported significantly higher levels of occupational stress than nurses without children. If personal stress outside of work influences the mental health consequences of nurses, then it is likely that nurses in LRS, such as Uganda, where salaries are low prompting nurses to

perform additional income generating activities (Chaundry et al., 2006) and where families are large may have higher rates of other mental health consequences like STS and burnout.

In terms of trauma history, given that personal trauma history is strongly correlated with increased STS among mental health and law enforcement professionals (see Gates & Gillespie, 2008), nurses who have personal histories of traumatic experiences (i.e., physical or sexual abuse, vehicle accidents, war experiences) are also likely to be at increased risk of STS. Research on nurses in both high-income countries and in LRS is limited, however, one study indicated previous trauma was a predictor of STS among hospice nurses in the U.S. (n=216; Abendroth & Flannery, 2006). Another study indicated a history of experiencing personal trauma was significantly associated with STS but not with burnout among psychiatric nurses in the U.S. (n=50; Monroe, 2008), which is consistent with expectations. It is unknown how higher rates of trauma and potentially depression will influence the development of mental health consequences among nurses in LRS.

Demographics. Within high-income countries, no gender differences have been detected in the likelihood of experiencing STS (Adriaenssens et al., 2012), burnout (Ohnishi et al., 2010), or moral distress (de Veer et al., 2013; Papathanassoglou et al., 2012). However, few studies include males and when males are included they make up 17-45% of the samples. Age, nursing experience and education, however, appear to play a role in the development on work-related mental health consequences among nurses. Research in the U.S. indicates that younger nurses are more likely to experience STS (Lavoie, 2010; Mealer et al., 2009; Townsend & Campbell, 2009) and burnout (Erickson & Grove, 2007; Mealers et al., 2009). In conjunction with younger age, it appears that having less nursing experience and lower levels of education are associated with higher levels of STS and burnout (Townsend & Campbell, 2009). Perhaps nurses learn to cope

more effectively with STS and burnout over time or perhaps nurses with more seniority are able to create better schedules with less direct patient care and shorter shifts. In contrast, less nursing experience and lower levels of education are associated with lower levels of moral distress among nurses (Meltzer & Huckabay, 2004). Perhaps education and nursing experience may make an individual more attuned to the ethical climate of a workplace, more easily recognizing moral conflicts and in turn increasing moral distress. Alternatively, nurses who experience the highest levels of distress might leave the profession, resulting in fewer symptoms, on average, among those who remain.

In non-Western cultures, research findings are different with regard to the role of age, experience, and also marriage. Among nurses in China, researchers found higher levels of burnout among the older, married and more experienced nurses compared to younger nurses who may still live at home with their parents and have less responsibilities (*n*=249; Lin, St. John, McVeigh, 2009). In the U.S., being married was associated with significantly lower levels of STS and burnout among nurses in the U.S. (Mealer et al., 2007; Monroe et al., 2010), which suggests marriage might be protective and act as a source of social support. However, Lin et al.'s (2009) study in China and two other studies with nurses in Uganda indicate exceptions to these findings. In Nabirye et al's study (2011) of nurses in Uganda, both marriage and age were associated with significantly higher levels of occupational stress. The researchers suggested that as social responsibilities increased, occupational stress increased as well. This is in line with Ager's (2012) findings that female gender was a significant predictor of burnout among humanitarian aid workers in northern Uganda, as females tend to have more domestic responsibilities than males in Uganda, in addition to their employment. There may be role

differences across cultures that differentially influence the development of work-related mental health consequences.

Limitations and Future Directions

Although previous research findings provide an extensive overview of mental health consequences among nurses, there are several limitations to the research reviewed. First, the ways in which STS, burnout and moral distress have been measured and interpreted based on standardized instruments are inconsistent across studies and impedes comparison of different samples of nurses. Moreover, a major limitation of the LRS-specific research is the unknown applicability of the measurement tools within different cultures. The assessment tools used were developed in high-income, Western settings and had not been validated in any of the LRS. Thus, for STS and burnout, the actual experiences of the individuals in the LRS-samples may not be captured by the standardized instruments. Furthermore, there are no generally accepted measures of moral distress that have allowed for the comparison of nurses from different specialties or regions. Item content on the most commonly used measures of moral distress was derived from the experiences of critical care nurses in the U.S. The tendency for researchers who studied moral distress among non-critical care nurses has been to derive their own measures of moral distress because the items on existing measures were not relevant. This has resulted in several sample-specific measurement tools, none of which are applicable for general use across hospital units, regions or cultures. Moral distress research has also been limited by a lack of measurement tools that allow for the reliable assessment of change in level of moral distress, so there are few studies that assess moral distress over time or in response to intervention. Given these limitations to assessment overall and particularly because STS, burnout and moral distress have not been studied in rural Uganda, using qualitative in addition to quantitative methodologies could

provide a more comprehensive and contextualized understanding of the concepts. A strength of using such a directed approach may be that existing theory can be supported and extended and quantitative findings can be illustrated.

A second limitation to the research on the work-related mental health consequences among nurses is the lack of longitudinal studies examining how stress symptoms change in relation to factors like time or experience and in response to stress management strategies. A third limitation relates to the speculated co-morbidities of other mental health concerns not measured in studies of STS, burnout, and/or moral distress. For example, history of trauma and symptoms of PTSD may influence the development or presentation of STS and should be examined in conjunction with STS. Furthermore, depression, a known correlate of PTSD and likely of STS, is correlated with symptoms of burnout (Toker & Biron, 2012) and is also reported to be part of the experience of moral distress for some individuals. Accounting for previous trauma history, symptoms of PTSD and depression in studies of STS, burnout and moral distress among nurses could provide a better understanding of these mental health consequences.

The fourth and perhaps most important limitation given the disproportionate distribution of nurses worldwide is the paucity of research from LRS. Research on the mental health consequences associated with nursing work has almost without exception focused on White females working in urban hospitals in high-income countries and thus is not representative of the changing demographics of the nursing workforce. In addition to the likelihood that males and non-White females have different experiences of stress in the workforce than White females, stress-related mental health consequences may present differently, and coping strategies may differ across demographic groups, settings and cultures. To address the final sampling limitation, as noted earlier, the proposed study takes place in Uganda, one of the poorest countries in the

world. The sample will be comprised of both male and female Ugandan healthcare providers (e.g., nurses, midwives, nursing students, mid-level professionals). Before describing the current study, it is necessary to provide a broad cultural understanding of Uganda, including the collective attitudes, customs and beliefs of its people.

Cultural Context of Western Uganda

Culture refers to the characteristics of a particular group of people and includes everything from language, religion, and social habits to music and art. Uganda is a landlocked country in East Africa with a population of about 36 million people and at least 65 different ethnic groups. English is the country's official language and Luganda is the most commonly spoken Ugandan language. Uganda has abundant natural resources and fertile soil and the main sector of the economy is agriculture (Central Intelligence Agency (CIA), 2013). However, the per capita income of Uganda is only $506 USD (World Bank, 2013) and at least 25% of the population lives below poverty (CIA, 2013). The majority of Ugandans live with few material items or amenities. For example, only 12% of households in Uganda use electricity for lighting (World Bank, 2013). Formerly a British colony (1894-1962), Uganda's current government structure, public education and healthcare systems are largely based on the British-developed systems. Despite modernization that accompanied post-colonial socio-economic and political changes, many Ugandan communities have sustained their traditional beliefs, contributing to a synthesis in which traditional and modern cultural practices exist side by side. Although some of Uganda's traditional cultural beliefs, such as widow inheritance (a widow is re-married, sometimes forcibly, to a relative of her deceased husband) and female genital mutilation, contrast modern laws (Ministry of Gender, Labour, and Social Development, 2006; Nalugo, 2013) most traditional cultural beliefs have generally had positive influences on Ugandans' daily life and

emphasize family values, sense of community and communal responsibility, respect for elders, industriousness, and honesty (Cross-Cultural Foundation of Uganda, 2008).

Ugandan society is patriarchal and highly religious. Men are considered to be the source of moral authority and are afforded more social privileges and respect than women (World Bank, 2005). Gender biases in Uganda interfere with the ability of women to obtain education and employment and even medical care, as they must obtain permission from men to leave the home (Rutakumwa & Krogman, 2007). Women who work outside of the home still bear the responsibility of domestic work and child rearing which contributes to very long work hours for women (World Bank, 2005) sometimes referred to as the "double workday" (Blackden & Woden, 2006). In terms of religion, Uganda is considered to be one of the most religious countries in the world. More than 99% of the population indicated they are affiliated with a religion (CIA, 2013) and 86% reported religion to be "very important in their lives" (n=1,040; Pew Research Center, 2010). Due to missionary activity, Christianity (mostly Roman Catholic and Anglican) is the most common religion (84%), followed by Islam (12%) (CIA, 2013). Whereas religion in general has a strong influence on daily life in Uganda and both public and private workplaces make time to allow the integration of prayer throughout the day, Christianity has strongly influenced Uganda's political atmosphere. For instance, the country's extraordinarily harsh stance against homosexuality (e.g., parliament's consideration of a law making some homosexual acts punishable by death; publishing photos of homosexuals in newspapers to encourage vigilantism) is rooted in Christian-, often fundamentalist, values (Gettleman, 2011, January 27). In recent decades, Uganda, like other post-conflict African nations, has experienced a rise of missionary activity, with many missionary groups guided by far right, conservative religious values (Baptiste & Foreign Policy in Focus, 2014, April 4). The rise of religion more

generally is similar to other post-conflict African nations (Pew Research Center, 2010). Given that almost all of Ugandans identify as followers of Christianity or Islam, few identify themselves primarily as followers of traditional Ugandan religions. However, many practicing Christians and Muslims have retained aspects of traditional religions and believe in the protective power of sacrifices, spirits, and witchcraft (which often result in attributing misfortune to the bad intentions of others) (Pew Research Center, 2010).

In post-colonial years, Uganda gained international attention for its human rights abuses and the killing of more than 300,000 people under the dictatorship of Idi Amin (1971-1979). During the reign of the following leader, Milton Obote (1981-1986), at least another 100,000 individuals were killed in guerilla war and human rights abuses. Under the current president, Yoweri Museveni (1986-present), Uganda has experienced a period of relative stability, democratic, social, and health reforms as well as economic growth (CIA, 2013). However, parts of the country have continued to be plagued by civil war and rebel activity. Most notably and recently, the Lord's Resistance Army waged a civil war in the North of Uganda that, largely relying on recruited child soldiers, is responsible for the killing of over 2,300, abduction of over 4,600 (Invisible Children, 2013) and displacement of at least 1.8 million individuals (Internal Displacement Monitoring Centre, 2013).

Decades of war paired with high rates of poverty have contributed to poor physical and mental health among Ugandans. Unfortunately, the Ugandan healthcare system is challenged by lack of funds, corruption, and massive shortages of health workers and remains insufficient to meet the country's needs (Kizza et al., 2011). Rural areas are particularly underserved as the necessary infrastructure to provide transportation to the hospitals is lacking (Mawa, 2012). The Ugandan mental health system is inadequate in terms of staffing and training. Moreover, people

with mental health problems in Uganda are widely stigmatized and discriminated against and legislation does little to protect them (Cooper et al., 2010; Kigozi et al., 2010). Thus, Ugandans, particularly those in rural areas, tend to cope with emotional distress on their own. Given the importance of religion in daily life, religion- and spirituality-based coping, including helping others who are in need, are central for Ugandans (Baguma, 2001; Eggum, Sallquist, & Eisenberg, 2010). Nurses and other health workers in Uganda face specific social and emotional challenges due to the public's perception of the health workforce as corrupt and inefficient (Mawa, 2012). In recent years, increased stigma toward health workers due to their potential exposure to Ebola has contributed to problems like a lack of community trust in health authorities (McPake et al., 2015), further increasing tension in the workplace climate.

The Current Study

To further our understanding about the mental health consequences experienced by nurses in low-resource settings, the current study examined the prevalence rates and sources of STS, burnout and moral distress among a sample of healthcare providers (primarily nurses and nursing students) in rural Uganda. The study also explored the ways in which healthcare providers in rural Uganda manage work-related stress and which strategies were most effective. This mixed methods study focuses on quantitative data analysis and integrates qualitative data to illustrate and help contextualize quantitative findings.

The study expands upon previous research in three main ways. First, this is the only study known to examine STS, burnout and moral distress together and in a rural and low resource environment. Secondly, the study examined participants' mental health consequences at two time points about a year apart and in relation to their reported use of a range of stress management

behaviors. Thirdly, given the limitations of the standard instruments used to measure STS, burnout and especially moral distress, and because the measures have not been previously used with healthcare providers in rural Uganda, the study integrated qualitative data obtained from in-depth interviews and open-ended questionnaire items in an attempt to provide a more complete picture of the causes and experience of STS, burnout, and moral distress in low-resource setting.

The study addressed the following research questions:

1) What are the prevalence rates of STS, burnout, and moral distress among healthcare providers (experienced health workers and nursing/midwifery students) in rural Uganda?

2a) What are the relationships between sociodemographic characteristics (e.g., age, gender, nursing experience) and STS, burnout and moral distress?

2b) What are the associations among trauma history, PTSD symptoms, depressive symptoms and STS, burnout and moral distress?

2c) Specifically, are there gender and/or professional role (i.e., health worker vs. student) differences in the mental health consequences experienced by healthcare providers?

3) What are the common stress management strategies employed in response to work-related problems?

4) Among nursing/midwifery students, which coping styles endorsed at baseline are associated with fewer symptoms of STS and burnout at the 13-month follow-up?

5) How do qualitative data from open-ended surveys and in-depth interviews help to describe and contextualize the sources and experience of work-related mental health consequences among healthcare providers in rural Uganda?

METHODS

Study Overview

The larger project from which this study's data were drawn utilized longitudinal repeated measures and in-depth qualitative interviews. The current study utilized a subset of both quantitative and qualitative data from the larger project. The study draws on quantitative data from two administrations of self-report psychosocial measures of work and life experiences, stress management strategies, and mental health (Study 1) and integrates qualitative data in the form of written responses to open-ended questions (Study 1) and in-depth interviews (Study 2).

Setting

The study examined healthcare providers in Fort Portal, Uganda, a town with a population of about 42,000, located about 200 miles west of the capital city of Kampala (GeoNames, 2012). Fort Portal is located in Western Uganda, within both the Kabarole District and the Toro Kingdom (one of the constitutionally-recognized traditional monarchies). Fort Portal it is near the border of the Democratic Republic of the Congo and lies at the foot of the Rwenzori mountains, which were once a base for the Allied Democratic Forces (ADF). The ADF is a rebel group (now largely inactive) that opposed Uganda's government and led violent raids on villages involving theft, abductions and murders. Between 1996-2004, Western Uganda experienced ADF-related fighting and thousands of villagers were affected and displaced, largely from the Kabarole, Kasese, Kyenjojo, and Bundibugyo districts. Compared to the fighting of the Lord's Resistance Army in Northern Uganda, there has been little national or international attention paid to the ADF rebellion (Hovil & Weker, 2005).

Fort Portal International Nursing School (FINS) is located in Kahungabunyonyi, at the

outskirts of Fort Portal. FINS was renovated from a farm and opened in 2009. At the time of baseline data collection, the campus included four structures used for administration, classrooms and dining, in addition to male and female dormitories. FINS offers two separate but related certificate programs: Enrolled Midwifery and Enrolled Nursing. Each program allows two and half years for completion and is overseen by the government's Ministry of Education. Due to the critical lack of health workers in the country, the course curriculum is designed to prepare health workers to treat a wide range of patients, with little or no specialization, and is widely believed to be too comprehensive to fit into two and a half years. The programs are considered to be quite difficult with yearly promotion exams set by the government. Students complete supervised clinical training at Fort Portal Regional Referral Hospital (FPRRH), designated as one of Uganda's 15 public teaching hospitals. As for student life, students live on campus and keep long hours, often waking before sunrise to study and pray before their first class and return late evening from hospital rounds.

The hospital, FPRRH, serves an estimated target population of 2,000,000 people from seven major districts in Uganda as well as parts of eastern Democratic Republic of the Congo. As of 2011, the FPRRH had 351 beds with average bed occupancy rate of 101.8%, the highest of the four major regional referral hospitals in Uganda (Mawa, 2012). As of 2011, FPRRH had an operating room, outpatient unit, HIV clinic, mental health ward, maternity ward, drug store, and mortuary. Similar to Uganda at large, where health worker strikes in response to delayed payment and poor working conditions are widespread and ongoing ("Bwera Hospital," 2014, May 7; "Doctors Suspended," 2015, February 4; "Kabale Regional Referral," 2015, January 30; "Kalanga health workers," 2014, April 4) at the time of the study, working and living conditions at FPRRH were reported to be grossly inadequate (Mawa, 2012) and hospital staff held multiple

strikes due to withheld pay and poor working conditions (Ainganiza, 2013, May 17; "Fort Portal Hospital," 2013, June 8).

Role of the Researcher

When using qualitative methods, it is important to identify the role of the researcher to acknowledge the potential influence of the researcher's perspectives (Creswell, 2007). My primary role was to collect the quantitative and qualitative data and I was the only individual who collected these data at baseline and at Time 2. Additionally, I was a volunteer instructor of a workshop entitled "Stress, Self-care, and Coping," which almost all participants attended prior to their involvement in the research. From a more personal perspective, I am a White, non-religious female who was raised in a middle-class family in a rural part of the state of New York in the U.S. My life experiences were considerably different than those of the study participants. Prior to commencing this research, I had experience traveling in other sub-Saharan African countries, but had never been to Uganda. My personal characteristics and experiences could have potentially influenced my interpretations of the data. Therefore, qualitative data was coded with three research assistants (RAs). The RAs were females in their early-to-mid-twenties who did not report current religious affiliations, although one was raised Baptist. One RA was African American from an urban area in the Northeast, one was White from the American South, and one was Peruvian, raised through her early teenage years in an underdeveloped and urban area of Peru. Member checking (Lincoln & Guba, 1985), a process which aims to increase the credibility of the data and to reduce the likelihood that the researcher team's personal biases and assumptions influenced analyses and interpretations, took place by sharing results with participants to hear their perceptions and interpretations.

Timeline

Baseline quantitative data collection and all qualitative interviews occurred over July to August 2012. Follow-up data collection occurred approximately 13 months later in September 2013, at which time initial findings were presented to interested parties and member checking took place. From here on baseline data collection will be referred to as 'Time 1' and 13-month follow up will be referred to as 'Time 2.' Similarly, the questionnaire study or primarily quantitative information will be referred to as Study 1 and the interview study will be referred to as Study 2.

Improving Credibility of the Data

Multiple steps were taken to improve the credibility of the data and of the interpretations. The study utilized triangulation of data sources and prolonged engagement in the field. Triangulation is broadly defined as the combination of different methods to study the same phenomenon (Denzin, 1978). Member checking took place at Time 1 during and after interviews by repeating and clarifying participants' statements. At Time 2, the researcher attempted to meet with participants previously interviewed in order to clarify parts of interview transcripts and to present emerging qualitative themes. The researcher was also prepared to present preliminary quantitative results in person to groups of participants as well as FINS and hospital administrators toward the end of the researcher's stay, after all follow-up data collection was completed. However, many students and administrators reported that due to their schedules they were unable to spare the time to listen to the findings. As a compromise, because the researcher believed the findings were important to share with those who were interested, after each data collection session, those students who were interested and had time to learn preliminary results

(in most cases 3-5 students per session or around 20 total) stayed and the researcher briefly provided some results (e.g., gender and professional role differences in coping, symptom levels of STS, experiences of moral distress, demographics). The researcher asked for students' reactions and asked questions to aid in understanding the findings in the context of Ugandan and FINS culture. During the researcher's stay at Time 2, she was unable to schedule a meeting with FINS administrators to discuss findings. Similarly, the researcher was unable to meet with hospital administrators or senior health workers to discuss findings due to their workloads. Instead, after follow-up data collection at Time 2, the researcher had on-going but infrequent conversations with the Founder and Director of FINS, the Deputy Director of FINS, a faculty member/health worker who participated in the study, and two other participants (both health workers who had been interviewed). These conversations took place over e-mail between June 2014 and May 2015. Some information, clearly identified has having come from these conversations, is included in the Results and Discussion sections in attempt to aid in explaining and interpreting findings.

Ethical Considerations

All procedures were approved by the CUNY Institutional Review Board and all participants provided informed written consent. The project was carried out with the collaboration of FINS administration and was approved by FINS Board of Governors.

Study 1

Participant Recruitment

Participants for Study 1 were recruited in conjunction with an educational seminar by Global Nurse Initiative (GNI) conducted in July 2012. GNI is a U.S.-based NGO that facilitates

educational programs for nursing students and performs medical outreach in sub-Saharan Africa. This researcher was a volunteer instructor for GNI and taught "Stress, Self-Care, and Coping," a 6-hour educational training held over two sessions. Attendance plans were organized by FINS administration prior to the researcher's arrival. During in-person registration sessions for the trainings (which were offered at many times over the course of two weeks in order to accommodate healthcare providers' schedules) healthcare providers were informed by FINS administrators and by the researcher about the opportunity to participate in the research study. At the start of each registration session, the researcher reviewed the study purpose, procedures, potential risks and benefits. Those who were not interested in participating in the research signed up to attend a future training session held later in the week and then left. Those who were interested in participating signed up for a future training session (scheduled for multiple times over the course of the next three weeks) and then stayed to complete questionnaire packets.

Participants

Participants were 208 healthcare providers who attended the GNI training workshop taught by the researcher at FINS. Sixty-seven percent (n=139) of the sample was female and all participants were over age 18 (age range 18-68). All participants were Ugandans and most were from the Western Region of Uganda. All were fluent in English. Of the 208 participants, 76.4% (n=159) were first- and second-year nursing and midwifery students currently enrolled at FINS and 23.6% (n=49) were experienced health workers affiliated with FPRRH. Experienced health workers primarily included nurses, midwives, nursing or medical assistants, higher-level medical professionals such as clinical officers (equivalent to a nurse practitioner or physician assistant in the U.S.), as well as social workers and mental health/HIV counselors.

Procedures

At Time 1, participants were provided with more information about the study purpose, procedures, risks and benefits and given an opportunity to ask questions before signing consent forms. Each participant was provided a questionnaire packet of 14 measures. For the completion of baseline measures, six separate data collection sessions were held in designated classrooms on the FINS campus. On account of their own scheduling preferences and availability, participants were primarily separated into groups based on their levels and specialty (i.e., midwifery students, first year nursing students, experienced health workers). Approximately 36 participants were in each of four groups, one group had 70 participants (students), and one group had 5 participants (health workers). The researcher was present during all sessions and able to answer questions regarding terminology or instructions. A FINS faculty member was also present and assisted with handing out questionnaire packets and answering questions in two of the approximately 36-participant sessions. As compensation for his or her time, after completing measures, each participant was given a medical penlight. FINS administration provided prior approval of the gift and deemed it to be culturally appropriate.

At Time 2, 13-month follow up, 134 out of the original 159 FINS students completed follow-up measures in FINS classrooms, yielding a retention rate of 84.3%. There were 5 separate data collection sessions, averaging 28 students in each, and participants were separated into groups based on matching schedules, which generally corresponded to their levels and specialty. Again, the researcher was present and was able to answer any questions regarding terminology or instructions. After completing measures, each participant was given a stress ball as compensation for his or her time.

In order to protect participant identity and confidentiality, each questionnaire packet was assigned an alphanumerical code. Participant name was required on the demographics form at baseline in order to facilitate connecting data to the same participant over the follow-up periods. As participants submitted their questionnaires at Time the consent form and demographic page were removed and stored separately. A list was created connecting each name with an identification code and stored the list in a locked box while in Uganda then transferred the list to a password-protected electronic file upon return to the U.S. In order to ensure the Time 2 questionnaires were linked and distributed to the correct participants, Small tags with participant names were stapled to the cover page of each numbered questionnaire packet. Participants removed the identifying tags from their Time 2 questionnaires before returning packets.

Measures

Study 1 focused on a subset of variables assessed by 12 measures from Time 1 and Time 2. The data were entered into two databases by two research assistants (RA's). A random subset 10% (*n*=22) of Time 1 participants and 10% (*n*=14) of Time 2 participants were cross-entered in order to assess the accuracy of data entry. Cohen's kappas were calculated to determine agreement between the two RA's. There was almost perfect agreement, $\kappa = .84$ to 1.00 for all items on all measures, with $\kappa = 1.00$ for more than 94% (151/160) of items cross-entered.

Secondary traumatic stress. The *Secondary Traumatic Stress Scale* (*STSS*; Bride, Robinson, Yegidis, & Figley, 2004) is a 17-item measure designed to assess the frequency of intrusion, avoidance and arousal symptoms associated with indirect exposure to traumatic events through clinical work with traumatized populations. The STSS was developed to be consistent with Figley's (1995, 1999) definition of secondary traumatic stress as a syndrome of symptoms

nearly identical to those of PTSD. Respondents are instructed to indicate how frequently each item was true for them in the past seven days using a scale from 1 ("never") to 5 ("very often"). Instructions and items are worded such that the respondents' answers pertain to clinical work with traumatized clients in order to minimize the possibility that the respondent will endorse items based on an experience of direct traumatization. An example item is: “My heart started pounding when I thought about my work with my patients.” The STSS provides three subscale scores as well as a total summed score. There are two different scoring systems for the STSS, one uses a scoring rubric to delineate little to no-, mild, moderate, high, and severe levels of STS and the other uses a cut-point of 38 which if surpassed indicates STS should be addressed (Bride, 2007). This instrument demonstrates good construct validity and internal reliability (α=.93; Bride et al., 2004), though, to this date, no known research has used this measure to assess STS among healthcare providers in Uganda, or to assess STS among in other parts of sub-Saharan Africa. Reliability statistics were calculated for each subscale in the current study. Alpha coefficients were .72, .60, and .68 for Avoidance, Arousal and Intrusion subscales, respectively and .86 for the total scale.

Burnout. The *Oldenburg Burnout Inventory* (*OLBI*; Halbesleben & Demerouti, 2005) is a 16-item questionnaire that measures two dimensions of burnout: Exhaustion (8 items) and Disengagement (8 items). Exhaustion refers to general feelings of emptiness, overtaxing from work, a strong need for rest, and a state of physical exhaustion. Disengagement refers to distancing oneself from the object and the content of one’s work and to negative, cynical attitudes and behaviors toward one’s work. Half of the items on each subscale are reverse scored, and the *OLBI* purportedly simultaneously assesses burnout and work engagement which the authors posit as polar opposites (Demerouti, Mostert, & Bakker, 2010). Respondents indicate the

extent to which they agree with each statement on a scale of 1 ("Strongly Agree") to 4 ("Strongly Disagree") and higher scores represent more burnout. An example of an Exhaustion item is "After working, I have enough energy for my leisure activities" and an example of a reverse-scored Disengagement item is "Lately, I tend to think less at work and do my job almost mechanically." Subscale sums or global item means are calculated for each subscale and there is no total score. As there is no established cut-scores for the *OLBI,* in this study a participant was considered to experience significant symptoms of burnout (disengagement and/or exhaustion) if the global item mean on subscale was a 3 or higher (out of a possible 4).

The construct and convergent validity of the *OLBI* have been supported in previous validation studies (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Demerouti et al. 2003; Halbesleben & Demerouti, 2005; Qiau & Schaufeli, 2010). Reliability statistics were reported as alpha coefficients of .78 for the Exhaustion subscale and .84 for the Disengagement subscale among a sample of Chinese nurses (Qiau & Schaufeli, 2010). The *OLBI* has been used to assess burnout among medical students and physicians in Sweden (Dalhin et al., 2007; Dahlin et al., 2010). Results from a study with female healthcare workers in Sweden supported the two factor internal structure of the *OLBI,* and found that scores predicted long-term sickness absences (Peterson et al., 2011). The *OLBI* was used with construction workers in South Africa (Demerouti, Mostert, & Bakker, 2010) but no known studies have used the measure among healthcare providers specifically in LRS or in other parts of Africa. The *OLBI* was used as an outcome measure in only one known clinical study that examined the effectiveness of online cognitive behavioral therapy in reducing symptoms of exhaustion and disengagement among general practice patients in the Netherlands (n=470; Ruwaard, Lange, Schrieken, Dolan, & Emmelkamp, 2012). One alpha coefficient (.73) was reported in that study. In the current study,

alpha coefficients were .39 and .68 for Disengagement and Exhaustion, respectively.

Moral distress. At the time of study development, there were no generally accepted measures of moral distress appropriate for this sample as commonly used measures are comprised of items that refer to issues of over-treatment (e.g., extensive life support) that do not exist in LRS. Instead, the researcher developed the *Moral Distress Form,* a measure of moral distress that consisted of open- and forced-choice questions that were based on the definitions of moral distress and on existing measures (Corley et al., 2001), as well as qualitative research examining moral distress in Uganda (Fournier et al., 2007). Moral distress was coded as present if the participant endorsed having been unable to provide care that met professional *and/or* ethical standards. More descriptive experiences of moral distress were assessed using the forced-choice (True/False) items, for example: "I sometimes think I've done nothing to help my patients." This questionnaire also contains a series of open-ended questions to elicit qualitative information about the sources and emotional experience of moral distress. These questions are: (1) "When you are not able to take care of your patients to the professional standards you have learned, what interferes with providing the best care?" (2) "Can you explain a situation when this occurred? What did it feel like? What did you do?" (3) "Please explain a time when you felt like you provided care that did not meet ethical standards." (4) "What do you think contributes to the problem?" and (5) "How do you manage these situations? What do you do in response to the problem?"

Stress management strategies. In this study, stress management is broadly defined as the use of activities with the specific intent of reducing one's work-related stress, and includes a range of self-care activities, coping styles, and support seeking. The following two full measures were used to quantitatively assess the use of stress management.

The *Brief COPE* (Carver, 1997) is a 28-item self-report questionnaire used to assess the frequency of a number of different coping behaviors and thoughts a person may have in response to a specific situation. The wording has been altered to ask respondents to respond based on how they recently coped with a "work-related stressor." The *Brief COPE* is made up of 14 subscales: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. Each item is rated on frequency of use by the participant with a scale of 1 ("I haven‘t been doing this at all") to 4 ("I‘ve been doing this a lot"). An example item is: “I’ve been looking for something good in what is happening.” Reliability statistics for the 14 subscales were reported to range from alpha coefficient of .50 (Venting) to .90 (Substance Use) and 11 of the subscales yielding alpha coefficients greater than or equal to .64. There is no overall score and the author suggests creating factors to determine higher order factors of coping within each sample studied.

The *Brief COPE* has been used with HIV-positive women in South Africa (Makin et al., 2008; Olley, 2006) as well as female family caregivers of HIV/AIDS affected individuals in Kenya (Kimemia, Asner-Self, & Daire, 2011). In these studies, seeking social support, use of acceptance, religious activities and support seeking were the most common coping styles. Alpha coefficients in the current study were -.01 (Acceptance), and a range of .21 (Emotional Support) to .66 (Substance Use) with 6 of the 12 subscales yielding alpha coefficients greater than or equal to .45. Findings for alpha coefficients suggest that operationalization of coping strategies in rural Uganda might be inconsistent with operationalization of coping in the U.S. Therefore a Principal Component Analysis (PCA) was conducted to understand the construction of coping styles within the sample. Items with low endorsement were excluded from the PCA (see Results

section for further description of the PCA approach).

The *Brief Religious Coping Inventory* (*Brief RCOPE*; Pargament, Smith, Koenig, & Perez, 1998) is a 14-item measure of religious coping with major life stressors, though wording has been changed to ask participants to respond based on how they coped with a "work-related problem." There are two 7-item subscales, Positive Religious Coping (PRC) and Negative Religious Coping (NRC). PRC items reflect one's relying on a secure relationship with God, whereas NRC items reflect a religious struggle that grows out of a more tenuous relationship with God. An example item representing PRC is: "Sought God's love and care" and an example item representing NRC is "Questioned God's love for me." The scoring range of each scale is 7–28 and higher scores indicate more frequent use of positive or negative religious coping strategies. There is support for the internal reliability, construct validity, predictive validity, and incremental validity of the subscales. In a review of the psychometric properties of the *Brief RCOPE* in 11 studies, the median alpha coefficients for the PRC and NRC scales were .92 and.81, respectively (Pargament, Feuille, & Burdzy, 2011). The PRC is most consistently related to positive psychological constructs whereas the NRC is more consistently related to indicators of poor functioning such as depression and anxiety (see Pargament et al., 2011). The *Brief RCOPE* has primarily been used among Whites (generally from the U.S. and Western Europe) and among Christians. No known studies have used the *Brief RCOPE* in sub-Saharan Africa. In the current study, alpha coefficients were .61 for PRC and .80 for NRC.

Three additional open-ended coping questions (located on two different measures) were used to gather qualitative data. Question 1, "What else have you tried to do in order to help yourself relax or feel good?" asked about general self-care and was located in the *Self-Care and Coping Questionnaire*. Two questions regarding self- and workplace-initiated stress

management, Questions 2 and 3, “If you are stressed about work, what do you do to help yourself feel better?” and “If you are stressed about work, what does your workplace do to help you?” were located on the *Work Experiences Form*. For the purpose of this study, only these three qualitative questions from these two measures were used.

Mental health covariates and sociodemographic characteristics. Literature suggests symptoms of PTSD and depression may be related to negative work-related mental health consequences among healthcare providers. The symptoms are often co-morbid and the sample is expected to have high rates of depression and previous trauma. Rates of depression in rural southwestern Uganda among adults are estimated to be 21% and equal across genders (Bolton, Wilk, & Ndgoni, 2004). Personal trauma history and mental health symptoms, as well as demographics are measured as potential covariates and are assessed with the following measures.

Trauma history. The *Life Events Checklist* (*LEC*; Blake et al., 1995) is a 19-item, self-report measure designed to screen for potentially traumatic events in a respondent's lifetime. The LEC assesses exposure to 16 events known to potentially result in PTSD or distress and includes one item assessing any other extraordinarily stressful event not captured in the first 16 items. For each item, the respondent checks whether (a) the event happened to them personally, (b) they witnessed the event, (c) they learned about the event, (d) they are not sure if the item applies to them, and (e) the item does not apply to them. The scale was adapted to the context of Fort Portal, Uganda by consulting with FINS administration about the item content. Two items, "family violence" and "betrayal in a romantic relationship" were added because they were identified by FINS administrators as potentially traumatic events that were common to the population. Additionally, a final item was left open-ended, as ‘any other very stressful event or experience.’ The *LEC* has demonstrated convergent validity with other measures assessing

trauma exposure and with PTSD symptoms and demonstrated adequate psychometric properties as a stand-alone measure of trauma exposure (Gray, Litz, Hsu, & Lombardo, 2004). The *LEC* has not been widely use in Africa but has been used in at least one study of adult caregivers in South Africa (Kuo, Reddy, Operario, Culver, & Stein, 2013). Trauma history will be operationalized based on the number of different trauma types experienced directly, regardless of frequency or duration of each event.

Posttraumatic stress symptoms. The *Posttraumatic Stress Disorder Checklist - Civilian* (*PCL-C,* Weathers, 1993) is a 17-item self-report checklist of PTSD symptoms based closely on the DSM-IV criteria. Respondents rate each item from 1 ("not at all") to 5 ("extremely") to indicate the degree to which they have been bothered by that particular symptom over the past month. An example item is: "In the past month, how much have you been bothered by trouble falling or staying asleep?" The *PCL-C* is a general civilian version that is not linked to a specific event; the questions refer to "a stressful experience from the past." The symptoms endorsed may not be specific to just one event, which can be helpful when assessing survivors who have symptoms due to multiple events. The *PCL-C* has demonstrated strong psychometric properties. Estimates of internal reliability range between alpha coefficient of .94 (Blanchard et al, 1996) and .97 (Weathers et al. 1993). Test-retest reliability has been reported as alpha coefficient of .96 at 2-3 days and .88 at 1 week (Blanchard et al., 1996; Ruggiero et al., 2003). The *PCL-C* has been used in northern Uganda with a cut-score of 44 to indicate a possible diagnosis of PTSD (Vinck, Pham, Stover, & Weinstein, 2008). In the current study, alpha coefficient =.87 for the total scale, and .78, .70, .71 for Intrusion, Avoidance, and Arousal subscales, respectively.

Depression. The *Patient Health Questionnaire-9* (*PHQ-9*; Kroenke, Spitzer, & Williams, 2001) is based directly on the diagnostic criteria for major depressive disorder in the Diagnostic

and Statistical Manual Fourth Edition (DSM-IV; American Psychiatric Association, 1994). Responses to each item range from 0 (not at all) to 3 (nearly every day). An example item is: "Over the last two weeks, how often have you been bothered by feeling down, depressed or hopeless?" Items are summed and scores of 1-4 suggests minimal depression, 5-9 mild, 10-14 moderate, 15-19 moderately severe and 20-27 severe depression. The *PHQ-9* is used both to assess symptoms and functional impairment to make a tentative depression diagnosis (based on a total score >9) and to derive an overall severity score to help select and monitor treatment. The *PHQ-9* demonstrated adequate reliability, convergent/discriminant validity, and similar responsiveness to change when compared with the "gold standard" depression measure the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The *PHQ-9*, being shorter and being based on the diagnostic criteria for depression, may indicate an advantage over the BDI-II (Titov et al., 2011). The *PHQ-9* has been used to assess depressive symptoms in many African countries, including East African countries such as Uganda (Wagner, 2011), Kenya (Monahan et al, 2009), and Ethiopia (Gelaye et al., 2013). Gelaye et al's study in Ethiopia found the *PHQ-9* (translated into the local language) to be a reliable and valid instrument, with a score of 10 (indicating moderate depression) offering optimal discriminatory power with respect to a diagnosis of major depressive disorder via clinical interview. Internal reliability (coefficient alpha) for the *PHQ-9* within the Kenyan and Ethiopian samples were .78 and .81, respectively. In the current study, alpha coefficient= .68.

Demographics. Personal demographics were assessed with the *Demographics Questionnaire* created by the researcher. Variables of interest based on the literature are age, gender, experience (i.e., length of time in current position), professional role (i.e., student or experienced health worker), religion and area of origin.

Study 2

Participant Recruitment and Participants

Interviewees for Study 2 were recruited with the help of FINS administration and in the context of NGO-sponsored trainings and outreach at Time 1. Interviewees were purposefully recruited to vary on gender, experience, and type of work, using a sampling strategy that aimed to recruit 15 interviewees in three stages of 5. The first 5 interviewees were recruited by the Founder and the of FINS. He attempted to convene a broad sample of healthcare providers (varying on gender, years of experience and role) whom he believed had typical experiences. In order to develop a broad and representative sample, after each interview, the researcher asked each of the 5 interviewees to refer one other healthcare provider who fit demographics deemed important based on ongoing analysis (creating the second round of 5 interviews). In the final sampling strategy, 5 interviewees were approached by the researcher in the context of GNI-sponsored events (i.e., medical outreach clinics, other educational seminars at FINS) based on their professional role or demographics in effort to recruit a wide sample. This three stage sampling strategy was only partially successful, as participants sometimes stated that they did not know anyone who fit a requested demographic (e.g., a currently practicing midwife) or the researcher was unable to schedule interviews with volunteered participants because the telephone numbers provided did not work thus the planned strategies were altered. After the first stage of 5 interviews, a mix of snowball sampling and in-person recruitment resulted in 8 more for a total of 13 interviews.

The 13 interview participants (5 males, 8 females) were healthcare providers from the Fort Portal area. Ten interview participants were recruited through their affiliations with FINS

and/or FPRRH and 3 were recruited in the context of medical outreach performed by GNI. Although many of the interview participants held multiple titles, primary titles included nurses (*n*=3), nursing students (*n*=2), a midwifery student, a social worker, a school-based mental health counselor, a school-based nursing assistant, a midwife, a mental health/HIV counselor, and an occupational therapist. Of the 13 interviewees, 11 had participated in the "Stress, Self-Care and Coping" training provided by the researcher and 2 had not (though they had been invited, travel costs had been prohibitive). Like the 208 participants of Study 1, all interviewees in Study 2 were Ugandan (most from the Western Region), over 18 (age range 18-62), and fluent in English.

Measure

A semi-structured interview guide of open-ended questions was developed by the researcher in effort to aim for some consistency across interviews while addressing a broad range of participant work-related experiences. Interview questions attempted to initiate conversation and therefore changed across interviewees to reflect their unique experiences. Similarly, there were follow-up questions for all main questions and the frequency of their use by the interviewer varied largely based on the depth and clarity of participant responses. Questions covered the following topics: respondent identity, daily life, experiences and positive and negative consequences of providing care, and future aspirations and ideas for improving their profession. In accordance with Spradley (1979), questions included 'Grand Tour' types of questions in order to elicit rich description of their experiences (i.e., general overview of work days, tasks, responsibilities) and 'Mini Tour' questions to elicit description of smaller units of time (i.e. one procedure; one interaction with a patient and family). When participants were asked to describe their everyday lived experiences responses were probed for the aspect of experience, which includes the action, their thoughts, and their feelings during the incident (Gordon, 1992).

Opportunities to ask 'native language questions' (Spradley, 1979) arose and were used to understand the cultural meaning and context of words and phrases common to healthcare providers in Fort Portal, Uganda. The qualitative interview data used in the proposed study were limited to participant accounts of the causes of work-related mental health consequences and the descriptions of those experiences. Although the interviewer's wording varied, the target questions asked about positive and negative experiences at work (including specific clinical situations with patients) and the effects of the work on the participant.

Procedures

All interviews were conducted in private locations on FINS or FPRRH campuses, lasted approximately 60 to 90 minutes, and were audio recorded. All interviewees provided informed written consent and each was given a medical penlight as compensation for their time. All interviews were later transcribed verbatim by the researcher and a third research assistant. All identifiable information was redacted. At Time 2 data collection, 8 interviews had been fully transcribed and some emerging themes were identified. The researcher attempted to contact those 8 interviewees whose interviews had been transcribed in effort to meet in person and clarify sections of the transcriptions that were unclear as well as request feedback about initial understanding of their stated experiences and emerging themes. The researcher was able to reach 5 of the 8 interviewees, 3 in person, separately, and 2 only very briefly by telephone. With the 3 participants who were able to meet in person, the researcher inquired about the validity of initial interpretations as well as the consistency of participant experiences, (i.e., Did they still stand by their earlier statements? Were they still having similar experiences?). The written notes from these 3 brief meetings were included and used in the member checking process.

Data Analysis

All statistical analyses for both quantitative and qualitative data were completed with IBM SPSS 22.0. No qualitative software was used in this study. In order to account for missing data, if a participant left blank 30% or more of the items on a given measure or subscale of a measure, then that participant's data were excluded from all relevant analyses. Therefore, *n*'s vary across measures and analyses and are reported in tables. For specific information about missing data for each measure, see Appendix A. One potential outlier was identified for STS and Disengagement (same participant). The score was more than 3.5 SD above the mean on STS and more than 4.0 SD above the mean for Disengagement. However, the participant's scores appeared valid and consistent with responses across other measures and removing the data did not change the significance of any statistical analyses and thus the data remained included. This participant was a health worker, therefore the data were not included in regressions conducted using student data. There were no other outliers identified.

Analysis of Quantitative Data

In order to determine the percent of students and experienced health workers with significant symptoms of STS and burnout as well as the most common symptom presentations, descriptive statistics (frequencies, means, standard deviations) were calculated using scores on the standardized measures of STS and burnout. The number of participants who endorsed the presence of moral distress as well as each specific experience of moral distress were calculated. In order to explore the associations among work-related mental health consequences, sociodemographic characteristics, and potential mental health covariates, two-tailed Pearson's bivariate correlational analyses were conducted separately for students and for health workers.

Variables included age, gender, marital status, religion, area of origin, trauma history (e.g., number of potentially traumatic events endorsed) and symptoms of depression and PTSD (e.g., scores on *PHQ-9* and *PCL-C*). In order to determine which stress management strategies were most commonly endorsed by participants, descriptive statistics were calculated for the subscale scores of the *Brief Cope* and the *Brief RCOPE.* All descriptive analyses were assessed for demographic differences (e.g. gender and professional role) using tests of the means and Chi-square analyses. Levene's Test, an indicator that the assumption of equality of error variances were violated and that as such the results of the t-test might be due to unequal variances between groups and sampling error, are indicated within the Tables. However, unless the ratio of differences in variances among the cells approach 10:1, this result can safely be ignored (Tabachnick and Fidell , 2007, pp. 315-316). In each of the t-tests in which Levene's Tests were significant, the ratio of variances were well within this range, therefore Levene's Test results were ignored. Therefore no adjustments or transformations were needed.

In order to identify which coping styles endorsed by students at Time 1 predict fewer symptoms of STS (total score on *STSS*) and burnout (subscale scores on *OLBI*) at Time 2, three separate linear multiple regressions were conducted each with Time 2 STS, Exhaustion or Disengagement as the dependent variable. First, in attempt to reduce coping data, two exploratory factor analyses (one for each of the coping measures) were conducted using only the student responses. Items that met criteria to be retained on those factors were summed into new Factor scores to be used as predictors in the regressions. Relevant personal characteristics and potential covariates identified through first order correlations and Chi-square analyses were included and controlled for in the models. As moral distress is not assessed in a way that allows for measuring change over time, it was not examined in relation to coping.

Analysis of Qualitative Written Data on Coping and Moral Distress

In order to account for additional coping strategies (not included in the standardized questionnaires) that may be particular to the region or culture, classic content analysis, or quantitative analysis of qualitative data or 'turning words into numbers' (Bernard & Ryan, 2009) was performed on participants' written responses to the three open-ended coping questions. Likewise, in attempt to develop a richer and more contextualized description of the sources and experiences of moral distress, the written responses to open-ended moral distress questions were examined using thematic analysis. Similar strategies and a team-based approach (MacQueen, McLellan-Lemal, Bartholow, & Milstein, 2008) were used to perform both analyses. Of the 208 participants, 184, 178, and 149 provided written responses to coping questions 1, 2, and 3, respectively, and 147 provided at least one written response to the set of five moral distress questions. It was typical for a participant to answer only some of the open-ended questions and the format of response varied by question to include lists of words, short phrases, and full sentences. On average, each participant's response set equaled about 2 sentences for the set of coping questions and 3 to 4 sentences for the moral distress questions. Moral distress responses, which tended to be more developed in thought and more abstract than the coping responses, were transcribed into a database for future reference, however all coding (described below) was done based off of the original questionnaires.

In order to develop codebooks for both analyses, the researcher first reviewed all responses in order to become familiar with the data. The researcher consulted with the research team and acquaintances in Fort Portal about the meaning of unknown terms and phrases then developed inclusive coding frameworks for each dataset, based on common responses and patterns present in the data. For the coping responses, one codebook containing 27 codes (e.g.,

Exercise) was developed for the first two questions about self-care and self-initiated coping, and another codebook containing 8 codes (e.g., *Provides Time Off*) was developed for the third question pertaining to workplace-initiated strategies. For moral distress responses, the researcher created an initial codebook of 35 codes divided into two overarching categories based on the main research question: *sources* (e.g., *High Patient to Nurse Ration, Lack of Training*) and *experience* (e.g., *emotion or thought; improvise*) of moral distress. *Sources* noted the causes of not being able to provide adequate patient care and the *experience* included feelings, thoughts, and behavioral responses. Moral distress codes were applicable to any of the responses to the 5 moral distress questions. However, some patterns in the location of data were evident (e.g., responses to questions 1 and 4 generally received *source* codes and responses to questions 5 tended to receive *experience* codes). The researcher was responsible for revising the master codebooks throughout the coding process.

Research Assistant (RA) training for both analyses occurred together after the RAs had reviewed all responses. Training included review of initial codebooks and culture-specific language, discussing articles on moral distress, and instructions for coding and for maintaining their separate databases. Coding (labeling relevant segments of text with descriptive codes) was done using pen-and-paper means, by highlighting and writing directly on photocopies of the original questionnaires. Multiple codes could be applied to a response if applicable. For example, the moral distress response "patients came covered in blood, there were no gloves so we couldn't touch them living in a world of HIV, so the patient died. I felt too emotional" might receive the codes *Lack of Equipment, Fear of Infection, Preventable Patient Death,* and *Emotion or Thought.* At the training, RAs suggested minor revisions (e.g., one new code, one definitional change) and the researcher and RAs approved the codebooks. Independent coding of the first two cases at the

training yielded 100% agreement among all three coders (the two RAs and the researcher) for all coping and moral distress codes applied.

The researcher and RAs then independently applied the codebooks to a subset of cases (10%; *n*=22). Agreement was evaluated by subjective assessment (Guest, MacQueen, & Namey, 2012) whereby the three coders re-convened in person and discussed sources and patterns of disagreement for each case and agreed upon solutions. As a rough indication of coder agreement and a starting point for discussions, the frequency of each code applied by each coder was examined. Discrepancy in the application of coping codes was determined to be primarily due to oversight. However, given the amount of oversight and error, the researcher provided minimal retraining in coping codes and remained involved in discussion of code discrepancies throughout the coding of the next subset of coping cases (45%; *n*=93, or half of remaining cases). After discussing discrepancies for this batch, the researcher deemed RA training to have been sufficient and removed self from coding and discussion for the remainder of the coping cases. The group determined that no further coping codebook revisions were required, thus the second draft remained the final coping codebook and is located in Appendix B.

Moral distress responses left more room for interpretation among coders than did coping responses, and as a result there was more conceptually based discrepancy. Therefore, coding of moral distresses responses continued through an iterative process of independent coding, group discussion of discrepancy, master codebook revision, and re-coding of cases with the revised codebooks. The researcher was involved in discussion of codes and discrepancy throughout the entire coding process. This process, particularly the expectation of re-coding, allowed for the correction of errors and for coding to reflect an evolving understanding of the data. The sixth and final moral distress codebook is located in Appendix C.

Throughout this process, the researcher's coding was only used to aid discussion and codebook revision and was not included in the final databases. Although typically, when using a subjective assessment method to evaluate agreement, no intercoder agreement statistics are generated and all discordant coding is resolved during the process, intercoder reliability statistics (Cohen's kappas) were calculated to determine agreement between the two RA's for the final 45% (n=93) of cases for both coping and moral distress before any discussion of disagreement or final recoding occurred. Thus, they provide low estimates of agreement. For application of the 27 coping codes to Question 1, kappas ranged from .43 to 1.0, with six codes obtaining a kappa of 1.0. For application of the same 27 codes to Question 2, kappas ranged from .32 to .1.00, with two codes obtaining a kappa of 1.0. For the 8 codes applied to Question 3, kappas ranged from .69 to .95. In total, kappas for coping codes were greater than or equal to .7 for 45 of the 62 codes applied, before discussing and resolving disagreement. Intercoder agreement for moral distress was considerably lower, and was expected given the codebook was continuing to go through revisions. Agreement ranged from kappa of .29 to 1.00 with kappas greater than or equal to .6 for 24 and .7 for 16 of the 35 moral distress codes. In order to resolve remaining discrepancies in coping and moral distress coding, the third RA described earlier acted as a final tie-breaker between the two RAs. Final databases were compiled and frequencies were calculated.

Analysis of Qualitative Interview Data on Mental Health Consequences

In attempt to develop a richer and more contextualized description of the sources and experiences of mental health consequences among healthcare providers in rural Uganda, the interviews from Study 2 were examined using thematic analyses. The researcher and the third RA transcribed the interviews verbatim. For this study, a list of five codes was developed, *STS,*

Burnout and *Moral Distress* and two very broad codes: *General-Positive Mental Health Consequences* and *General-Negative Mental Health Consequences*. Throughout coding (and explained in training) coders were instructed to keep a list of emerging themes they found interesting that might be used in future analyses (see Appendix D for definitions of the main 5 codes and a list of additional codes).

RA training involved reading and discussing articles about finding themes in qualitative data, STS, burnout, moral distress, and Ugandan culture. The researcher and RA decided to use paper and pencil means instead of qualitative software for coding after experiencing multiple glitches with the software. Each interview in its entirety was included in the thematic analysis. In order to segment areas of text for a more focused coding process later, coders independently highlighted (using Microsoft Word) sections of text that they believed broadly answered the research question. The highlighted sections included participant descriptions of the sources and experiences of positive or negative mental health consequences associated with his or her work.

The two coders re-read transcripts to identify segments of text to be given descriptive labels, or open-codes. They focused on identifying sources of mental health consequences as well as the lived experience (Creswell, 2007) by looking for time-oriented and causal relationships, expressions of thoughts and feelings, similarities and repetition across participants (Bernard & Ryan, 2010; Corbin & Strauss, 2008). In identifying participant experiences that may represent *STS, Burnout* and *Moral Distress*, coders engaged in constant comparison, asking how participant experiences are similar and dissimilar from the constructs described in the literature. Coders were encouraged to specify or sub-categorize codes with specific symptom domains where relevant (e.g., Burnout-disengagement; STS-Arousal). They independently coded interviews by applying code names to specific segments of text using the Track Changes feature

of Microsoft Word. Based on side-by-side comparison of coded Word documents and in-person discussion of intercoder agreement, they compiled a document listing quotations they believed to exemplify each broad code. Frequencies of codes were calculated as rough indicators of the strength of the presence of each mental health consequence.

RESULTS

Results of Statistical Analyses

Sample Description

As indicated in Table 1, nursing and midwifery students were, on average 20.6 (SD =2.3) years old and were primarily unmarried, whereas health workers were much older with an average age of 40.6 (SD=12.3) years. All students had just begun either their first or second year of nursing school. The health workers, on average, had 16.8 (SD=13) years of experience in the healthcare profession with a range of 1 to 46 years. Fifteen health workers had more than 30 years of nursing experience. Health workers were significantly more likely to be married and to be parents than were the students and the majority of health workers (79.6%, n=39) had at least one child. Students were significantly less likely than health workers to be originally from the Fort Portal area. Overall, 61.8% (115/186) of participants reported intent to leave Uganda for work. Students were more likely than health workers to intend to leave Uganda for work. For instance, 69.2% (n=101/146) of students and 35.0% (n=14/40) reported they intended to leave Uganda for work ($\chi^2(1, N=186) = 15.54$, $p<.01$). Given significant group differences on many variables, students and health workers are examined separately in relation to mental health symptoms and the common coping strategies they utilize.

Experiences of STS, Burnout and Moral Distress

As indicated in Table 2, at Time 1, 49.2% (*n*=94) of the total sample reported clinically significant symptoms of STS (based on the established cut-off >=38 on the *STSS* Total Score). Clinically significant symptoms of STS did not differ across gender but were significantly more common among students (53.8%, *n*=78) than health workers (34.8%, *n*=16). Compared to STS, experiences of clinically significant symptoms of burnout were less commonly reported among this sample, with 15.9% (*n*=32) and 1.5% (*n*=3) of participants reported clinically significant symptoms of exhaustion and of disengagement, respectively. There were no significant differences across professional role in the percent reporting clinically significant symptoms of exhaustion and because of low frequency of clinically significant symptoms of Disengagement, Chi-square statistics were not computed.

Information pertaining to symptom presentation for STS and burnout is located in Table 3. Participants reported on average 37.5 (SD=10.7) STS symptoms, with a range of 17 to 80. Males and students reported significantly more symptoms of STS than females and health workers, respectively. It should be noted that the avoidance subscale has 7 items whereas the arousal and intrusion subscales each have 5 items, therefore higher mean subscale scores for avoidance are expected and not indicative of a higher occurrence of avoidance symptoms. Based on item means within each subscale, intrusion symptoms were the most common among the total sample (*M*=2.5, SD=.74) followed by arousal symptoms and avoidance symptoms (*M*=2.19, SD=.73; *M*=2.17, SD=.72), respectively. The four STS symptoms endorsed as experienced most frequently were intrusion symptoms: reliving the traumas experienced by patients (item *M*=2.83, SD 1.19), unintentionally thinking about work with patients (item *M*=2.75, SD=1.19), being upset by reminders of work with patients (item *M*=2.45, SD=1.21), and heart palpitations when

thinking about work with patients (item *M*=2.39, SD=1.21). The least frequently endorsed symptom was wanting to avoid working with patients (item *M*=1.69, SD=1.04). With regard to the symptom presentation of burnout, symptoms of exhaustion (subscale *M*=19.5, SD=3.8) were more commonly experienced than symptoms of disengagement (subscale *M*=16.4, SD=3.1). The two most commonly reported burnout symptoms were both exhaustion symptoms: needing more time than in the past in order to relax and feel better after work (item *M*=3.10, SD=.79) and feeling worn out and weary after work (item *M*=2.67, SD=.87). The next two most common symptoms were disengagement symptoms: feeling sickened by work tasks (item *M*=2.67, SD=.83) and becoming disconnected from work over time (*M*=2.51, SD=.94).

With regard to moral distress, and as indicated in Table 4, 86.0% (*n*=148) of participants reported believing that they were either unable to meet professional or unable to meet ethical standards in the course of providing patient care. There were no significant differences across gender (χ^2 = (1, *N*=171)= .19, *p* =.66) or professional role (χ^2 (1, *N*=172)=1.45, *p* <.23) in the percent that reported the general experience of moral distress. Of note, compared to all other questions in the study, a considerable number of students did not answer the moral distress questions. Specifically, 17.0% (*n*=27) and 28.3% (*n*=45) students left blank the questions asking whether they were able to provide care that met ethical and professional standards, respectively. When this information was shared by the researcher (as part of presenting preliminary results at Time 2) with participants and administrators, they explained that students were confused as to how to assess their own ability to provide care that meets a professional standard that they are still learning and while they are still under supervision. Nevertheless, students more commonly reported failing to provide care that met *ethical* standards than *professional* standards, whereas about the same percentage of health workers reported failing to meet *ethical* and *professional*

standards. In terms of specific situations that might elicit moral distress, health workers were significantly more likely than students to report that understaffing affects patient care and that nurses are treated like machines, as well as feeling ineffective and hopeless, whereas students were significantly more likely than health workers to report that fear of HIV affects the way they care for patients.

Sociodemographic characteristics and mental health consequences. As indicated in Table 5, most sociodemographic characteristics were not significantly related to negative mental health consequences. Of note, although information about the years of experience were available for health workers, experience was confounded with age ($r(39)=.91$, $p<.001$) and experience was dropped from correlational analyses. Similarly, although there were a number of specific religions endorsed among the sample, the religions could be simplified to two groups: Christian (96%) and Muslim (4%). Therefore, there was very limited variability in the religion variable and thus religion was not included in the correlational analyses. Among health workers, being married was significantly associated with fewer symptoms of disengagement. As expected, given the high incidence of moral distress within the sample, and thus low variability, there were no significant relationships between the presence of moral distress and any of the sociodemographic characteristics. There were also no significant relationships between moral distress and STS or burnout. However, among students and health workers, symptoms of STS were significantly related to burnout (both disengagement and exhaustion), and the relationships between STS and burnout were stronger among health workers than students. Notably, the correlations were all low to moderate in strength ($r=.18$ to $.47$), indicating that the measures of STS, burnout and moral distress are measuring separate constructs.

Trauma History and Symptoms of PTSD and Depression

The adapted measure used to assess exposure to potentially traumatic events included two items added by FINS administration (romantic betrayal and family violence). Analyses were conducted with and without these two items and results remained the same. Therefore the two items are included in all analyses. Overall, participants reported a range of 0-13 events per person, with 8.9% (*n*=18) reporting not having experienced *any* of the listed events. Participants reported experiencing an average of 3.59 (SD=2.54) different types of potentially traumatic events (*M*=3.94, SD=2.39 when those who reported none were excluded; *M*=2.97, SD=(2.22) when added items were removed). There were no significant differences in the number of potentially traumatic events experienced across gender ($t(199)=-.55$, $p=.56$) or professional role ($t(200)=.47$, $p=.64$).

Information in Table 6 is organized based on the prevalence of the direct experience of potentially traumatic events in descending order, for the total sample. Physical assault was the most frequently experienced event, with 59.7% (*n*=120) of the sample reporting direct exposure, followed by life-threatening illness or injury (42.7%, *n*=85) and the sudden, unexpected death of someone close (42.3%, *n*=83). Witnessing potentially traumatic events was also pervasive. For example, 50.5% (*n*=103) saw a transportation accident, 43.4% (*n*=85) witnessed severe human suffering and 43.1% (*n*=85) reported witnessing a sudden, violent death. The two added items, romantic betrayal and family violence were endorsed by 26.5% (*n*=53) and 16.5% (*n*=32) of the sample, respectively.

As indicated in Table 7, on average, participants reported 42.23 (SD=11.95) PTSD symptoms, with a range of 17 to 77. Similar to the presentation of STS symptoms, based on item

means within the subscales, intrusion symptoms of PTSD were the most commonly reported (*M*=2.68, SD=.93), followed by avoidance (*M*=2.61, SD=.79*)* and arousal symptoms (*M* =2.44, SD=.87). With regard to depressive symptoms, on average, participants reported 7.58 (SD=4.45) symptoms, with a range of 0 to 22 and the most common symptoms based on item means were: feeling tired or having little energy (*M*=1.44; SD=.98) and little interest or pleasure in doing things (*M*=1.17; SD=1.11). There were no gender differences in the number of PTSD or depressive symptoms reported, however, as indicated in Table 7, students reported significantly more symptoms of both PTSD and depression than health workers.

Notably, 43.2% (*n*=89) of the total sample had a score of 44 or higher on the *PCL-C* indicating clinically significant PTSD symptoms. There were no significant differences across gender ($\chi^2(1, N=205) = .01$, $p=.54$). More students (46.2%, *n*=73) than health workers (33.3%, *n*=16) met criteria for clinically significant symptoms of PTSD but differences were only marginally significant ($\chi^2(1, N=206) = 2.49$, $p=.08$). In terms of the severity of depressive symptoms, 31.1% (*n*=64) reported symptoms consistent with a tentative DSM-IV diagnosis of depression (i.e., cut-score>9 on *PHQ-9* suggests moderate to severe depressive symptoms). Of those, only three participants (all students) met criteria for severe depression. There were no gender differences in the number reporting clinically significant symptoms of depression ($\chi^2(5, N=205) = 1.58$, $p=.90$) however, differences across professional role were marginally significant ($\chi^2(5, N=206) = 10.81$, $p=.06$). In response to a question addressing impairment of daily functioning, 24.4% (*n*=45/184) reported that the depressive symptoms they endorsed made it very difficult or extremely difficult to do their work, take care of things at home, or get along with other people.

Intercorrelations of symptoms. Before addressing the intercorrelation of symptoms, the associations between symptoms and trauma exposure are examined. As shown in Table 8, for students, unexpectedly, trauma history was not related to either PTSD or STS symptom totals. However, post hoc examination of the subscales indicated that trauma history was significantly related to the intrusion symptoms of PTSD as well as symptoms of depression and exhaustion. In contrast, among health workers, trauma history was significantly related to total PTSD symptoms (particularly intrusion symptoms) and to total STS symptoms (particularly avoidance and intrusion symptoms) but not to depression and burnout.

As expected, for the sample, symptoms of PTSD and depression were significantly correlated with each other, as were symptoms of STS and PTSD. These relationships were stronger among health workers than among students and are also indicated in Table 8. Symptoms of depression were significantly positively correlated with both STS and burnout (particularly exhaustion) in both groups. Among health workers, symptoms of depression and STS were more strongly correlated than symptoms of depression and exhaustion, and there was no relationship between symptoms of depression and disengagement. With regard to moral distress, there were essentially no significant correlations, however, moral distress was significantly negatively associated with symptoms of depression among health workers.

There is considerable co-occurrence of STS, burnout and moral distress. Of the total sample, 95.1% (*n*=199) had at least one of the three work-related mental health consequences and 7.9% (*n*=16) experienced all three. Given the overlapping symptom construct of STS and PTSD, the co-occurrence of the constructs was of particular interest. Of the 123 participants who had STS and/or PTSD, 44.7% (*n*=55) had both, 31.7% (*n*=39) had STS only and 23.6% (*n*=29) had PTSD only.

Coping Strategies Commonly Employed by Students and Health Workers

Qualitative data from open-ended questions about methods of self-care and coping provide specific information about managing stress within the cultural context of rural Uganda without confining participants' responses to the coping strategies commonly used in the U.S. As indicated in Table 9, the most commonly reported self-care and relaxation activities, were *socialize with others* (*n*=106), *exercise* (*n*=61), *sleep/rest* (*n*=42) and *music and dance* (*n*=33), such as "drumming and clapping." Other stress reduction activities included *storytelling* (*n*=21) and *home and community work* (*n*=17) such as "cattle grazing" and "digging" (for a community well or garden). Participants reported they also turned toward different aspects of their work in order to relax, indicated by *professional development and commitment* (*n*=15) responses like "attend continuing medical education," "focus on my work with patients," and "read to understand my class work better." In response to specific work stress, *positive thought* (*n*=17) emerged as a coping strategy employed by healthcare providers. *Positive thought* responses tended to focus on the value and importance of healthcare work and included responses like "I do the work satisfactorily as I can, and leave what I can't," and "I think that whatever comes my way teaches me to react towards it by providing a solution." In contrast to the detailed responses participants provided about individual strategies, when asked what workplace-initiated strategies intended to help them deal with work stress, one word, "Nothing" (*n*=43) was the most frequent response. Some participants elaborated with, "Nothing completely! They just add more for your stress by talking a lot of words" and "Nothing is done apart from comforting ~~the victim~~ me." Other responses indicated that the participants' workplaces (typically the hospital) provided emotional support (*n*=30), counseling and supervision (*n*=21), and time off (*n*=21).

Quantitative measures, the *Brief COPE* and *Brief RCOPE,* assessed the frequency of using different individual coping strategies that are commonly used in the U.S. Table 10 displays a list of coping strategies used by students and health workers to deal with work-related stress and is organized in order of descending frequency based on students' responses on the *Brief COPE*. According to both students and health workers, Religion (i.e., praying, meditating, or finding comfort in spiritual beliefs) was the most utilized coping strategy, and was more frequently endorsed by females than males ($t(200)=3.23$, $p<.01$). Active, problem-focused coping styles like getting help or advice (Instrumental Support), devising a strategy (Planning), and concentrating effort to take action in solving the problem (Active Coping) were the next most frequently endorsed. Substance Use was by far the least frequently endorsed coping style, followed by Humor. As indicated in Table 11, with regard to religious coping specifically, participants endorsed more frequent use of strategies on the Positive Religious Coping (PRC) subscale (e.g., seeking God's love and care, asking forgiveness for sins, looking for stronger connection with God) than those on the Negative Religious Coping (NRC) subscale (e.g., wondering whether one's church or God had abandoned him/her and deciding the devil was responsible. There were no gender differences in the endorsement of either positive ($t(204)=-1.56$, $p<.12$) or negative religious coping ($t(200)=-.75$, $p=.45$) but positive religious coping was endorsed significantly more frequently by students than by health workers.

Stability of Mental Health Symptoms among Students over 13-months

Only student data was analyzed at the 13-month follow up. Student rates of significant symptoms of STS and burnout were similar to the Time 1 student rates. At Time 2, 46.2% ($n=61$), 6.8% ($n=9$) and 1.5% ($n=2$) of students experienced significant symptoms of STS, Exhaustion and Disengagement. Symptom presentations were also similar between Time 1 and

Time 2. On average, students experienced 37.48 (SD=11.14), 19.69 (SD=2.93), and 16.94 (SD=2.95) symptoms of STS, exhaustion, and disengagement, respectively, at Time 2. Students' average symptom change scores on measures of STS, exhaustion and disengagement were all less than 1 point. On average, students reported -.93 (12.83) change in symptoms of STS (range of -35 to 27), .47 (4.11) change in symptoms of exhaustion (range of -13 to 10), and .99 (3.59) change in symptoms of disengagement (range of -8 to 11).

Coping Strategies in Relation to Time 2 Symptoms among Students

Principal component analyses of *Brief COPE* and *Brief RCOPE*. Principal component analysis (PCA), a data reduction strategy, was conducted to reduce coping data for use in regression models predicting Time 2 symptoms among students. In attempt to only include the coping styles that were relevant to the population, copying styles with very low endorsement were dropped before running the principal component analyses. Substance Use was dropped from the PCA of the *Brief COPE* because 75% of students reported not using it all, whereas Humor, the second least frequently endorsed coping strategy was included because only 26.7% of students reported not using it. No items were dropped from the PCA of the *Brief RCOPE* as the lowest frequency item was still endorsed by 41.2% of the sample. Following the example of Kimemia et al. (2006), whose research with caregivers in Kenya used the 14 subscales (instead of 28 items) in an exploratory factor analysis of the *Brief COPE,* this research used subscales instead of items on the *Brief COPE* which resulted in clearer factor loadings and reduced the participant-to-variable variance. The PCA was conducted with a Varimax with Kaiser Normalization rotation method. The following guidelines were used to retain *Brief COPE* subscales and *Brief RCOPE* items on a factor: 1) the item had to load .5 or above on the target

factor and there had to be at least a .2 difference between the item's loading on the factor on which it was retained and its next highest factor loading.

Results from a PCA of the *Brief COPE* subscales indicated that a three-factor model best fit the data based on an examination of eigenvalues, scree plots, comparison of factor loadings for multiple models, and discussion with FINS administrator and participants. As indicated in Table 12, the three-factor model accounted for 42.55% of the variance and retaining 9 of the 13 remaining subscales. In the three-factor model, Factor 1, labeled Active/Approach (eigenvalue of 2.36) accounted for 18.16% of the variance and represented active methods like thinking about what to do next, asking advice from others, praying, and doing something about the problem. Factor 2, labeled Avoid/Reframe (eigenvalue of 1.92) accounted for 14.76% of the variance and included making jokes about the situation, looking for good in what is happening, and giving up trying to deal with the problem. Factor 3, labeled Complain and Blame (eigenvalue of 1.25), accounted for 9.64% of the variance and included criticizing and blaming oneself and expressing negative feelings. Two-, four-, and five-factor models were also considered. A two-factor model made conceptual sense, indicating two broad factors of Approach and Avoidance coping (retaining 11 of the 13 subscales) but only accounted for 32.90% of the variance. Four- and five-factor models (51.19% and 59.40% of the variance, respectively) were considered to be less useful than models with fewer factors as each factor became less informative as the number of factors increased (e.g., one of the factors in the five factor model only included one subscale).

The researcher used member checking (i.e., presenting limited findings and requesting feedback over email) to try to understand Factor 2, as the items that loaded on Factor 2 did not appear to be strongly related to one another conceptually. Notably, although humor and positive reframing are generally considered to be adaptive coping styles in the U.S., in the present study,

humor and positive reframing (and acceptance in some models) tended to load with strategies typically considered less adaptive such as behavioral disengagement, denial, complaining, and self-criticism. The Founder and Director of FINS and two participants indicated that given the context of the work (i.e., matters of life and death, a somewhat 'militarized' environment with relationships based on seniority among staff, and busy schedules) joking is not acceptable. Similarly, looking for the positive or heavily relying on acceptance in such dire circumstances might not be realistic or conducive to providing good patient care.

With regard to religious coping specifically, results from a PCA of the *Brief RCOPE* suggested that a four-factor model better fit the data than the measure's two original Positive Religious Coping (PRC) and Negative Religious Coping (NRC) subscales. As indicated in Table 13, the four-factor model accounted for 55.24% of the sample variance and produced clear and strong loadings for 13 of the 14 items, whereas two-factor model (37.59% of variance) and three-factor model (47.34% of variance) resulted in a loss of 3 and 4 items, respectively, due to low or equal loadings across multiple factors. In the four-factor model, Factor 1, labeled Negative Religious Interpretations (eigenvalue of 3.18) accounted for 22.71% of the variance and loaded five items from the NRC subscale, including feeling punished by God and blaming the devil. Factor 2, labeled Reach Out to God (eigenvalue of 2.08) accounted for 14.88% of the variance and loaded three items from the PRC subscale, including "looked for a stronger connection with God." Factor 3, labeled Question God's Love and Power (eigenvalue of 1.37) accounted for 9.75% of the variance and loaded three items, two from the NRC and one from the PRC subscales, that focused on questioning God. Factor 4, labeled Anxiety Reduction through Religion (eigenvalue of 1.11) accounted for 7.89% of the variance and loaded two items that addressed forgiveness for sins and reducing worry, both from the measure's PRC subscale.

Sample specific *Brief COPE* and *Brief RCOPE* Factors (a total of 7) were computed by summing the scores of the items retained on each Factor. Pearson correlations were generated to examine the associations among the coping Factors and Time 2 symptoms of STS, Exhaustion, and Disengagement. There were significant relationships between the Complain and Blame Factor with symptoms of STS ($r(131)=.20$, $p<.05$) and Disengagement ($r(131)=.30$, $p<.001$) and a trend towards significance with Exhaustion ($r(131)=.30$, $p=.054$). Non-significant correlations between Time 2 symptoms and Active/Approach and Avoid/Reframe Factors ranged from $r=-.02$ to .13 ($p=.15$ to .89). For religious coping specifically, there were no significant relationships among any of the four *Brief RCOPE* Factors and Time 2 symptoms ($r= -.10$ to .17, $p= .09$ to .83). However, the correlation between the Negative Religious Interpretations Factor and Time 2 Disengagement was marginally significant ($r(131)=.17$, $p=.053$).

Multiple linear regression analyses. The Factors that had significant (Complain and Blame from Brief COPE) or marginally significant (Negative Religious Interpretations from the *Brief RCOPE*) associations with Time 2 symptoms were used as predictors in regression analyses. Three separate linear multiple regressions were conducted, each one predicting Time 2 symptoms of STS, Exhaustion, or Disengagement. In each regression, gender was entered in the first step to control for its effect on the model. Then, all Time 1 mental health covariates (symptoms of PTSD and depression as well as STS, Exhaustion and Disengagement and Exhaustion) including the Time 1 symptoms of the dependent variable were entered in the second step. In the third and final step, coping Factors, Complain and Blame and Negative Religious Interpretations, were entered to test their unique effect on the dependent variable after controlling for all other predictors entered at steps 1 and 2.

Regression results are summarized in Tables 14a-c. With regard to predicting STS at Time 2, regression model was statistically significant, (F(8, 109)=2.59, p=.01, R^2=.16, $f^{2=}$.19), however in the final step, none of the 8 predictors contributed significantly to the prediction of STS. With regard to predicting Exhaustion at Time 2, the regression model was not statistically significant (F(8, 109)=1.02, p=.43, R^2=.07, $f^{2=}$.08) and none of the predictors significantly contributed to the model. The overall regression model for Disengagement was statistically significant (F(8, 110)=5.06, p<.001, R^2=.27, $f^{2=}$.37). In the final step, male gender and Complain and Blame coping were significantly related to symptoms of Disengagement at Time 2. Two other predictors, Time 1 Exhaustion and Disengagement, were marginally significant with p values of .06. The effect size of coping for this analysis ($f^{2=}$.37) was found to exceed Cohen's (1988) convention for a large effect. There were no problems with intercorrelations of predictors as indicated by collinearity statistics. Complain and Blame coping and Negative Religious Interpretations coping had the lowest tolerance statistics of .52 and .54, respectively, with the range of .74 to .88 for tolerance statistics for the rest of the predictors. The variance inflation factor ranged from 1.14 to 1.94.

Thematic Analysis of Written Responses about Moral Distress

The results of the thematic analysis helped to illustrate some of the unique circumstances under which nurses in Uganda provide patient care, and under which they attempt to meet ethical and professional standards. The themes also illustrate ways in which nurses manage morally distressing circumstances. As noted previously, the full list of codes and theme definitions used to generate these results can be found in Appendix G, The most frequent and some unexpected themes are organized below. Given the small sample and close, interconnected community,

participant demographics including details about job titles are kept to a minimum in effort to protect confidentiality.

Sources of Moral Distressing Situations

As expected, the overwhelming majority of participants reported lacking the essential materials for their work. In addition to the 86.4% (*n*=127) who indicated that a general *lack of material resources* created situations of moral distress for them, 74.8% (*n*=110) specified that they lacked *equipment.* Participants commonly cited a lack of drugs, gloves, machines, forceps, gauze, and bed linens, as well as oxygen, intravenous fluids and food. A lack of *infrastructure* was also identified as a source of moral distress by 23.8% (*n*=35) of participants. These responses commonly included power outages and a shortage of buildings and space (e.g., patients laying on the floor outside of units), as well as poor record keeping that interferes with patient follow-up care. Some responses also described an ineffective referral system that lacked transportation for patients. A female health worker described feeling moral distress when, "you receive a child with a foreign body in the bronchus and you refer to Mulago Hospital [a 4-5 hour drive] and patient dies on the way!"

Working in an environment with a *high patient-to-nurse ratio* was expressed as a source of moral distress by 61.9% (*n*=91) of participants. Additionally, 12.9% (*n* =19) described situations in which they were *working alone*. Contributors to both sides of the nurse-patient imbalance were explained in participant responses. For example, 19% (*n*=28) of participants described *Reasons for Patient Overload* such as epidemics (e.g., cholera outbreak), mass accidents, increased number of Congolese refugees, and general overpopulation, and 14.3% (*n*=21) described *Reasons for Few Health Workers* including health worker absenteeism,

"dodging duty," and migration to the private health sector or outside of Uganda. Additionally, 16.4% (*n*=24) reported a *lack of training* contributed to moral distress, in that they themselves were undertrained to perform the tasks expected of them, or that there was a lack of trained specialists.

Students and health workers shared similar experiences of working within a high patient-to-nurse ratio. Students and health workers alike described serving upwards of 50-100 patients at a time, and sometimes being torn between patients with equally high needs, such as two patients who need oxygen when there is only one oxygen cylinder. Participants also described how multiple stressors combined to create increased challenges, like the following health worker who described a situation characterized by both a lack of equipment and a high patient-to-nurse ratio,

> it occured when I was with only one other staff and we received an emergency of a road traffic accident while she was attending to a convulsing baby and I had no other person to assist in lifting so the only stretcher we had was broken and there was no trolley. I failed what to do and became confused but later ran and called boda boda [motorcycle public transportation] guys to help us

Sometimes these challenging circumstances led to *preventable patient deaths,* a theme present among the responses of 12.9% (*n*=19) of participants. Students reported being unable to provide patient care that met ethical or professional standards, "when the hospital and relatives fail to provide food for patients and patients die because of hunger." One student described a patient death due to lack of gloves. He wrote,

> There was an emergency people came in the hospital with cut wounds caused by thieves and they were heavily bleeding and there was no gloves as well so the people some of them died because of heavily bleeding and [I] couldnt touch blood with bare hands

More than a quarter of participants, 26.5% (*n*=39) mentioned *government or authority issues* as contributing to morally distressing situations. Although blaming government and the ministry of health, occurred frequently, participant responses were generally not descriptive, with the majority of responses simply being "corruption" or "government." Other responses included "embezzlement of health funds," "bribery," "misuse of drugs," and "stealing of some hospital equipments by some health workers." Responses of *poverty* and/or *patient poverty* (25.2%, *n*=37) were also not very descriptive as participants often simply stated "poverty" or "patients are poor," with some elaborating to describe "illiteracy."

Related to the stigmatization of government health workers, poor *Health Worker Attitude* was mentioned by 8.9% (*n*=9) of participants as a contributor to situations in which they were unable to provide adequate care to patients. These responses included rudeness, lack of sympathy, and lack of respect toward patients as well as conflict among staff (i.e., bullying) and failure to cooperate with one another. Two participants detailed how senior health workers mistreated patients. One health worker reported that she experienced moral distress, "when 1 pt came on the ward with Hep B and Malaria and HIV/AIDS & the nurse (senior) shouted at him & begin to tell anybody & even fearing to touch him." The other, a female student, described, "one time I was in the hospital and two female patients after disturbing the doctor were discharged before recovery from sickness. so the staff was not able to control his emotions." The examples described within the *Health Worker Attitude* theme may be a result of high stress and burnout as they contribute to moral distress and contribute to patients avoiding seeking care.

Experience of Morally Distressing Situations and Nurse Responses

Emotions and thoughts were expressed by 25.2% (*n*=37) of *participants* in their descriptions of the experience of moral distress (i.e. what it is like for them). This theme represents a wide range of feelings (e.g., sad, embarrassed, empathy, confused, anger, unhappy, anxious, pity, remorseful, disappointed, internally hurt, pain) and some thoughts (e.g. useless). Many feelings and thoughts were directed toward one's self and his or her limitations in the professional role. For example, a female health worker wrote, "when I had no light to examine the patients ears who came in pain I felt disappointed and useless." Another female health worker explained, "it feels disgusting/frustrating not being in a position to implement our skills to the best limit of our knowledge." Of note, only 2 (1.4%) participants shared having had a desire to leave the profession in their discussion of morally distressing situations. A female student stated, "I felt anxious and somehow regretted as to why I joined the nursing course because it was too much."

The experience of moral distress also includes ways in which nurses respond and show agency in situations that are morally challenging. More than a third of participants, 34.7% (*n*=51) expressed a positive attitude of *perseverance,* or resolve and acceptance of the situation. A male health worker described how he responds to distressing situations with, "You just play it cool and you cope up with the situation" and a male student explained he manages "by liking and believing in self, that is liking our job as nurses and perform every role with emotional will." *Improvisation* also emerged as a theme, among 32.7% (*n*=48) of participants, and illustrates the resourcefulness of nurses and how they manage the challenges of their work. Participants devised new ways to complete patient care tasks with the means they had available. For example:

> [I respond by] Improvising where possible e.g. when drip stand is not available, hung the bottle on the window. When no forceps, I put on gloves and dress my hands, [when there are] no [privacy] screens [I] ask the attendants to hold their lesos [cloth] and cover the patient" (--female health worker).

A male student concisely captured both themes of *perseverance* and *improvising* with his response, "We persist and improvise and do the needful being tactful."

There were a few unexpected findings pertaining to the sources and experience of moral distress. Unexpected given that much of the nursing literature is focused on nurses' intention to quit, 11.6% (*n*=17) of participants provided responses indicating *Committing to the Profession.* These included specific examples of how they attempt to improve their skills, keep their knowledge base current ("reading much to be abreast") and increase their health education, prevention, and even recruitment efforts. One student responded that he deals with challenges of moral distress "by encouraging the younger generation to work hard in education and join the health profession in order to promote health at large." In a more immediate problem-focused response, *Ask Patients to Buy What's Needed* (10.9%, *n*=16) emerged as a theme that captured both how nurses respond to a lack of resources, however it was also found to be an initial source of moral distress, because some nurses expressed strong reactions to being in a position to have to resort to asking patients to buy their own supplies. Four (2.7%) participants described how they *Give What I Have* (2.7%, *n*=4) in challenging situations. This response includes using one's own money or requesting donations from friends or church in order to provide for patients' needs. Although these responses were infrequent, they demonstrated the collectivist, community-focus, and perhaps religiosity of the participants. With regard to religion specifically, it is noteworthy that *religion* (2.0%, *n*=3) was not a strong theme within the responses to the moral discuss questions.

Thematic Analysis of Interview Data

. The thematic analysis of interview supports the existence of the constructs of STS, burnout and moral distress in rural Uganda. By providing examples of these mental health consequences in participants' own words, the interview data helps to contextualize the experiences and to explain some of the less prominent themes that emerged from qualitative written data to better describe what it is like to be a healthcare provider in rural Uganda today. The order in which this section will explore these negative mental health consequences is based on their frequency of appearance across interviews, first *Moral Distress,* followed by *STS,* and *Burnout,* which is consistent with quantitative findings. All participants described at least one positive mental health consequence of their work. Some interview participants described two negative mental health consequences stemming from the same situation (generally moral distress and STS or moral distress and burnout) but no one described examples of all three mental health consequences. Again, participant details are kept to a minimum to protect confidentiality, however an attempt was made to select quotes and case material from as many participants as possible. Quotes from 9 of the 13 interviewees are used in this section.

Moral Distress – "I've not done much"

In discussing their experiences working as healthcare providers, 9 of the 13 interviewees spoke of situations and feelings that the coders considered to be representative of moral distress. Sources of moral distress were consistent with themes that emerged in the written data and interviews served to expand upon some of the less developed themes. For example, healthcare providers similarly described a decreased effectiveness of their work due to a lack of resources, which led them to experience moral distress when they were required to ask patients to supply

items needed for their own care. Participants also described how they used their own resources or requested help from the larger community or church, such as the following female health worker:

> Sometimes what pains me also when . . . the doctor prescribes the drug for the patient and then the drug is out of stock. And when you tell that person to go and buy it they tell me 'I don't have money.' And for sure, those patients really they don't have money. They are poor. Especially those old ones. . . . and sometimes [police] they pick some mentally ill people on the roadsides so they dump them here and then they are lacking food. They have no attendants. You can't keep giving the patients the medicine without food. And that one pains me because I feel I want to help but sometimes I don't. I do not help them because even me I don't have. But, there is a time when I started going to churches and then I preached and I encouraged someone to bring something for those people."

Another health worker spoke of providing health education and nursing care in remote villages without adequate funding from her employer. She recalled knowing that patients would not follow through with her recommendations, given the extent of their poverty, but like the health worker above, she herself had nothing to give the patients so she collected from friends. She said,

> You go, you find somebody has no soap. Someone who has not eaten supper. But you are there telling him to eat a balanced diet. Where is he going to get the money? . . . So you see, when you are sick and somebody is telling you 'drink at least a liter of milk everyday,' the liter of milk should be there. Telling somebody 'eat some proteins' you should be able to buy her a half a kilo of liver. Eh? You are telling her you want her to wash her clothes. Eh? You should be able to bring a bar of soap.

Healthcare providers' efforts to help may feel like they are in a sense teasing their patients with the possibility of appropriate treatment but are unable to follow through. A mid-level health professional (one with training and credentials above a nurse or midwife) described how he refers patients when he does not have the means to provide care. Even though referring is considered "best practice" he still suffers emotional consequences:

> Well I feel very small. I feel, I don't feel comfortable in front of the patient because they take you like maybe you are unable to help, to offer help but there is nothing [you can] do about it. So you just feel guilty as if you are guilty for nothing you've done and yet you are trying to do

Another mid-level professional, described how she has been unable to complete treatment regimens with patients because they lack the means to regularly attend sessions and she has no funding to carry out home visits. Subsequently, she finds herself thinking about these patients often and wondering if she has actually helped them at all. When asked to describe one particular case that she thinks about, she replied:

> 'Not only one case, so many cases. Even one time I sit, even when I'm home or here when I'm not having many patients, I say, 'Did this patient die? Or is he or she still there but suffering much more? Did I really help? Or it was just like opening food and I didn't serve it?'

Continuing to think about patients and wondering how they fared appears to be a central part of the experience of moral distress among healthcare providers in rural Uganda, and may be common to other mental health consequences, such as STS. Situations that contribute to feelings of moral distress can often be considered secondary trauma and led to more intrusive thoughts and symptoms of STS among some participants.

Secondary Traumatic Stress – "Thoughts keeps ringing"

Four of the 13 interviewees described experiences that coders believed represented STS. Consistent with quantitative findings, intrusive symptoms (e.g., unintended thoughts about patients, upset by reminders of work with patients) and arousal symptoms (e.g., sleep problems, hypervigilance, concentration problems, moodiness, expecting something bad to happen) were most common, coded at least once in each of the four interviews. Avoidance symptoms were not

found to be present in interviews. Coders discussed one example as potentially representing effortful avoidance (emotional numbing), but decided that in that participant's case, the example represented adaptive coping.

A health worker described his adverse reactions to having treated a small boy who had lost an eye due to injury. The participant's experience mainly included arousal symptoms of STS paired with intrusive thoughts of the patient. He developed a fear and specific negative expectations that other children will similarly injure their eyes. After treating the patient he remains hypervigilant when he sees children engaged in risky play. He described how his concentration was impacted by thoughts of the patient's trauma and how his related moodiness affects his relationships with family members.

In another example of STS, a health worker described how she found intrusive thoughts of patients, particularly child victims of sexual assault, to be more challenging at the start of her career and how she has coped better over time. She described some of the ways she has used a range of coping strategies (distraction, avoidance, positive thought). She stated,

> Whether you have problems, whether you're worried, whether you are thinking, professionally you try to recompose yourself and at times it is not easy**.** At times you get, these people who just stress you the more . . . they come and pour it all on you and every once in a while, you have listened to those challenges, lived experiences, and at the end of the day you don't want to assume that you have any feeling about it or you think about it. But at night you start thinking. You remember very well when are you so relaxed. The brain will go on running. At night, [whispers] you start remembering. So that's why I do [beading] to put this off my mind, to distract myself. . . At times I read. I write. I try to use my computer put me to use. I don't want to be idle. I don't want to think.

When asked to describe additional ways her work has affected her, she responded, ". . . Rarely does it affect me. I don't feel. . . . My background was a bit hard so I've reached a point where I

hardened I think" and continued to describe benefits of being "hardened," which included not getting involved in the arguments that exist among other nurses.

Another healthcare provider, a male, mid-level health professional described his experiences working with a severely traumatized teenager from a conflict area in the North. In describing his sleep problems and intrusive thoughts that coders believed represented symptoms of STS, he described that the intensity of his symptoms (e.g. sleep problems) varied "depending on the gravity of the case." He described the ways in which his reactions to traumatic patient material can be intensified when he is personally familiar with aspects of their trauma. Working with the teenager from the North was particularly challenging for him because he had previous experience working on the ground with children in refugee camps in the North and so he was familiar with "what exactly happens there, not just imagining." He continued, "That's why if now I get a [patient] from there, I just, it's not just imagining what could have taken place, but the actual thing as I've also been there. So it gives you a double imagination."

"Double imagination**,"** when one is more connected to a patient's experience because of one's own similar experiences may be relevant for many of the other participants given the extent of exposure to potentially traumatic events within the sample. He also provided an example of how the intensity of his intrusive thoughts about patients can be dependent on how successful his work has been with the patient. When the interviewer asked him if he could "turn off" the thoughts at night, he responded "it keeps ringing but I end up very well if I have succeeded [with the patient]." This description suggests, that at least for this participant, feeling effective in one's job may act as a protective against symptoms of STS. In general, however, moral distress might prevent people from feeling effective.

Burnout

Although there were many descriptions of the common sources of burnout (e.g., low salary, lack of support from management, lack of material and human resources) as well as some of the more systemic symptoms of burnout such as poor relations among nurses and patients (e.g., bullying, disrespect, abuse), only 3 of the 13 interviewees provided descriptions of experiences that coders believed represented burnout. Two participants, one student and one health worker described exhaustion, such as being unable to manage the amount of work and being so tired that one worries about making errors. Another health worker, provided a detailed description of very poor working conditions and lack of financial incentives, she said, "It really makes you hate the whole work." In her suggestions that followed she detailed her own disengagement:

> They should increase their salaries so that [nurses] are happy. When you are happy you come and you are happy. You work nicely. Mm? But if you are unhappy . . . if you have a problem at home, mm? you have been uncomfortable, you didn't have your breakfast, so you come here to attend to a patient. The patient is very sick. He wants you to touch him. But because you are hungry, you are unhappy, eh? You will not touch that patient in a nice way." Mm? Like me now, I have left my son, he wants to go [to college]. Eh? I don't have money [to send him]. So you think if I was among 30 patients who need my support I would I really work nicely? I wouldn't. Mm? --(Interviewer: So how do you do it? How do you get through it?) -- You just you just work for the sake of, because you have to work.

The description that she provided offers a good explanation for some of the negative relations among nurse staff and between nurse and patients that contribute to the negative perception and stigma of health workers, and suggests that these behaviors potentially arise as system-wide symptoms of burnout. Although it was considered an emerging sub-theme and not a main focus in this study, interview data and information gained during member checking indicated that the abuse of patients and of students by senior health workers was common to the environment and

possibly a result of burnout. Still, even in this habitually caustic environment, it appeared to be easy and natural for participants to discuss positive aspects of their work and positive mental health stemming from their experiences with patients.

Positive Work-Related Mental Health Consequences

All of the 13 interviewees mentioned at least one experience of positive work-related mental health consequences. Based on patterns of co-occurrence with emerging sub-themes (included in the codebook but not fully analyzed) it appears that general positive mental health consequences among interviewees are associated with patient improvement, learning, using one's skills, and being appreciated. Throughout interviews, positive and negative mental health consequences were described in tandem. Some interviewees began with the positive and moved toward the negative while others shifted to positive after describing difficult experiences. When discussing positive aspects, participants often described feeling happy, special, proud, confident, comfortable, as well as being interested and productive. Their descriptions suggested that participants' positive mood was related to being part of the profession and to the personal gratification they experienced by helping others and by carrying out God's work. Participants also appeared to derive mental health benefits when they were appreciated and respected by patients and the by community at large. For example, "I feel good being it because the public out there expect a lot from us, when you are a health worker you are trusted, so its you to work on maintaining this." These positive statements linked to status and reputation of health workers stood out amongst a multitude of responses about the public's low expectations of care in government facilities, their mistrust of "corrupt and rude" health workers, and in turn their avoidance of seeking care.

Participants spoke of positive mental health consequences when they were successful in their work and were able to see patient progress. For example, a midwife smiled as she explained "I feel like it is such a prestige when I deliver a live baby. . . I feel like I have done something in the world! I have brought someone in the world. . . I feel great being a midwife." In another example, the male mid-level health professional whose description of "double imagination" was used in STS examples earlier, described how he felt after his work with a depressed HIV+ patient who had been resistant to trying treatment. He explained, "I feel great! Because I have used my skills and techniques to change that man's attitude from very negative to positive. Later in the interview, he described extremely challenging circumstances of caring for a young patient from the North. His description indicated he also felt positive mental health consequences based on his achievement and included a positive outlook toward the future. After he described in detail his work with a teen whose village had been burned and family killed, he and the interviewer had the following exchange:

> I: These stories are so heavy, and they're so horrible.
>
> P: Yeah. They really are. And they are real.
>
> I: When you go home, how does it affect you?
>
> P: First I sit and I imagine 'if I have achieved' then I really feel relaxed.
>
> I: If you have helped.
>
> P: If I have helped. If I'm in still the process I keep thinking what next do I give to my client that will make him a little better. Today I've stopped at this. Where is my entry point the following day?

Although he went on to describe negative mental health consequences from both of these patient cases, he began by focusing on the positive ways his work affects him.

With the general public perception of government health workers being quite poor overall, being appreciated appears to go a long way for their mental health. Students and health workers alike described the personal benefits and motivation derived from being thanked. A student described how his being appreciated led him to further commit himself to the profession. He explained,

> so even that patient like in the following day she survived and she even thanked me. (Interviewer: She thanked you. How did you feel?) I felt very ok. And even, the moment we could go like in the following days I would first go and greet her before even I do dump dusting [cleaning tasks] and even she could also recognize me. Even every visitor could come, like her relative, she could say 'this man helped me. Otherwise, I would have died.' (Interviewer: That is nice. What did you think when she said that?) Now, I thought I should really continue in my studies and I finish I can help. I can serve the community.

Experiencing general positive mental health consequences were primarily evident based on participants' descriptions of having a positive outlook toward the future, in terms of focusing on prevention and public health and committing oneself to the profession in various ways. When asked about plans for the future, all 13 interviewees shared their goals and ideas for opening their own clinics, with the majority specifying they wanted clinics to better serve their villages. Others spoke of their plans to assist with nursing recruitment efforts. These results seem to contrast the notion that due to the stress, health workers will leave the nursing profession.

When asked how he tries to reduce his stress about morally distressing situations, one health worker's response implied his commitment to the profession and his optimistic orientation to the future, suggesting positive mental health. He said,

> Well sometimes I try to say maybe 'let me read more about that' so that next time I try to be keen. I avoid maybe if it was a mistake or it was because of the limited resource or the knowledge was not enough. The next time I don't do the same. A challenge of yesterday should not be a challenge tomorrow. I try to look for way of solving it.

Across interviews, participants moved from discussing difficult experiences to expressing hopefulness and positivity. As a final example, a very experienced health worker, whose experiences were used as the previous example of disengagement, ended the interview with a hopefulness based in her religion. Throughout the interview she spoke slowly, and with what the researcher interpreted as a hint of desperation as she explained the multiple unsuccessful ways she has tried to "cope up" to improve her situation and asked the researcher for help. Her final words suggest she has not given up.

> I: Do you have anything you want to add, or that you think I didn't ask about?
>
> P: So there, {PARTICIPANT'S NAME} is saying 'if I had a chance of getting a job which would make me meet my needs I would be very glad. To meet my needs.' Mm.
>
> I: And you've been here 16 years and it doesn't meet your needs.
>
> P: Here. I've not met my needs. [laughs] I've not met my needs and it is sad. But I hope maybe that God can open the door. At times, you think some things are very difficult but God says 'Ahh, no! I'm around!' [laughs]

Although religion did not emerge as a theme in the qualitative analysis, it is evident that, as this quote suggests, religion acts as a foundation for health workers, providing strength as they face the challenging circumstances of their work.

DISCUSSION

This research marks the first known attempt to examine STS, burnout, and moral distress, together and offers an opportunity for greater understanding of these concepts among healthcare providers in a rural and low-resource setting. The mix of quantitative and qualitative methodology helps to illustrate the work-related mental health consequences experienced by this

population, without just importing the Western concepts of STS, burnout and moral distress. One of the study's major strengths is that it accounts for symptoms of depression and PTSD, and in doing so the study provides a thorough picture of the mental health consequences of providing healthcare in the context of few resources. Given the current nursing crisis (WHO, 2006), the project is timely and generates knowledge that has implications for healthcare providers of all experience levels working in under-resourced settings, but particularly for those in training. In this discussion, interpretation of findings are aided by information gleaned from conversations with interviewees and participants during member checking of qualitative data and the feedback and reactions of FINS administrators and small groups of participants in response to presentation of quantitative findings.

Among this sample, the weight of the nursing crisis is experienced in strikingly similar ways among both experienced healthcare providers and students due to task redistribution, whereby, as a response to understaffing, the less trained providers take on responsibilities of the higher trained providers. Students in this study find themselves expected to work on their own in crowded patient units and to act as qualified health workers. With the range of challenging circumstances inherent in providing care in this under-resourced setting, the existence of high symptom levels and the co-occurrence of STS, burnout and moral distress is not surprising. Almost all of the health workers and students alike (199 of the 208) endorsed clinically significant symptoms in at least one of the three mental health consequences examined. Likewise, there were high rates of clinically significant symptoms of depression and PTSD. Based on follow up of student data, symptoms of STS, exhaustion and disengagement remained stable over the 13 months of the study. This stability of negative mental health symptoms experienced across multiple constructs is part of the experience for many healthcare providers in rural

Uganda. Yet, these symptoms may have less of an impact on the retention of nurses than one might expect.

Accounting for Symptoms of PTSD and Depression

In understanding the context of providing care in LRS, it is essential to consider that poverty and other related stressors are associated with depression and anxiety (Patel & Kleinman, 2003; Lund et al., 2010). The region of Uganda where this research takes place is extremely poor, highly affected by HIV, and was affected by violent conflict for close to a decade during participants' lifespans. The study's participants reported having experienced many violent events, including war-related activity, and 43% of the sample reported symptoms consistent with a possible diagnosis of PTSD based on cut-scores of 44 on the *PCL-C*. The rate is difficult to contextualize because PTSD research in Uganda has typically been conducted in the conflict zones of Northern Uganda, and no known studies report prevalence rates otherwise. The reported rates of PTSD in the North vary depending on assessment methodology, however, in one study of internally displaced adults, whose most frequently reported traumatic events included the murder of a family member or friend, being close to but escaping death, witnessing unnatural death, being tortured or beaten, and forced separation from family, 54% met symptom criteria for PTSD (*n*=1,210; Roberts, Ocaka, Browne, Oyok, & Sondorp, 2008).

With regard to depression, 30% of the current sample reported symptoms consistent with DSM-IV diagnoses of major depression, which is higher than the 21% found among the general population of adults in rural Uganda (*n*=587; locally validated version of the Hopkins Symptom Checklist; Bolton, Wilk, & Ndogoni, 2004). Moreover, the rate of depression in the current study is two to three times higher than HIV-positive adults in Uganda, a population with consistently

high rates of depression across Africa (Collins, Homan, Freeman, & Patel**,** 2006). For example, based on the same symptom criteria that was used in the current study (*PHQ-9* total score >9), 10.9% (*n*=386; Musisi et al., 2014) and 13% (*n*=602; Wagner et al., 2011) of HIV-positive Ugandan adults reported symptoms consistent with major depression. Being a healthcare provider in rural Uganda appears to be associated with a higher risk of PTSD and depressive symptoms than other high-risk groups in Uganda. Regardless of whether the depression preceded or developed at the same as the three main work-related mental health consequences, these symptoms exist in addition to the more expected "occupational hazards" or "costs of caring" (Figley, 1995a) that, for many, seem to come with the territory of nursing work.

Significance and Relevance of Work-Related Negative Mental Health Consequences

The findings indicate that the three work-related mental health consequences examined are conceptually relevant among healthcare providers in rural Uganda. As expected and consistent with previous research in Uganda and other low-resource settings (Harrowing & Mill, 2010; Maluwa et al., 2012), moral distress was found to be highly prevalent, endorsed by 86.0% of the sample, and to be primarily due to a lack of human and material resources. However, the current study's qualitative data identified a range of additional sources of moral distress, such as corruption and nurse conflict, which lead to poor public perception of government health workers. Qualitative data heavily emphasized workers' inability to implement their skills and knowledge to adequately treat patients, but also showcased their strength. When faced with morally challenging situations, qualitative data indicated that healthcare providers predominantly utilized solution-focused responses such as improvising, without discussion of intent to quit the profession. Despite such positive efforts, healthcare providers feel ineffective as some situations

that elicit moral distress include traumatic patient material like preventable deaths that can serve as sources of STS, another mental health consequence frequently reported among the sample.

Clinically significant symptoms of STS were reported by 49% of healthcare providers in the current study. The existence of symptoms of STS was supported with qualitative interviews. Without specialization among health workers, general nurses and trainees in Uganda are exposed to a wide range of patient material and it is not surprising that their rate of STS is comparable to or higher than nurse specialties with highest the rates of STS in developed countries (Adriaenssens et al., 2012; Mealer et al., 2012; Potter et al., 2010). The study's findings also suggest that STS and PTSD, two concepts often confused and conflated, are related but not identical experiences. Although they commonly co-occur, especially among health workers, there are individuals who report clinically significant symptoms of STS without PTSD and clinically significant symptoms of PTSD without STS.

With regard to burnout, the common sources of burnout (e.g., work overload, low salary) are pervasive in the health profession in Uganda but rates of significant burnout symptoms in the current study were quite low. Only 16% and less than 2% of the sample experienced clinically significant exhaustion and disengagement, respectively. Unlike rates of STS, which were much higher in the Ugandan sample than some of the highest rates founds in the U.S., this study's rates of burnout were much lower than even then the lowest rates reported in the U.S. (34% among general hospital nurses; McHugh et al., 2012). This study's rates of exhaustion are still low when compared to research from South Africa (Davhana-Maselesele & Igumbor, 2008), Malawi (McAuliffe et al., 2009) and Zambia (Dieleman et al., 2007), but its low rates of disengagement appear to be consistent. For example, 34% and 5% of nurses in Malawi reported high levels of

exhaustion and disengagement, respectively, and none of the nurses in Zambia reported high levels of disengagement.

Despite the fact that many researchers tend not to report symptoms of disengagement in burnout research, what is known suggests that symptoms of disengagement may be less relevant for this study's population than for nurses in developed countries. For example, 44.0% of critical care nurses in the U.S. reported experiencing high levels of disengagement symptoms (Mealer et al., 2012). Moral distress research from the U.S. illustrates the work of critical care nurses as often including medically futile care (e.g., monitoring patients on ventilators; Ferrell, 2006) which is very different than the work of a hospital nurse in Uganda. When a nurse in Uganda believes he or she is answering God's call by taking care of a ward full of patients with life threatening conditions without even a pair of gloves, it may not be possible to engage in common burnout behaviors such as "doing the work mechanically."

In addition to the construct of burnout including potentially irrelevant content, the measurement of burnout in this study might be influenced by problematic language and structural inconsistencies. The Oldenburg Burnout Inventory's (*OLBI*) frequent use of "I, me, my" statements may not have been appropriate in a collectivist culture that focuses on the group, and especially for the context of nursing, which is characterized by teamwork. However, all other known burnout studies in Africa have used the Maslach Burnout Inventory (MBI), which also relies on "I" statements in each item and has resulted in higher rates of burnout. Another possibility is that the composition of the *OLBI* contributed to the low rates. At least one recent study disputes the internal structure of the *OLBI* and does not recommend its use (Sedlar, Sprah, Tement, & Socan, 2015). Nevertheless, the fact that symptoms of burnout did not have a strong presence in the qualitative data implies that the low rates are more than an artifact of

measurement. In stark contrast to this study's findings, however, burnout research with midwives in Senegal found that 80% and 57.8% endorsed high levels of exhaustion and disengagement, respectively. Perhaps the work of midwives is qualitatively different from that of nurses in rural and under-resourced settings and nurses and midwives should be examined separately. Overall, however, the three mental health consequences appear to be relevant and exist among this sample of healthcare providers in rural Uganda who vary widely in demographics, job titles, and experience.

Cultural Explanations of Role Differences in Mental Health Symptoms

There are significant gender and professional role differences in the mental health problems experienced among healthcare providers in rural Uganda. Moral distress was significantly more prevalent among experienced health workers than students but similarly distributed across gender, consistent with previous research (Meltzer & Huckabay, 2004; Papathassoglou et al., 2012). Health workers were significantly more likely than students to report feeling hopeless, like they "can't help enough" and to implicate understaffing as a source of the inadequate that patients receive. Perhaps as health workers gain more experience they become more easily able to recognize situations that do not meet ethical or professional standards of care and thus have higher rates of moral distress.

The gender and professional role differences for the other mental health symptoms (STS, burnout, depression and PTSD) are more difficult to explain. In terms of gender differences, males reported higher levels of disengagement and STS then females. This difference was unexpected as previous research indicates personal stress outside of the workplace is associated with higher levels of STS and burnout (Lin et al., 2009; Mealer et al., 2009) and because women

in Africa typically have more personal stress and less time for leisure than men (Blackden and Woden, 2006). However, when these results were present to FINS students and administrators in person and over email, it was stated (by males) that, at least for students, males have more personal stress as they receive less financial support from family than do females but are expected to spend money "they don't have" on their girlfriends, while under family and societal pressure to find a wife. In terms of disengagement specifically, perhaps males are more able to allow themselves to disengage and perhaps entertain thoughts of leaving the profession than females because there are more employment opportunities for males.

In terms of comparisons across professional roles, students experience higher symptoms of STS, PTSD and depression (all strongly correlated with each other) than health workers. This finding regarding STS is consistent with previous STS research indicating that younger age and less experience is associated with more symptoms of STS among nurses in the U.S. (Mealer et al., 2009; Townsend & Campbell, 2009). In terms of PTSD and depressive symptoms, without temporal information regarding the emergence or duration of symptoms it is impossible to know whether students enter FINS with depressive and PTSD symptoms or whether these symptoms first presented (or were exacerbated) at school. It is quite likely that many FINS students, especially those living away from their support systems of families and communities for the first time, experience a difficult transition as they begin a challenging program of study, whereas the majority of health workers are from the area and live with their families.

In response to learning that students reported significantly higher levels of STS, PTSD and depression than health workers, FINS administrators and small groups of participants did not express surprise. They explained that it is understood that nursing students in Uganda experience extremely high levels of stress and tension because of the schedules they must keep. They

explained that students may even do more clinical work than the health workers as they continue to staff the ward (supervising each other) during health worker strikes. Multiple participants and administrators stated that sometimes patients prefer to be treated by students given the common expectation among the public that health workers are abusive and disrespectful to patients. Consequently, there is a public expectation that students will be more humane than health workers and are thus more sought after, may work more, and in turn may experience more stress and anxiety-related mental health symptoms.

Health workers, on the other hand, in addition being significantly more likely to experience moral distress, experienced significantly more disengagement symptoms than the students. The concept of disengagement, and definitely items such as "over time, I have become less interested in my work," may be more relevant for health workers who have years of experience than for students, some of whom were in their first semesters of school at baseline data collection. The difference between students and health workers in the breadth of their respective work and life experiences alone may also explain differences in mental health, as health workers have had more time to develop adaptive skills for coping with life's stressors.

'Coping Up'

'We cope up' was a common phrase and sentiment expressed by participants. According to written responses, interviews, and quantitative coping measures, in this rural Ugandan setting, improvisation in healthcare work is a necessity and perseverance and reliance on God is a way of life. In response to what seems like overwhelming risks to mental health there is tremendous persistence and resolve among the health workers and students in Western Uganda. Qualitative data in particular help to illustrate some of the culturally specific self-care and coping strategies

they use, which include activities with a community- or professional- focus such as digging for community projects, volunteering, and re-committing to the profession. However, as expected, religious activities are by far the coping methods most frequently reported. Results indicate that when dealing with work stress, healthcare providers in the study commonly use strategies aimed at strengthening one's relationship with God and are least likely to try to make meaning of the stressful events using negative religious interpretations about the cause of stressful events (e.g., wondered whether my church had abandoned me; decided the devil made this happen) which might serve to alienate them from their church communities. As far as general (non-religious) coping strategies used, the most frequently endorsed were active and problem-focused, emphasizing planning and effort to find a solution. Overall, both quantitative and qualitative data suggest that in the face of work stress, solution-focused, practical coping is used by healthcare providers more often than avoidance and negative emotion-focused coping.

In addition to the traditional dichotomy of problem-focused and emotion-focused coping (Lazarus & Folkman, 1984), the need to study both collectivistic and individualistic coping strategies is highlighted by this study. A criticism of coping research has been that it has focused on White Americans and on theories that use an individualistic perspective, while neglecting coping rooted in spirituality and interconnectedness (Yeh, Arora, & Wu, 2006). The collectivistic coping of nurses in this study speaks to both acceptance of external, larger forces as well as relying on personal agency for the benefit of others. Their 'coping up' is in some ways reminiscent of other cultural concepts of coping such as fatalism (or *fatalismo*) commonly studied in Hispanic cultures (Flórez et al., 2009; Ramos, 2004). Fatalism is described as a tendency to believe that events are predetermined and out of one's control. Particularly in research on health behaviors and outcomes, fatalism often has a negative connotation of a rigidly

applied pessimistic outlook and lack of action. However, fatalism is a complex and nuanced concept that, when applied with understanding of the social and cultural context, can explain the fostering of acceptance of external circumstances and elucidate reasons for an action or presumed lack of action (Drew & Schoenberg, 2011). In this study, the 'coping up' of nurses could indicate a reliance on fatalism in terms of viewing their own personal stress as their burden or "cross to bear" as part of their religious calling from God. However, nurses do not accept the gravity and needless deaths of their patients in a fatalistic way, rather they seem to accept the stressful circumstances of their jobs and then invoke personal agency to do whatever they can to help others, sometimes even using their own personal resources.

In addition to describing the commonly used coping strategies, the study sheds some light on their associations with symptoms of STS and burnout. Although male gender and negative emotion-focused coping such as complaining and blaming oneself is associated with an increase in symptoms of disengagement among students, the results should be interpreted in the context of weak regression models and low levels of disengagement symptoms assessed with a measure with questionable reliability. The study's regression analyses provide no information about which strategies might be associated with fewer symptoms. However, as suggested by participants and FINS administrators' feedback to quantitative results about symptom levels and coping, healthcare providers may indeed improve their coping strategies over time, suggested by their overall lower symptom levels of STS, PTSD and depression as compared to students. Furthermore, strategies that are considered to be less adaptive in this context (e.g., Behavioral Disengagement, Self-Blame, Humor, Substance Use) were all endorsed significantly more frequently by students than health workers, indicating students could greatly benefit from additional training in this area.

Clinical and Policy Implications

The premise that the psychological consequences of nursing could contribute to the nursing shortage in rural Uganda does not appear to be supported in this study. Although almost 70% of students reported they intend to leave Uganda for work, the desired exit routes might not be possible given the economic climate of Uganda, which offers few options for employment. Furthermore, in Ugandan culture, nurses are "called by God to serve" (Martin, 2009) and according to qualitative data, begin their careers with great meaning, prestige and honor attached to their work. Intent to leave Uganda and/or leave the profession did not emerge as a theme in this study. In contrast to mental health consequences contributing to the nursing shortage, students and health workers appear to be responding to the stress in positive ways, by focusing on religion, with practical problem-solving, and by re-committing themselves to the profession. No clear connection to the nursing shortage was found in this study, but absenteeism, tardiness, and work productivity were not assessed.

The complex issues that were raised in this study underscore significant public health concerns and potentially pose barriers to Uganda's development. Mental health has been identified as an essential component in the efforts to reach health-related development goals in low-income countries (Prince et al., 2007). Of particular concern are the high rates of depression among healthcare providers given the significant associations of depression with impaired productivity and role functioning (Lund et al., 2010; Spitzer et al., 1995) and the negative social and economic impact of depression on communities (WHO, 2004). Presumably, symptoms of work-related negative mental health consequences that are strongly related to depressive symptoms might also contribute to reduced role functioning among healthcare providers in this setting. Although Uganda has made progress towards many of the Millennium Development

Goals (MDGs), including the overall reduction of poverty, the country is stagnant on reducing maternal mortality and has shown a complete reversal in what had been a downward trend in new case of HIV/AIDS (Ministry of Finance, Planning and Economic Development, 2013). The WHO maxim of "no health without mental health" (WHO, 2005) seems particularly relevant in this context as the health workforce is only as strong as its health workers and next generation of students.

Taken in this context, these findings highlight the need for the general integration of mental health awareness and mental health care in Ugandan health and social policy. The findings demonstrate a clear need for infrastructure changes in the Ugandan healthcare system and stress reduction strategies amongst nursing students and health workers. The suggestion for stress management programs echoes the multitude of studies in this review that highlighted the need to develop support and stress reduction programs for nurses. There are at least two reviews that support the effectiveness of coping skills training (typically relaxation skills but also interpersonal skills, affective well-being, and restructuring negative cognitions) in reducing stress among nursing students in the U.S. (Gailbraith & Brown, 2011; Jones & Johnston, 2000). Additional research supports the effectiveness of brief mindfulness interventions to decrease stress among nursing students and other healthcare providers (Goodman & Schorling 2009; Krasner et al., 2009; Legget, 2010). These studies provide a sound basis for developing stress management workshops that could then be adapted to be culturally relevant for the healthcare providers in Uganda. Western-developed mental health interventions have previously been successfully adapted and implemented in rural Uganda (e.g., Bolton et al., 2003). Furthermore, a recent systematic review of 9 studies examining the effectiveness of mental health interventions in low and middle income countries showed a clear trend indicating clinical improvements are

accompanied by economic improvements for individuals and families (Lund et al., 2011), knowledge that might increase incentive for the development of and participation in mental health care among policy makers, administrators, and healthcare providers in rural Uganda.

According to qualitative data, participants in the current study appear to appreciate the efforts that their workplaces make in helping them manage stress (e.g. providing time off, counseling and supervision) but they largely believed their workplaces should be doing more to help them with stress. This information, paired with the fact that almost 300 healthcare providers from the Fort Portal area attended (and spent their own transportation money to attend) the six-hour NGO-sponsored Self-Care and Coping training provided by the researcher, suggests that increasing awareness of these mental health consequences and teaching coping skills might be opportune targets for intervention. Based on conversations with FINS administrators, this type of training workshop is welcomed by students, health workers, and administrators. However, there exists concern among all parties as to how it could fit into their busy schedules, highlighting that gauging and addressing interests of key stakeholders will be essential for any potential changes to occur.

The following suggestions might be beneficial for students and health workers. First, allocating more resources and attention to mental health within Uganda's healthcare system is an overarching goal that could potentially result in improved mental health for healthcare providers and for Ugandans at large. Secondly, and more specifically, FINS and FPRRH could increase mental health awareness though education for policy makers, administrators and healthcare providers. Tailored educational programs (e.g., reading and discussion groups, training workshops) could potentially be included in FINS curriculum for students or as part of the Continuing Medical Education program at the hospital for health workers. A primary goal of the

educational programs should be to provide healthcare providers, especially students, with realistic expectations of the work, information about the mental health risks, and increased role clarity. This type of education aimed to increase awareness about the significance of the work-related mental health consequences and potential ramifications could be useful for all healthcare providers. However, implementing a specific stress reduction program for students and health workers is also strongly suggested. For example, the program could incorporate policy and organizational changes to provide more support through schedule modifications to allow additional leisure time, designated self-care activities, and support groups. Participation in stress management and coping skills training is also recommended as useful for all but most important for those experiencing stress symptoms and for students.

Integrating mental health awareness and culturally relevant training in stress reduction strategies will perhaps allow students and health workers in Fort Portal to reduce symptoms and improve overall functioning so that they can better focus on developing their clinical skills and on patient care. It is anticipated that there will be multiple barriers to development and implementation of these changes. The interests of various stakeholders are essential to consider and an encouraging road map for having discussions about developing and contextualizing mental health care plans in a participatory way in low-resource settings, including an example from Uganda, exists in the literature (see Breur et al., 2014). Should administrators plan to go in this direction, this literature could be a useful starting point for discussion as it outlines a framework, list of potential participants, and culturally relevant considerations such as increasing participation from all levels when working within a hierarchical and primarily patriarchal governance structure.

Limitations and Future Directions

There are several noteworthy methodological limitations; therefore, findings should be interpreted with caution. First, none of the instruments were normed for this population and language and/or cultural barriers have likely influenced participants' interpretations of the items. Secondly, the circumstances under which the research was carried out set the stage for a variety of participant demand characteristics to arise. In response to a White, American, woman in higher education providing free training and collecting personal information, alone, using self-report questionnaires at participants' place of work, some participants may have attempted to portray themselves in an overly positive light as many requested that the researcher find them nursing jobs in the U.S. It is also possible that participants over reported symptoms in search of help, given the great expectations that Ugandans at large place on outsiders, particularly White outsiders, for assistance. Overall, participants may have been hesitant to describe certain negative aspects of their work in fear of reprisal from employers. Thirdly, aside from interview data, the study provides no information about what types of work events were considered to be secondary trauma (or the source of STS symptoms) by participants. This could be better distinguished in future studies, perhaps through modified instructions on the *Life Events Checklist* or a locally derived checklist specific to the population/profession studied. Fourthly, the prevalence of the experience of moral distress may be an overestimate. Technically, the wording used in the questionnaire to measure the presence of moral distress in this study assumes distress exists for healthcare providers who are in situations in which they cannot provide care that meets ethical and/or professional standards. Although the qualitative data supports that these situations generally were associated with distress for healthcare providers,

providing sub-standard patient care may not universally cause distress and the study could benefit from better differentiation of these experiences among healthcare providers.

Moving forward, there are many avenues for both theoretical and applied research. In terms of theoretical topics to explore, the development of the construct of burnout in a collectivist society warrants more focus, as individuals' personal identities in collectivist societies may be less intertwined with their professional identities and therefore less influenced by the common Western symptoms of burnout. The study's data provide an opportunity to explore how feelings of personal effectiveness or satisfaction in one's work relate to the negative mental health consequences and to learn how positive mental health consequences of work and religious beliefs may protect against STS, burnout and moral distress. The study also highlights a need for increased knowledge about collectivistic coping strategies and a need for reliable measurement of collective coping.

In terms of future applied research, this study has implications for other low resource settings, with potential for replication of research and extension of training provision. Many of the problems that plague Uganda's healthcare systems such as lack of resources and infrastructure, the health concerns of patients, and the personal stressors and trauma of the health workforce are similar across many LRS, especially those in conflict or post-conflict areas, and particularly those in areas recently experiencing Ebola outbreaks. Much of this study (including the training component updated with results from this study) could be replicated in other LRS, perhaps starting with other regions of Uganda and expanding outward from there. Specific to FINS, in order to inform and tailor psychoeducation and stress management workshops, it could be useful to compare the experiences of first year to second year students as well as nurses to midwives. Examining absenteeism data collected but not analyzed in this study as well as

incorporating absenteeism data from FPRRH would be useful in exploring the associations with symptoms. Finally, as FINS grows and develops its capacity for conducting its own research and its expectation of student involvement in research, it could be worthwhile for FINS to develop a similar project and be involved in on-going assessment and evaluation of the impact of different interventions that might be implemented.

Conclusions

This study offers a unique portrayal of overburdened healthcare providers as they care for patients in rural Uganda. The challenges present in the task of providing care in rural African communities are multifaceted and are complicated by the shortage of providers and health challenges such as disease outbreaks. Healthcare providers face these challenges with resilience, yet navigating these challenging work environments brings a high personal cost as they experience work-related negative mental health consequences of STS, burnout and moral distress. Going forward, an increased awareness of these issues and implementation of appropriate, feasible and effective mental health intervention (e.g., stress management training, treatment for depression) could have promising results for strengthening the health work force in Uganda, thereby improving patient care.

Table 1
Sample Demographics

	Students			Health Workers			Students	Health Workers	
	M	(SD)	Range	*M*	(SD)	Range	% (n=153-158)	% (n=48-49)	χ^2
Age	20.6	(2.3)	18-28	40.6	(12.3)	23-68			
Years of Experience				16.8	(13.0)	1-46			
Gender									.53
Female							65.8 (104)	71.4 (35)	
Male							34.2 (54)	28.6 (14)	
Religion									4.38
Catholic							44.3 (70)	57.1 (28)	
Anglican/Protestant							31.6 (50)	26.5 (13)	
Seventh-Day Adventist							8.2 (13)	2.0 (1)	
Other Christians[a]							7.0 (11)	8.2 (4)	
Muslim/Islam							4.4 (7)	4.1 (2)	
Faith of Unity							4.4 (7)	2.0 (1)	
Marital Status									55.11**
Single							94.3 (148)	51.0 (25)	
Married/living as married							5.6 (9)	36.7 (18)	
Separated								2.0 (1)	
Widowed								10.3 (5)	
Number of Children	.08	(.34)	0-2	2.43	(1.96)	0-7			119.90**
0							93.6 (143)	20.4 (10)	
1							4.4 (7)	18.4 (9)	
2							1.9 (3)	16.3 (8)	
3-4								30.6 (15)	
5-7								14.3 (7)	
Originally from Fort Portal									16.16**
Yes							43.9 (69)	77.1 (37)	
No							56.1 (88)	22.9 (11)	

*p<.05. **p<.01.
a 'Other Christians' includes Born Again and Pentecostal

Table 2
Percent with Significant Symptoms of STS and Burnout by Gender and Professional Role

	Total (n=191-201) % (n)	Females (n=125-133) % (n)	Males (n=65-67) % (n)	χ^2	Students (n=145-152) % (n)	Health Workers (n=46-49) % (n)	χ^2
Secondary Traumatic Stress	49.2 (94)	44.8 (56)	56.9 (37)	.11	53.8 (78)	34.8 (16)	5.05*
Exhaustion (Burnout)	15.9 (32)	17.3 (23)	13.4 (9)	.49	13.8 (21)	22.4 (11)	2.06
Disengagement (Burnout)	1.5 (3)	0	4.5 (3)	--	1.3 (2)	2.2 (1)	.17

*$p<.05$.
Note. Given its low frequency, a chi-square statistic was not calculated for Disengagement.

Table 3

Mean, Standard Deviation and Range of Scores on Measures of STS and Burnout by Gender and Professional Role

	Total Sample (n=188-201)		Females (n=122-123)			Males (n=65-67)			*t*
Measure	*M*	(SD)	*M*	(SD)	Range	*M*	(SD)	Range	
STS	37.5	(10.7)	36.1	(9.5)	17-63	39.9	(12.2)	19-80	2.28**
Avoidance	14.8	(5.1)	14.0	(4.5)	6-26	16.1	(5.5)	7-32	2.78**[a]
Arousal	10.7	(3.6)	10.3	(3.3)	5-21	11.4	(4.0)	5-25	2.10
Intrusion	12.3	(3.8)	12.2	(3.7)	5-21	12.4	(3.9)	6-23	.97
Exhaustion (Burnout)	19.5	(3.8)	19.5	(3.8)	11-30	19.7	(3.8)	12-32	.42
Disengagement (Burnout)	16.4	(3.1)	15.9	(3.0)	8-23	17.5	(3.2)	10-29	3.47**

	Students (n=142-152)			Health Workers (n=46-49)			*t*
	M	(SD)	Range	*M*	(SD)	Range	
STS	38.8	(9.9)	20-67	33.5	(12.3)	17-80	2.99**
Avoidance	15.6	(4.9)	6-30	12.4	(5.0)	7-32	3.82**
Arousal	11.0	(3.5)	5-20	9.7	(3.9)	5-25	2.10*
Intrusion	12.4	(3.5)	5-22	11.8	(4.5)	5-23	0.97[a]
Exhaustion (Burnout)	19.3	(3.7)	11-30	20.2	(4.1)	12-32	-1.51
Disengagement (Burnout)	16.1	(3.0)	8-24	17.5	(3.3)	11-29	-2.66**

*p<.05. **p<.01.

[a] indicates significant Levene's Test

Table 4

Percent who Report General and Specific Experiences of Moral Distress by Professional Role

Item	Total (*n*=172) %(n)	Students (*n*=114-136) %(n)	Health Workers (*n*=43-47) %(n)	χ^2
Moral Distress (either of below)	86.0 (148)	84.1 (106)	91.3 (42)	1.45
Unable to meet professional standards	62.9 (112)	56.8 (75)	80.0(36)	
Unable to meet ethical standards	76.1 (121)	74.6(85)	80.4(37)	
Specific Moral Distress Items				
I am unable to treat patients adequately because of understaffing.	64.3 (110)	58.7 (74)	80.0 (110)	6.65*
I lack equipment that I need to do my job.	84.4 (152)	82.7 (110)	89.4 (42)	1.17
I work with levels of nursing staff that I consider to be "unsafe."	16.2 (29)	15.7 (21)	17.8 (8)	.11
Nurses are treated like machines which causes them to quit.	54.0 (94)	47.3 (62)	74.4 (32)	9.57**
I have no time to talk to patients who don't cause trouble.	17.8 (32)	17.6 (24)	18.2 (8)	.01
I have to stop treating the patient when he or she can no longer pay.	7.8 (14)	9.0 (12)	4.3 (2)	1.01
I am forced to provide incomplete treatment to patients due to work overload.	45.3 (81)	45.1 (60)	45.7 (21)	.00
I sometimes think that I have done nothing to help my patients.	36.9 (66)	32.6 (43)	48.9 (23)	3.99*
I sometimes feel hopeless as a nurse, like I just can't help enough.	51.7 (89)	46.1 (59)	68.2 (30)	6.40*
I fear infection of HIV/AIDS at work.	71.4 (130)	77.8 (105)	53.2 (25)	10.33**
My fear of HIV/AIDS affects the way I care for patients.	43.3 (78)	52.2 (70)	17.4 (8)	16.94***

*p<.05. **p<.01. ***p<.001

Table 5

Intercorrelations among Sociodemographic Characteristics and Mental Health Consequences as a Function of Professional Role

Variable	1	2	3	4	5	6	7	8	9
1. Gender	--	.39**	.18	.33*	-.20	-.13	-.02	-.24	-.04
2. Age	-.34**	--	.06	.77**	.02	-.08	.01	-.20	.05
3. Married (y/n)	-.37**	-.05	--	.27	.43**	.12	.20	.33*	-.08
4. Number of children	-.02	.45**	.75**	--	.01	-.05	.09	-.17	.00
5. From Fort Portal (y/n)	-.12	.12	.11	.14	--	-.24	-.04	.09	.14
6**. Secondary Traumatic Stress**	-.15	.01	.05	-.01	.06	--	.47**	.48**	-.07
7**. Exhaustion (Burnout)**	-.05	-.02	-.04	-.07	-.14	.23**	--	.33**	.28-
8**. Disengagement (Burnout)**	-.29**	.12	.00	-.05	-.02	.18*	.60**	--	.03
9. Moral Distress (y/n)	.05	.05	-.05	.00	.06	-.02	-.03	.04	--

*p<.05. **p<.01.

Note. Intercorrelations for student participants are presented below the diagonal, and intercorrelations for health workers are presented above the diagonal. Student sample size ranged from n=142-158 for all variables except moral distress, which had a range of n=119-126. Health worker sample size ranged from n=42-49.

Table 6
Percentage of Total Sample Who Endorsed Directly Experiencing and Witnessing Each Potentially Traumatic Event

Potentially Traumatic Event	Directly Experienced % (*n*)	Witnessed % (*n*)
Physical assault	59.7 (120)	22.4 (45)
Life-threatening illness or injury	42.7 (85)	29.1 (58)
Sudden, unexpected death of someone close to you	42.3 (83)	41.8 (82)
Romantic betrayal	*26.5 (53)*	*26.5 (53)*
Natural disaster	22.8 (46)	19.8 (40)
Severe human suffering	20.4 (40)	43.4 (85)
Serious accident at work, home or during recreational activity	18.1 (37)	36.3 (74)
Family violence	*16.5 (32)*	*38.7 (75)*
Transportation accident	13.2 (27)	50.5 (103)
Assault with a weapon	12.4 (25)	30.8 (62)
Exposure to toxic substance	11.6 (23)	21.1 (42)
Combat or exposure to a war-zone (in military or as civilian)	11.1 (22)	8.1 (16)
Sexual assault	7.4 (15)	20.2 (41)
Fire or explosion	7.2 (14)	41.0 (80)
Other unwanted or uncomfortable sexual experience	7.0 (14)	17.1 (34)
Serious injury, harm, or death you caused to someone else	5.0 (10)	17.4 (35)
Captivity (i.e., kidnapped, abducted, held hostage, POW)	2.5 (5)	12.5 (25)
Sudden, violent death[a]	2.5 (5)	43.1 (85)
Other very stressful event	39.6 (76)	17.7 (34)

Note. Total sample size ranged from *n*=192-204.
[a] This item, "Sudden, violent death" was intended for reporting being *witness to* or *learning about* a sudden, violent death. The 5 individuals who reported that this *happened to them* may have misinterpreted this item.

Table 7

Mean, Standard Deviation and Range of Scores on Measures of PTSD and Depression by Gender and Role

	Total Sample (n=197-206)		Females (n=130-137)			Males (n=66-68)			*t*
Measure	*M*	(SD)	*M*	(SD)	Range	*M*	(SD)	Range	
PTSD Symptoms	42.23	(11.95)	42.76	(11.04)	17-77	41.84	(12.35)	20-73	.52
Avoidance	17.61	(5.56)	17.68	(5.57)	6-33	17.35	(5.53)	8-30	-.40
Arousal	11.80	(4.25)	11.63	(4.51)	5-24	12.03	(3.66)	5-21	.62
Intrusion	13.61	(4.67)	12.96	(4.73)	5-25	13.51	(4.58)	6-25	.79
Depressive Symptoms	7.58	(4.45)	8.06	(4.43)	0-21	7.37	(4.45)	0-22	.69

	Students (n=152-158)			Health Workers (n=45-48)			*t*
	M	(SD)	Range	*M*	(SD)	Range	
PTSD Symptoms	43.74	(10.72)	20-77	37.27	(14.36)	17-77	3.37**[a]
Avoidance	18.18	(5.26)	6-33	15.70	(6.17)	6-33	2.73**
Arousal	12.32	(4.07)	5-24	10.02	(4.44)	5-23	3.26**
Intrusion	13.51	(4.43)	5-25	12.04	(5.27)	5-25	1.91†
Depressive Symptoms	7.98	(4.30)	0-22	6.25	(4.71)	0-18	2.39*

*p<.05. **p<.01.

† indicates p=.06

[a] indicates significant Levene's Test

Table 8

Intercorrelations Among Trauma History and Symptoms of PTSD, Depression, STS, Burnout and Moral Distress as a Function of Professional Role

Variable	1	2	3	4	5	6	7	8	9
1. Gender	--	.39**	-.03	-.18	-.03	-.13	-.02	-.24	-.04
2. Age	-.34**	--	-.13	-.24	-.18	-.08	.01	-.20	.05
3. Trauma history (count)	.06	-.04	--	.34*	.00	.32*	.14	.24	-.02
4. PTSD Symptoms	.02	.06	.13	--	.54**	.69**	.24	.46**	-.09
5. Depressive Symptoms	-.08	.06	.17*	.37**	--	.64**	.31*	.18	-.32*
6. Secondary Traumatic Stress	-.15	.01	.11	.27**	.19*	--	.47**	.48**	-.07
7. Exhaustion (Burnout)	-.05	-.02	.17*	.36**	.33**	.23**	--	.33**	.28
8. Disengagement (Burnout)	-.29**	.12	.08	.12	.19*	.18*	.60**	--	.03
9. Moral Distress	.05	.05	-.05	.05	.00	-.02	.04	.04	--

*p<.05. **p<.01.

Note. Intercorrelations for student participants are presented below the diagonal, and intercorrelations for health workers are presented above the diagonal. Students had a sample size range of n=142-158 for all variables except moral distress, which had a range of n=119-126. Health workers had a sample size range of n=42-49.

Table 9
Number of Participants Who Provided Responses within Each Category of Self-Care and Coping Strategies

Strategies	General self-care/ relaxation (n=184)	In response to work stress (n=178)
Socialize with others	106	18
Exercise	61	17
Sleep / Rest	42	27
Music / Dance	33	13
Media Use	31	17
Religion (Individual activities)	30	35
Storytelling	21	0
Problem-focused discussion	17	23
Home / community work	17	2
Professional development and commitment	15	5
Bath	13	3
Food / Drink	12	5
Religion (Group activities)	11	5
Other: Activity	10	4
Touring (traveling)	10	1
Humor	9	0
Ignore / Avoid	7	9
Seek psychosocial support	6	7
Intimacy	5	0
Relaxation	5	17
Positive Thought	4	17
Think / Problem-solve	3	3
Request Time Off	2	16
Cry	2	0
Gamble	1	0

Table 10

Means and Standard Deviations for Subscale Scores of Brief COPE by Professional Role

Subscale	Students (n=153-157) *M* (SD)	Health Workers (n=44-48) *M* (SD)	*t*
Religion	6.72 (1.33)	6.74 (1.65)	-.11
Instrumental Support	6.46 (1.41)	6.07 (1.63)	1.61
Planning	6.10 (1.53)	6.39 (1.73)	-1.11
Active Coping	6.08 (1.60)	6.24 (1.55)	-.60
Acceptance	5.51 (1.32)	5.93 (1.92)	-1.67[a]
Emotional Support	5.42 (1.45)	5.47 (1.80)	-.18[a]
Positive Reframing	5.28 (1.50)	5.07 (1.67)	.80
Self Distraction	5.01 (1.69)	5.00 (1.95)	.04
Venting	4.75 (1.72)	4.38 (1.75)	1.29
Denial	4.53 (1.63)	4.04 (1.76)	1.75
Behavioral Disengagement	4.53 (1.68)	3.63 (1.64)	3.20**
Self Blame	4.38 (1.57)	3.51 (1.53)	3.35**
Humor	4.23 (1.70)	3.37 (1.55)	3.09**
Substance Use	2.72 (1.40)	2.10 (0.47)	2.97**[a]

** $p<.01$.

[a] indicates significant Levene's Test

Table 11
Means and Standard Deviations for Subscale Scores and Items of Brief Religious COPE by Professional Role

Brief RCOPE Subscales and Items	Students (*n*=151-158) *M* (SD)	Health Workers (*n*=45-49) *M* (SD)	*t*
Positive Religious Coping	24.91 (2.93)	23.88 (3.91)	1.97*[a]
Sought God's love and care	3.80 (.53)	3.80 (.50)	
Asked forgiveness for my sins	3.78 (.55)	3.55 (.89)	
Looked for a stronger connection with God	3.75 (.65)	3.60 (.72)	
Tried to put my plans into action together with God	3.68 (.62)	3.57 (.83)	
Sought help from God in letting go of my anger	3.55 (.75)	3.63 (.73)	
Focused on religion to stop worrying about my problems	3.43 (.84)	3.30 (.94)	
Tried to see how God might be trying to strengthen me in this situation	3.39 (.89)	3.28 (1.02)	
Negative Religious Coping	16.03 (4.71)	14.81(6.55)	1.41
Questioned God's love for me	2.89 (1.11)	2.38 (1.26)	
Questioned the power of God	2.56 (1.27)	2.26 (1.34)	
Felt punished by God for my lack of devotion	2.37 (1.00)	1.98 (1.11)	
Wondered what I did for God to punish me	2.31 (1.04)	1.98 (1.11)	
Wondered whether God had abandoned me	2.28 (1.10)	2.24 (1.20)	
Decided the devil made this happen	2.25 (1.16)	2.54 (1.26)	
Wondered whether my church had abandoned me	1.77 (1.05)	1.59 (1.05)	

*$p<.05$.
[a] indicates significant Levene's Test

Table 12
Factor Loadings for Principal Component Analysis of Brief COPE Subscales

Brief Cope Subscale	1	2	3
Planning	**.73**	-.06	.03
Instrumental Support	**.65**	.14	-.05
Religion	**.61**	.05	-.09
Active Coping	**.53**	-.27	.05
Humor	-.10	**.69**	.18
Positive Reframe	.32	**.57**	.08
Behavioral Disengagement	-.26	**.55**	.05
Venting	-.03	.02	**.80**
Self Blaming	.02	.12	**.65**
(Self Distraction)	.46	-.12	.36
(Acceptance)	.37	.33	.29
(Emotional Support)	.40	.43	-.27
(Denial)	-.04	.37	.43
Eigenvalue	2.36	1.92	1.25
% of variance	18.16	14.76	9.64
Cumulative % of variance		32.91	42.55

Note. Principal Component Analysis with Varimax rotation. Factor loadings >.50 are in boldface. Factors are as follows: 1= Active/Approach; 2= Avoid/Reframe; 3=Complain and Blame.

Table 13
Factor Loadings for Principal Component Analysis of Brief Religious COPE Items

Brief Religious COPE Item	1	2	3	4
Wondered what I did for God to punish me.	**.79**	.00	.07	.00
Felt punished by God for my lack of devotion.	**.74**	.09	.16	.05
Wondered whether my church had abandoned me.	**.71**	.00	.27	.02
Wondered whether God had abandoned me.	**.71**	.00	.11	-.02
Decided the devil made this happen.	**.54**	.11	.01	-.49
Sought God's love and care.	-.09	**.80**	.09	.07
Looked for stronger connection with God.	.06	**.71**	-.06	.02
Sought help from God in letting go of my anger.	.25	**.67**	.01	.19
Questioned God's love for me.	.22	-.12	**.76**	.21
Questioned the power of God.	.32	-.02	**.62**	.10
Tried to see how God might be trying to strengthen me in the situation.	.11	.09	**.55**	-.11
Asked forgiveness for my sins.	.04	.04	.03	**.77**
Focused on religion to stop worrying about my problems.	.01	.21	.05	**.64**
(Tried to put my plans into action together with God.)	-.29	.50	.52	-.03
Eigenvalue	3.18	2.08	1.37	1.11
% of variance	22.71	14.88	9.75	7.89
Cumulative % of variance		37.59	47.34	55.24

Note. Principal Component Analysis with Varimax rotation. Factor loadings >.50 are in boldface. Factors are as follows: 1= Negative Religious Interpretations; 2= Reach Out to God; 3= Question God's Love and Power; 4= Anxiety Reduction through Religion.

Table 14a

Time 1 Coping Strategies in Relation to Time 2 Secondary Traumatic Stress Among Students

	Step 1			Step 2			Step 3		
	B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
STS Model		R^2 = .01			R^2 = .13*			R^2 = .16* (f^2=.19)	
Sex	-2.66	2.10	-.12	-1.20	2.14	-.05	-1.28	2.13	-.06
STS T1				.15	.11	.14	.11	.11	.10
Exhaustion T1				.47	.30	.16	.48	.30	.16
Disengagement T1				.30	.33	.09	.30	.33	.09
PTSD Symptoms T1				.04	.10	.04	.04	.10	.05
Depressive Symptoms T1				.28	.25	.11	.27	.25	.10
Complain/Blame							.40	.47	.10
Neg. Religious Interp.							.30	.48	.08

*p<.05. **p<.01.

Table 14b

Time 1 Coping Strategies in Relation to Time 2 Exhaustion Among Students

	Step 1			Step 2			Step 3		
	B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Exhaustion Model		R^2 = .02			R^2 = .06			R^2 = .07 (f^2=.08)	
Sex	-.72	.55	-.12	-.72	.58	-.12	-.77	.59	-.13
STS T1				.01	.03	.04	.01	.03	.02
Exhaustion T1				.10	.08	.12	.10	.08	.12
Disengagement T1				-.04	.09	-.05	-.04	.09	-.05
PTSD Symptoms T1				.03	.03	.10	.03	.03	.12
Depressive Symptoms T1				.04	.07	.06	.03	.07	.04
Complain/Blame							.12	.13	.12
Neg. Religious Interp.							-.06	.13	-.05

Table 14c

Time 1 Coping Strategies in Relation to Time 2 Disengagement Among Students

	Step 1			Step 2			Step 3		
	B	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Disengagement Model		R^2 = .07**			R^2 = .22***			R^2 = .27*** (f^2=.37)	
Sex	-1.62	.56	-.26	-1.04	.56	-.17†	-1.11	.54	-.18*
STS T1				.04	.03	.12	.02	.03	.06
Exhaustion T1				.16	.08	.17	.16	.08	.17†
Disengagement T1				.16	.09	.17	.16	.08	.17†
PTSD Symptoms T1				.01	.03	.04	.02	.03	.07
Depressive Symptoms T1				.06	.07	.08	.04	.07	.06
Complain/Blame							.26	.12	.25*
Neg. Religious Interp.							-.02	.12	-.02

*p<.05. **p<.01. ***p<.001

†indicates p=.06

Appendix A

Table A1

Number of Measures Excluded Due to Missing items for Total Sample

	Time 1		Time 2	
Measure	All items	>30% items	All items	>30% items
STSS	14	3	0	1
OBLI Exhaustion	6	1	0	1
OLBI Disengagement	6	6	0	0
PHQ-9	0	2	1	4
PCL-C	0	2	0	0
RCOPE				
Positive subscale	0	1		
Negative subscale	0	5		
Brief COPE	2	N/A		
Active	N/A	4		
Planning	N/A	4		
Self-Distraction	N/A	8		
Denial	N/A	5		
Emotional Support	N/A	4		
Instrumental Support	N/A	4		
Behavioral Disengagement	N/A	7		
Venting	N/A	6		
Humor	N/A	5		
Acceptance	N/A	6		
Religion	N/A	3		
Self-Blame	N/A	4		
Substance	N/A	3		
Positive Reframing	N/A	6		

Note. Each *Brief COPE* subscale contained two items, therefore, >30% missing meant one of the two items was left blank.

Appendix B

Self-Care and Coping Codebook

Use the following codes for Questions 1 and 2:

social ***Socialize with Others.*** Talking, visiting, meeting, hanging out with others. (Primarily family and friends. Excludes patients, colleagues or classmates). This includes talking on the phone as well as attempts to meet new people such as joining groups or making new friends. Do not use this code for more specific action such as engaging in a discussion group, sharing a problem, seeking support or advice. Instead, see **(pxfocustalk)** or **(psychsupp).**

exer ***Exercise.*** Any type of exercise, organized sport, recreation or games (i.e., walking, football, swimming). This includes changing place/moving around. Do not use for dancing, instead see **(music).**

sleep ***Sleep/Rest.*** Sleep or rest.

music ***Music/Dance.*** Listening to or making music (e.g., sing, clap, drum), and dancing. Do not use this code for listening to the radio unless music is specified.

media ***Use of Media.*** Reading (anything non-religious), watching TV or movies, listening to radio or news, using a computer. Do not use this code for reading the bible or scriptures. Instead see **(religIND).**

religIND ***Religion (Individual).*** Individual religious activities (e.g., praying, reading the bible or scriptures, worshipping, praising, fasting, or relying on religious thoughts). Do not use this code if the response specifies any aspect of group activity such as preaching to others, going to fellowship or attending church or religious services. Instead, see **(religGRP).**

religGRP ***Religion (Group).*** Group/community religious activities (i.e., attending church or religious services, ceremonies, preaching to others).

food ***Food/Drink.*** Consuming or preparing food or non-alcoholic drink.

homecomm ***Home/community work.*** Additional work that benefits home or community. This includes domestic work (inside or outside the home), simple work, cattle grazing, and digging. This includes playing with/taking care of children as well as charity work.

pxfocustalk ***Problem-focused discussion.*** Participating in a discussion group or engaging in discussion with classmates or colleagues. Use this code when participant response indicates problem-focused discussion such as 'sharing the problem with others' or 'seeking advice' (consults others, gets/seeks advice).

profdev ***Professional Development and Commitment.*** Focusing attention on working (e.g., stay busy with patients, health educate) or on improving professional knowledge through participation in Continuing Medical Education (CMEs), seminars, meetings or studying. Do not use for responses in which participants are thinking about or focusing on the meaning of or importance of their work. Instead see **(posthought).**

ignore ***Ignore/Avoid.*** Pays less attention to, tries to forget, or ignore the problem or stress. Includes general responses of diverting mind or distracting self.

posthought ***Positive Thought.*** Uses active thought processes to focus on the positive, reframe the situation, use acceptance, or counsel self. For example, thinking about positive times (from work or personal life), focusing on the importance of work, and thinking about patients in empathetic or sympathetic ways (i.e., compare self to patient).

psychsupp ***Seeks Psychosocial Support.*** Seeks the psychosocial support (i.e., comfort, being cheered up) from others through counseling or supervision. Do not code if response specifically indicates getting or seeking advice . Instead, see **(pxfocustalk)**.

bath ***Take a bath.*** Taking a bath. Do not use for sunbathe, instead see **(otheract).**

thinkpxsol ***Think/Problem-solve.*** General thinking and action-oriented problem-solving. Use for any example of attempting to solve the problem, including teamwork (i.e., involving or encouraging others) or finding alternate ways to make money.

otheract ***Other: Activity.*** An 'other' category for activities not captured in exiting codes (e.g., knitting, shopping, look at photos) or general activities not specified (e.g. 'participate in other activities').

timeoff ***Request Time Off.*** Taking or asking for time off, a break, a leave, or going home. Use this code, not **(religIND)** if participant specifies requesting time off for prayers.

relax ***Relax.*** Attempts to slow down and relax his/her breathing, muscles or mind. This includes "taking my time."

humor ***Humor.*** Laughing or joking.

story ***Storytelling.*** Sharing stories (e.g., telling or listening).

tour ***Touring.*** Touring (traveling or going to new places).

intimacy ***Intimacy.*** Physical closeness, intimacy, or sex.

cry ***Cry.*** Cries.

timealone ***Have time alone.*** Spends time alone or in a quiet place. Do not use this code if response indicates sitting alone in church. Instead, use **(religIND).**

alcohol ***Alcoholic Drink.*** Takes an alcoholic drink.

gamble ***Gamble.*** Gambling.

Use the following codes for Question 3:

nothing ***Nothing.*** "Nothing" or "Nil." Do not use this code for blank responses.

timeoff ***Provides time off.*** Workplace respects workers' time off (e.g., provides rest, break or leave).

counsel ***Provides counseling/supervision****.* Worker is able to obtain counseling, advice or supervision (either workplace-sponsored or from colleagues/peers).

emosupp ***Provides emotional support.*** Workplace provides comfort, encouragement, reassurance, or shows concern.

physenv ***Improves physical environment for staff.*** Workplace attempts to improve the physical environment (e.g. providing tv, lunch, reading material, bathrooms, area for recreation or rest). Do not use this code for responses that indicate the workplace provides more personnel, material resources such as medical equipment. Instead see **(resources).**

educat ***Provides educational opportunities.*** Workplace provides education or holds meetings (i.e. professional development).

resources ***Attempts to Increase Resources.*** Workplace attempts increase human and/or material resources by train or provide more staff, or order an emergency procurement of sundries.

reduce ***Attempts to reduce workload.*** Workplace tries to reduce the workload (e.g., giving assistance, distributing tasks , providing shift work, giving more time).

Appendix C

Moral Distress Codebook

How do qualitative data from open-ended surveys help to describe and contextualize the *sources and experience of mental health consequences* experienced among healthcare providers in rural Uganda?

SOURCES OF MORAL DISTRESS

The following SOURCE codes should be used for responses that describe circumstances that contribute to situations in which nurses are unable to provide care that meets professional and/or ethical standards, circumstances that limit the quality of care provided, or situations that lead to feelings of moral distress.

lackmat ***Lack of Material Resources.*** Inadequate or lack of material resources. Use this code for lack of 'resources' even if 'material' is not specified. Use this code in addition to the following: **lackequip, lackinfra**

lackequip ***Lack of Equipment.*** Inadequate or lack of equipment. This refers to things that are needed for care provision, such as machines, cannulas, gloves, forceps, beds, linens, privacy screens, food, drugs or oxygen. This does not include "facilities" (i.e., buildings, units, space). For those responses, see **lackinfra.**

lackinfra ***Lack of Infrastructure.*** Inadequate or lack of infrastructure. This includes transportation, referral, and patient information (computer or records) systems, electricity, and hospital structures (i.e., buildings, units, health centers). Use this code for responses that indicate the remoteness of rural hospitals interferes with care. Do not use this code for lack of staff housing/accommodation, instead see **lowsal.**

lackfund ***Lack of Funds.*** Inadequate or lack of general or hospital funds or money. Do not use this code for more general responses of 'poverty,' instead, see **poverty**. Do not use this code for inadequate remuneration, instead see **lowsal.**

lowsal ***Low Salary.*** Workplace does not provide adequate remuneration (i.e., low or inconsistent salary, poor staff housing, poor living conditions). Use this code when responses indicate participant has personal financial stress or problems (i.e., cannot afford school for children).

lowmot ***Low Motivation.*** Poor motivation or lack of motivation on the part of staff is specified.

lacktrain ***Lack of Training/Knowledge.*** Health workers (including students) have inadequate knowledge or qualifications and are undertrained to perform their job tasks. In addition, use this code for any response that specifies a need for *skilled or qualified workers, or specialists.*

fearinfec ***Fear of Infection.*** Fear of infection or cross infection. This code can also be used if fear of infection is inferred from a response that indicates one cannot touch patient or patient's blood without gloves (in addition to **lackequip).**

hiPNratio ***High Patient to Nurse Ratio.*** High patient to health worker ratios, inadequate staffing or manpower (i.e., too few nurses, doctors, specialists), and/or high number of patients.

overwork ***Overwork/Fatigue.*** Any mention of heavy workload or work overload. Also use this code if participant indicates that being tired or fatigued *interferes with providing the best care* or is a *cause* of sub-standard care provision. As **overwork** is a SOURCE code, do not use this code for responses in which fatigue is described as a feeling experienced when one is in situations in which he/she is not able to provide the best care. Instead, see the EXP code of **exhaust.**

workalone ***Working Alone.*** Working alone. Use for responses that indicate only one nurse or health worker was on shift or in the unit when the situation occurred, even if it is unclear if he/she is referring to him/herself.

rsnfewhw ***Specific Reasons for Few Health Workers.*** Use this code when any reason is provided for the lack of health workers, nurses or doctors. Code in addition to specific codes: **absent** and **seekgreen**

absent ***Absenteeism.*** Absenteeism and tardiness. This includes missing work to attend to domestic work.

seekgreen ***Seeking Greener Pastures.*** Nurses seeking jobs outside of Uganda or moving from public/government to private hospitals for higher pay.

rsnmanypt ***Specific Reasons for Patient Overload.*** When any reason is provided for having a high number of patients (e.g., epidemics, mass accidents or emergencies, refugees, overpopulation) or for high severity patients (e.g., situations that are out of the norm of general medical care, such as traffic accident, stabbing, etc.). Do not code signs and symptoms of general medical conditions that require care (e.g., shortness of breath, obstructed airway, childbirth, diabetes), instead see **medsitu.**

govauthor ***Government and Authority Issues.*** Use for general responses of *government* or *administration* as contributors to sub-standard care. Use for any responses that blame the 'higher-ups' (including supervisors and ministry of health). This includes specific responses of corruption such as theft of drugs, as well as mismanagement of funds.

poverty ***General Poverty.*** Poverty (unspecified) or poverty of the country. Use this code for responses that indicate a lack of preventative health care.

ptpov ***Patient Poverty.*** Patients being poor or patients displaying other indicators of poverty such as illiteracy, and low education.

ignorance ***Ignorance.*** Ignorance (patient ignorance or unspecified ignorance).

nurseatt ***Health Worker Attitude.*** Health workers, nurses and doctors having poor attitudes or lack of respect toward patients, trainees or each other (e.g., bullying, yelling). Failure to cooperate or work as a team should be coded as **nurseatt** if the response seems to describe health workers' failure to work together.

prevdeath ***Preventable Patient Death.*** Situations are described that end in a preventable patient death.

EXPERIENCE OF MORAL DISTRESS

The following EXP codes should be used for responses that describe the experience (i.e., feelings and thoughts) of being in a situation in which one is unable to provide care that meets professional and/or ethical standards. Also use the following EXP codes when agency is suggested (i.e., what the participant *does in response to* or *does in attempt to manage* the situations).

emotho ***Emotion or Thought.*** Code all responses that describe how the participant felt (i.e., "bad," "very terrible," "stressed," or "too emotional") as well as expressions of negative thoughts (e.g., "like a failure," "useless," "I'm not giving the best of my profession," "what I'm doing is not right," "people are suffering."). The goal of having this code is to capture thoughts and feelings of health workers who are providing sub-standard care; thoughts and feelings that seem to be associated with moral distress.

exhaust ***Exhaustion.*** Feels tired or exhausted because he/she cannot provide adequate care or feels tired or exhausted during or after an experience of providing substandard care. Do not use this code for responses that suggest nurse fatigue leads to sub-standard care; for that see SOURCE code **overwork.**

inevit ***Inevitability.*** Indication that the situations in which one provides sub-standard care or feels moral distress are regular or frequent occurrences (i.e., continuously, daily, "I'm used to it").

impro ***Improvise.*** Participant improvises in some way in order to manage the situation despite a lack of resources (i.e., using what materials are available, substituting an available drug for an unavailable drug, devising a new way to complete a task without the appropriate equipment or staff). Do not use this code for responses in which participant specified using problem-solving or planning in order to prioritize patients or attend to the sickest patients first. Instead, see **persev** and **priorit.**

improspec ***Specific use of word 'improvise.'*** Use this code in addition to **impro** for responses that specifically include the word "improvise."

askptsbuy ***Ask Patients to Provide What's Needed.*** In response to challenging situation in which care provision was sub-standard, participant asked a patient or the patient's attendant to bring or buy the material resources needed for care (i.e., drugs, gloves, linen).

persev ***Perseverance.*** Participant responds to the situation with an attitude of perseverance, diligence and/or resolve and continues to help or comfort patients (e.g., "tell patients to be patient") and their families. For example, responses of "just do my best," "just work," or "do what I can" should receive this code. Responses indicating acceptance of or "coping up with" the situation should also receive this code. Collaboration and teamwork should also receive this code.

priorit ***Prioritize Sick Patients/Planning.*** Participant uses planning and problem-solving to prioritize treatment of the sickest patients. Do not use this code for responses indicating the patient is referred elsewhere for a higher level of care; instead, see **refer.**

refer ***Refer Patient to Another Hospital.*** Participant responds to situation by referring patient to another hospital for a higher level of care.

commit ***Commit to Profession.*** Participant commits to profession by trying to improve on his/her training and skills (e.g., by reading or attending meetings) or by providing health education to patients or community members.

report ***Report to Authority.*** Participant reports or talks about the problem to someone above him/her, such as a supervisor, director, local council, or government. Do not use this code if participant mentions wanting to do so or that someone *should* do so. Only use the code if participant reports he/she actually engaged in this response.

give ***Give What I Have.*** Participant uses own money, borrows money, or requests donations from friends or church to provide for the patient.

addcash ***Additional Ways of Securing Money.*** Participant seeks ways to alleviate financial stress. This includes seeking a side job, taking out bank loans, or budgeting money.

nothing ***Nothing.*** Participant indicates a sense that he/she believes there is nothing he/she can do. Examples include "nothing but refer," "cannot be managed at my level," "I'm only a student," "I don't have the training." The code "nothing" indicates having a sense or belief that one is not doing enough for the patient and can be coded in addition to other more active codes such as **refer, commit, report,** etc.

religion ***Religion.*** Any mention of religion in managing or responding to the situation.

leaveprof ***Consider leaving the profession.*** Participant thinks about resigning or changing profession as a response to the situation.

contast ***Contrast.*** Use for anything that seems to stand out or contradict an overall pattern in the data.

Appendix D

Interview Codes

POSMH ***Positive Mental Health Consequence – General.*** Any positive feelings or thoughts that seem related to participant's work. Examples include: proud, special, like I've done some work/been productive, happy, interested, enjoys, likes, prestige about own role or status, confidence, comfortable, respected, feel rewarded

NEGMH ***Negative Mental Health Consequence – General*****.** Any work-related negative mental health consequence that do not fit codes of STS, BRN or MD. Examples include: not blessed (affected spiritually), worried, lack concentration, not happy, loneliness, professional isolation, feel like I'm losing skills, ashamed, small, not very bright

STS ***Secondary Traumatic Stress.*** Work-related stress reaction that involves symptoms that are similar to PTSD, including the re-experiencing of events, heightened physiological responses, and the avoidance of reminders of work and patients. Include which dimension of STS the segment of text most closely represents: Avoidance, Arousal or Re-Experiencing (e.g., STS-Avoidance).

BRN ***Burnout.*** Psychological response to chronic job stress typically characterized by feelings of emotional and physical exhaustion. One of the most frequently cited definitions of burnout refers to it as the emotional exhaustion, depersonalization of clients or patients, and feelings of reduced personal accomplishment that can occur among individuals who do 'people work' of some kind.

MD ***Moral Distress*****.** Psychological distress/painful feelings that result when provider is unable to provide what he or she believes is the most ethical course of treatment for the patient. This could be due conflicting demands of their patients, their patients' family members, and/or institutional barriers at their place of employment.

Additional codes and sub-themes generated by coders

Learning **Degree of Learning.** Degree of learning linked to positive or negative mental health consequences. Examples, learning as a source of positive mental health; not learning enough or not able to practice what one learns as a source of negative mental health.

PersStress ***Personal Stress and/or Trauma Outside of Work.*** Stress that is not directly tied to work. Occurs in addition to the stress of the job. This stress could be brought to the job and may be discussed as coming out while at work. This code also refers to traumatic experiences outside of work if one relates them to current mental health or work-related mental health. Examples of personal stress include: strained family relations due to low salary, not eating breakfast.

Overwork	***Overwork.*** Heavy workload, high patient caseload etc. discussed in relation to mental health consequences or change in mental health.
Resources	Lacking necessary material or human resources to provide appropriate standard of care. This includes all types of resources and refers to working conditions, infrastructure (including patient information systems), lack of staff, salary and staff accommodations.
Ptstatus	***Patient Progress or Outcome.*** Participant talks about the patient's outcome (positive or negative) or progress (or lack thereof) in relation to mental health.
Relations	***Nurse-Patient or Nurse-Nurse Relations.*** Positive or negative dynamics between health workers themselves or between healthworkers and patients. Examples include nurse bullying of other nurses, nurses or patients disrespecting the other
Response	**Response/Agency of Healthcare Providers.** What the participant does in response to the problem situation (the situation that leads to negative mental health). Examples include: Improvise, use own money/resources or ask friends to donate in order to give patients what they need, try to get a different job, console self, ask for forgiveness, commit to improve profession, make self free, acceptance
Stigma	***Stigma of Health Workers.*** General public and/or patients have poor perception of the health workforce.
Inevit	***Inevitability***. Describes situation or feeling as occurring frequently or as common place.
Contrast	***Contrast.*** Any idea expressed in text that is different from other participants or from what's been learned in the data so far.

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