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Are Nurses High Risk for Experience with Behavioral Health Problems?

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Are Nurses High Risk for Experience with Behavioral Health Problems?

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Abstract

Behavioral health problems impact approximately 19% of the United States population and nurses are not exempt from these experiences. In fact, nurses may be at higher risk for developing a behavioral health issue than the general public. The purpose of this study was to identify specific demographic, work-related, and behavioral variables associated with substance use and personal experience with any mental and or behavioral health problems among nurses in an academic healthcare system. Being female, younger in age, higher level of education and increased use of alcohol were risk factors associated with self-reported experience with behavioral health problems. Additionally, identifying as non-heterosexual and a perception of increased exposure to secondhand smoke were significantly associated with self-reported experience with behavioral health problems. The findings of this study suggest that nurses may be at greater risk for behavioral health problems and certain variables may increase their risk. In addition, more attention and research in the U.S. needs to be focused on this subject, as well as, developing and implementing targeted interventions and programs specific for the nursing workforce to promote their behavioral health and well-being.

Dedication

My DNP project is dedicated to my amazing family and friends. My mother and father who have cheered me on, co-parented with me, supported me, and never stopped believing I could succeed. Always constantly reminding me "the light is getting brighter; you can do this". But most importantly, I dedicate my project to my two amazing sons. I have been blessed with the most remarkable young men. They have been by my side, step by step. Tucking me in, offering comic relief, making me proud, kissing my forehead when I seemed to need it the most, and never complaining about the hours spent doing schoolwork. I am a very lucky girl to have such supportive and wonderful people in my life.

Table of Contents

List of Tables

List of Figures

Background

Mental health is an important component of an individual's wellbeing and it is critical for the successful achievement of overall health and wellness. Even so, in the U.S. approximately 19% of the general population have a mental health disorder (Hellebuyck et al, 2018). In addition, nurses, who are the largest population of healthcare workers and are central to patient care, are at high risk of developing behavioral health problems, despite their professional knowledge and experience. Although there are limited studies about nurses and their mental health in the U.S., globally, the high rates and challenges of behavioral health disorders among nurses are evident. For example, Ardenkani and colleagues (2008) found that 45% of registered nurses from twelve general hospitals in Pakistan endorsed criteria for a mental disorder and Taghinejad et al (2012) reported that 43% of registered nurses from three hospitals in Iran also met criteria for a mental health disorder. Moreover, a systematic review of depression in registered nurses revealed that 27% - 62% of nurses experienced depression or depressive symptoms compared to 7.2% among the general population with depression (Tajavar et al., Chang et al, 2011; Gao et al., 2012; Gong et al., 2014; Lin et al., 2010; Welsh, 2009; & Yoon & Kim, 2013; Cares et al., 2015). In addition to the impact of depression among nurses on quality of care, the cost of this problem to employers is substantial. Letvak, Ruhm and Gupta (2012) reported an annual cost of approximately $14,439 in lost productivity for one nurse with depression, anxiety and fatigue or sleep problems.

Substance abuse among healthcare providers is yet another significant behavioral health concern. Although there is paucity of published research on this problem among nurses, the American Nurses Association (2016) reported that approximately 10% of nurses from a national survey had alcohol and/or drug abuse problems. More alarming, rates may actually be closer to

20% due to under-reporting and lack of treatment seeking for fear of disciplinary action in the profession (Monroe and Kenaga, 2010). This means that potentially one out of every five to seven nurses struggle with a substance abuse issue. Additionally, Cares and colleagues (2015) surveyed nurses in a peer health assistance treatment program and reported that 48% (n=308) endorsed using drugs, alcohol or both while at work and 40% admitted that it had an impact on their competency. Substance use problems among nurses can pose a significant liability to employers due to the increased absenteeism, disability, worker's compensation claims, turnover, and a higher use of healthcare benefits (Epstein et al, 2010). Untreated substance use disorders can cost an additional $6,760 per person working in healthcare (Goplerud, Hodge, & Benham, 2017).

Studies also revealed upwards of 60% of those with substance abuse problems also have a concurrent mental illness (Rojas et al, 2013; Baldisseri, 2007). The consequent morbidity related to co-occurring mental illness and substance use among nurses is high. In addition, it may differ by demographic characteristics including gender, age, marital status, education level, and years of professional experience. Some research examines specific diagnoses such as depression, substance use, burnout, and anxiety in nurses (Chang et al., 2011; Brandford & Reed, 2016). Other studies, however, address specific symptoms experienced by nurses like fatigue, pain, trouble sleeping, sleepiness, problems with concentration, disengagement, burnout, individual distress, decreased sense of personal accomplishment, depersonalization, depressed mood, and anxiety (Taghinejad et al, 2014; Spence-Laschinger & Leiter, 2006; Bakkar & Heuven, 2006).

Gartner and colleagues (2010) conducted a systematic review on aspects of work functioning that may be impacted by mental health disorders, for example, general errors, medication and equipment errors, needle stick injuries, patient falls, and near misses. In their

review, some study findings indicated that female nurses experience mental health issues more frequently than male nurses at a ratio of 9.5 to 1 male (Letvak et al, 2012; Ardekani et al, 2008; Yoon & Kim, 2013; Rappley, 2015). Younger nurses also report a higher rate of mental health related symptoms at almost twice the rate of those reported by older nurses, yet this is not consistent with the general public (Ardekani et al, 2008; Bjorvatn et al, 2012; Yoon & Kim, 2013). Some studies found that single or divorced nurses may have a higher prevalence of depressive symptoms, but other studies found no correlation or that married nurses actually had an overall higher prevalence of mental disorders (Chang & Wang, 2011; Wang et al, 2015; Yoon & Kim, 2013; Gao et al, 2012; Ardekani et al, 2008; Chiang & Chang, 2012). Furthermore, nurses with higher levels of education may have higher rates of perceived stress and depressive symptoms (Chiang & Chang, 2012; Gao et al, 2012). Conversely, lower professional experience is associated with greater mental health problems among nurses (Arafa et al, 2003; Flo et al, 2012; Flo et al, 2014). Understanding unique demographic variables that may place nurses at a higher risk of developing a mental illness is vital to maintaining health and productivity, tailoring interventions to promote overall health and well-being and providing information to facilitate curriculum development.

An area of further inquiry is work-related factors that can affect nurses' mental health. Indeed, multiple studies have identified several work-related factors that may influence nurses' mental health and well-being including work setting, work load, relationship with coworkers, length of working hours, work tenure, and shift work (Chiang & Chang, 2012; Flo et al, 2012; Kawano, 2008; Arafa et al, 2003). In addition, nurses within certain departments or specialty areas are reported to have higher risks for mental health disorders, including psychiatric departments, intensive care units, operating rooms and internal medicine units (Cheung & Yip,

2015; Arafa et al, 2003; Bjorvatn et al, 2012; Chiang & Chang, 2012; De Leo et al, 1983; Yoshizawa, 2016). Role conflict and role overload are also frequently cited as being detrimental to mental health, as well as increased patient volumes, acuity, assigned tasks, and an excessive number of work hours (Baba et al, 1999; Chiang & Chang, 2012; Kawana, 2008; Mark & Smith, 2012; Wu et al, 2011; Yoshizawa et al, 2016; Duan-Porter, 2018; Gong et al, 2014). Longer work tenure also has a detrimental association with mental health related problems among nurses (Lam et al, 1999; Gong et al, 2014). Interestingly, no association has been found between depression or anxiety and working on the night shift (Flo et al, 2014; Flo et al, 2012; Oyane et al, 2013; Skipper, Jung & Coffey, 1990). Although demographic factors are often non-modifiable when addressing behavioral health problems, the work environment can be enhanced by policies and management that promote and for more positive worker health outcomes among nurses.

Individual factors can also play a role in the development of a mental health problem among nurses. Studies have shown that there are certain behaviors and characteristics that may either increase vulnerability or be protective factors in development of mental health issues. For instance, nurses who use avoidant coping, have decreased levels of learned resourcefulness, and those who have less positive ideation are more vulnerable than those who have improved skills in those areas (Chung et al, 2012; Duan-Porter, 2018). Similarly, individuals who lack assertiveness, abuse substances and overcommit are at higher risk of developing mental health conditions (Skinner & Scott, 1993; Gao et al, 2012; Kenna & Wood, 2004; Rojas et al, 2013; Mark & Smith, 2012). In addition, Letvak, Ruhm, and McCoy (2012) found higher rates of depression in nurses who were overweight or obese, as well as in those with more than one health problem.

Every nurse arriving to a work environment brings a unique set of personal qualities and characteristics. Some nurses practice behaviors that minimize the risk of developing mental health issues such as regular exercise, consistently taking scheduled meal breaks, using learned resourcefulness, exercising optimistic ideation, and having positive evaluations and expectations of themselves and others (Gao et al, 2012; Chung et al, 2012; Chang & Wang, 2011). Organizations have an opportunity to address the silent, yet significant, mental health problem found in the nursing workforce by not only understanding what factors place a nurse at risk for behavioral health problems, but also what behaviors are protective. Understanding the positive behaviors practiced by nurses who report feeling mentally healthy offers healthcare organizations insight into possible primary prevention programs and initiatives that may facilitate, promote, and support nurses' mental wellness.

Purpose

Nurses are an invaluable resource for our healthcare system as they care for people with health problems, often, at the most vulnerable times in their lives. Yet many nurses suffer silently. Who is taking care of the nurses to ensure they are healthy and safe, especially at times when they may be in situations making life and death decisions about others? Understanding the prevalence of exposure to behavioral health problems among nurses, the variables that may increase their risk, and potential protective factors can provide insight for policy makers, healthcare organizations and leaders to implement initiatives. Thus, the purpose of this study is to identify specific demographic, work-related, and behavioral variables associated with substance use and personal experience with any mental health problem among nurses in an academic healthcare system. The aims of the study are to:

a. Examine the frequency of self-reported substance use and behavioral health issues among nurses

b. Assess the association between having any personal experience with behavioral health problems and the following variables:

   1. Demographic (age, gender, sexual orientation, marital status, having children, education level)

   2. Work-related (shift type, length of shift, disciplinary type [ADN, BSN, APRN, MSN], work setting [emergency, psychiatric, surgery, etc.], work tenure, discipline tenure), and

   3. Behavioral (tobacco use, alcohol use, secondhand smoke exposure, sleep duration, sleep quality, and exercise behavior)

Conceptual Framework

The conceptual framework for this study was grounded in the biopsychosocial (BPS) model. In 1977 George Engel introduced the BPS model based on the general system's theory. The BPS model maintains the perspective that disease/illness should not be viewed through only one lens, which creates tunnel vision, but instead should be evaluated utilizing a more panoramic integrated approach (Henriques, 2015). The holistic view postulated in the BPS model suggests that the biological system (anatomical, structural and molecular aspects of disease), the psychological system (coping skills, social skills, and personality), and the social system (cultural, environmental, and family influences) impact and are impacted by each other and therefore, should be addressed in a person's overall health (Sadock, Sadock, & Ruiz, 2015).

The BPS model is appropriate for this correlational study because the goal is to identify demographic, work-related and behavioral variables that may place a nurse at higher risk of

developing a behavioral health problem. In addition, the study goes beyond simply identifying if

nurses working in an academic healthcare organization suffer from behavioral health problems.

It also seeks to find a correlation of potential risk factors related to this phenomenon, recognizing

that multiple factors are likely to place an individual at higher risk.

Literature Review

Clarification of terms is necessary in order to understand the complexity of behavioral

health problems. Mental health and behavioral health are terms used interchangeably even

though they have different meanings. For instance, mental health, as defined by the U.S.

Department of Health and Human Services "includes our emotional, psychological, and social

well-being. It affects how we think, feel, and act. It also helps determine how we handle stress,

relate to others, and make choices" (2019, para.1). In contrast, the term behavioral health is

defined as "the scientific study of emotions, behaviors and biology relating to a person's mental

well-being, their ability to function in everyday life and their concept of self" (Insight, 2019,

para.1). In sum, behavioral health has a broader context and although it includes mental health, it

incorporates behaviors such as substances and their abuse, eating habits, lifestyle choices, and

similar choices that may impact a person's health (Alvernia University, 2019).

Behavioral Health in the General Public

Behavioral health disorders affect a significant number of individuals in the United

States. According to the 2018 National Survey on Drug Use and Health (NSDUH) report

published by the Substance Abuse and Mental Health Services Administration (SAMHSA) on

substance abuse and behavioral health problems, in the U.S. approximately 47.6 million (19.1%)

adults eighteen years and older reported having a mental, behavioral, or emotional disorder in the

preceding year (2019). The same report revealed that 21.5% (58.8 million) of the population twelve and older used tobacco products within the past 30 days preceding the survey and 51.1% (139.8 million) were current alcohol users. Furthermore, the report indicated that 55.3% (139.1 million) of those in the U.S. eighteen years and older endorsed use of alcohol, 48% (67.1 million) admitted to binge drinking, and 11.8% (16.1 million) of binge drinkers met criteria for being a heavy drinker. In addition, 5.1% (14.8 million) of the overall U.S. population had an alcohol use disorder and 3.7% (9.2 million) have a mental illness co-occurring with a substance used disorder (SAMHSA, 2019).

Behavioral Health Problems and Nurses

As mentioned previously, research conducted in the U.S. on the subject of nurses and behavioral health problems is limited. One national study, however, reported that 41% of nurses endorsed having poor mental health, 33% screened positive for depression, 52% for anxiety, and 39% as identified their level of stress to be significant (Melnyk et al., 2018). In a similar fashion, several studies conducted in other countries have shown that nurses are at a higher risk than the general public for developing a behavioral health problem. For instance, a survey among Australian nurses found a high prevalence of depression (32.4%), anxiety (41.2%), and stress (41.2%) among participants (Maharaj, Lee, and Lal, 2019). In addition, multiple studies from Asian countries found high rates of mild to moderate depressive symptoms in registered nurses. Chang et al (2011) in Taiwan reported more than 52%, Yoon and Kim (2013) found 38%, and researchers in China revealed 38% and 62% (Gong et al, 2014; Gao et al, 2012) of nurses in their respective studies had mild to moderate depressive symptoms. In Iran, Taghinejad and colleagues (2014) and Ardekani and colleagues (2008) found that 43% and 45% respectively in their studies of registered nurses suffered from a mental health disorder.

In addition to mental health problems, nurses are at risk for substance misuse. It has been estimated that between 10%-15% of all healthcare workers will misuse drugs and/or alcohol at some point during their career (Angres et al., 2013). Although some research findings suggest that the rate of substance abuse among nurses is equal to that of the general population (Baldisseri, 2007; Kenna & Wood, 2004), Monroe & Kenaga (2010) contend that the estimated prevalence of substance abuse, misuse, and addiction among nurses is possibly higher, between 14% - 20%, based on data obtained from the National Council of State Boards of Nursing. Kenna and Wood (2004) randomly selected and surveyed healthcare workers (nurses, physicians, dentists, and pharmacists) inquiring about alcohol use and found that a little over 8% of the nurses reported heavy episodic alcohol use, yet 20.9% of nurses were concerned they may be using too much or drinking too often. The study also found that 3.6% of nurses reported their drinking caused them to provide less than their best patient care (Kenna & Wood, 2004).

Risk Factors

Nurses share many of the same risk factors as those in the general public for developing behavioral health disorders such as a family history, trauma history, and feeling overworked and/or stressed (Epstein, Burns & Conlon, 2010). Stress in the nursing workforce is also identified as a major contributor to behavioral health problems not unlike those of other professions. However, the types of stressors encountered by nurses are unique to the healthcare profession. These may include excessive workload, rotating shifts, overtime, floating to multiple units, frequency of dealing with death and dying, unpredictable work pace, demands going beyond the scope of practice, and emotional labor burden (Cheung & Yip, 2015; Epstein, Burns, & Conlon, 2010). Two additional risk factors for nurses, included having physical comorbidity and type of work setting (Arafa et al, 2003; Chiang & Chang, 2012; De Leo et al, 1983; Gao et

al, 2012; Letvak et al, 2012; Ohler et al, 2010; Taghinejad et al, 2014; Welsh, 2009; Kawano, 2008; Wang et al, 2015). Other variables cited in multiple studies included younger age; being female; single marital status; greater tenure or length of time working in the same hospital; role overload; experience of trauma or workplace violence; and low job satisfaction/affective well-being (Arafa et al, 2003; Bjorvatn et al, 2012; Gao et al, 2012, Skinner & Scott, 1993; Yoon & Kim, 2013; Ardekani et al, 2008; Baba et al, 1999; SM Wang et al, 2015; Chiang & Chang, 2012; Lam et al, 1999; Ohler et al, 2010; Wu et al, 2011; Gong et al, 2014).

Protective Factors

The research also provides insight about various characteristics of nurses that appear to be protective in off-setting the development of behavioral health disorders. Self-efficacy towards work performance and resourcefulness are both negatively correlated with symptoms of depression (Chang et al, 2011; Chung et al, 2012; SM Wang et al, 2015). Positive self-evaluation and self-expectations are also protective factors for nurses' mental health, as well as having an optimistic personality (Chang et al, 2011; Chung et al, 2012). Interestingly, Mark & Smith (2012) found that the absence of negative coping behaviors was more protective than the presence of positive coping behaviors. Higher job satisfaction was also identified as the best protective factor against depressive symptoms in nurses (Gao et al, 2012). Additionally, behaviors such as meditation, physical exercise, yoga, and eating regular meals were found to be positive influences on nurses' mental health (Gao et al, 2012; Duan-Porter et al, 2018).

Methods

Sample

The setting for the study was a large academic healthcare organization located in the southeastern area of the United States. Data for this secondary analysis were retrieved from the

responses to a survey administered to various categories of healthcare providers working in an academic healthcare organization comprised of multiple inpatient and outpatient facilities and specialties. A total of 1006 individuals responded to the survey and of those 385 were nurses who were the target population for this present study.

Ethical Considerations

The parent study entitled "Secondary Traumatic Stress, Burnout, and Compassion Fatigue" was approved on October 31, 2018 by the university's Medical Institutional Review Board (IRB No. 46822). Protection of subjects included a cover letter prior to the survey offering the participant an explanation regarding the purpose of the study and the voluntary nature of participation. The letter also informed the participant that there was no requirement to respond to every question and that skipping uncomfortable questions was an option. Acceptance and completion of the survey after reading the cover letter implied consent.

Investigative Procedures

This secondary analysis was based on a correlational, descriptive design. Emails for the parent study were sent through various discipline-specific and enterprise-wide list-serves inviting all employees providing direct care to patients to participate in the study. Information was obtained from a 28 question, electronic survey, that took approximately 10 minutes to complete. The survey was administered to staff members of various disciplines employed in the healthcare organization's multiple facility locations over a period of six months (November 1st 2018 to April 30th, 2019). The data for this secondary analysis were extracted from the nurse survey responses and based on participant selected disciplinary background or job role. Inclusion criteria were full or part-time employment, direct patient care, and 18 years and older. Exclusion

criteria were a discipline other than nursing. The survey was completed online anonymously utilizing Qualtrics, a third-party survey tool.

Measures

Demographic Variables: The demographic variables used to describe the sample included age (ranges in years), gender (male vs female), sexual orientation (straight/heterosexual vs non-heterosexual), marital status (married – living with spouse vs member of an unmarried couple vs divorced/separated vs single/never married vs other – specify), and having children living with participant (yes or no).

Work-Related Factors: Information collected from the survey on work-related factors included primary shift worked (days vs nights vs others [i.e. rotating or off shifts]); typical length of work day (Less than 10 hours vs 10 hours or greater); educational background (LPN/ADN vs BSN vs MSN/PhD/APRN); primary work setting (Intensive/Surgical vs Emergency vs General Medical Wards vs Oncology vs Psychiatry vs Outpatient Services); length of time working in specific location (less than 6 months, 7 months to 1 year, 2 to 5 years, 6 to 10 years, greater than 10 years); and length of time practicing in discipline (less than 6 months, 7 months to 1 year, 2 to 5 years, 6 to ten years, greater than 10 years).

Behavioral Health Factors: Data collected from the survey relating to behavioral factors included average number of hours of sleep in a 24-hour period (4 hours or less, 5-6 hours, 7-8 hours, more than 8 hours); rate of quality of sleep on a scale of 0 – 10 (0 indicates 'worst possible sleep' and 10 indicates 'best possible sleep'); and number of days having performed 30 minutes or more of physical activity in the past week (no days, 1 day, 2 days, 3 days, 4 days, 5 days, 6 days or 7 days).

Behavioral Health Experiences: Use of tobacco products (yes or no) and last use of alcohol (within past 7 days, between 1-4 weeks ago, between 1-3 months ago, between 4 months or great months, or never) were obtained from the survey. In addition, a single item question was asked to determine participant experience with behavioral health problems including experience with self, girlfriend/boyfriend/spouse/partner, a parent, brothers or sisters, participant's child, relative, and/or someone else (e.g. close friend). The participant could select all that applied in this question.

Data Analysis

Descriptive analysis was used to describe the sample using means with standard deviations for continuous variables and frequencies with percentages for nominal and ordinal variables. Chi-square analyses were used to examine differences in the substance use (alcohol use and tobacco use) and behavioral health issues (self, spouse/partner, parent, brothers or sisters, child, relative, someone else) by discipline and work setting. Finally, a hierarchical logistic regression analysis was used to examine the association of demographic, work-related, and behavioral factors (which included alcohol and tobacco use) with having any personal experience with a behavioral health issue (yes or no). The Hosmer-Lemeshow Goodness of fit test was used to assess the model fit in each step of the regression model analyses. All analyses were performed using IBM statistics version 23 with significance set at an alpha level of .05.

Results

Sample Characteristics

As indicated in Table 1, the sample was primarily female (92.5%) and younger than 36 years of age (58.2%). The majority identified themselves as heterosexual (94.8%) with over half of the participants responding that they were married and living with their spouse (55.6%); most

did not have children currently living in the household (54.0%). The majority held a Bachelor's of Science in Nursing (BSN) degree, worked in an inpatient setting (90.1%) with adults (64.3%) and the highest proportion worked on general medical units (35.3%). Most respondents (63.9%) reported work on the daytime shift and 81.6% reported working shifts that were 10 hours or more in length. The largest percentage of years in practice was split between those with more than 10 years (30.9%) and those with 2 – 5 years (30.4%) with most individuals working in their current setting for a period of 2 – 5 years (45.7%). More than half (52.7%) of the respondents reported getting seven or more hours of sleep ranking quality of sleep as a mean of 5.9 (SD=1.9), and exercising for 30 minutes or more during 2.9 days (SD=1.8) per week. On average, participants endorsed having a low exposure to secondhand smoke with a mean score of 1.9 (SD=2.3) (See Table 1).

Frequency of Substance Use and Self-Reported Behavioral Health Issues

Thirty-four percent of participants reported ever using tobacco products, whereas 43.4% confirmed use of alcohol within the preceding seven days (Table 2). Moreover, 66.8% reported having had some personal experience with a behavioral health problem. Personal experiences included having their own personal behavioral health problem (22.3%), a relative with this type of problem (28.6%), or having a parent (23.9%) or sibling (23.9%) with a behavioral health challenge [see Figure 1].

Variables Associated with Personal Experience with Any Behavioral Health Problem

In the hierarchical logistic regression analyses of variables associated with personal experience with any behavioral health problems, the addition of demographic factors in the first analytic step yielded a well-fitting model (Hosmer-Lemeshow Chi-square= 3.02 [df=8], p=.933) for which both gender and sexual orientation were significantly associated with the primary

study focus. When work-related factors were included in the second step, a well-fitting model was produced (Hosmer-Lemeshow Chi-square= 9.69 [df=8], p=.287) in which the variable nursing education level was the sole significant factor. In the final step of the model the addition of behavioral variables resulted in another adequately fitting model (Hosmer-Lemeshow Chi-square= 10.63 [df=8], p=.223). Variables associated with having greater personal experience with behavioral health problems included being female, non-heterosexual, having children living in the home, being an advanced practice nurse/MSN/PhD, having greater secondhand smoke exposure, and having more recent alcohol use.

Discussion

The findings of this study add to the nursing literature and provides support for the positive association between certain variables and behavioral health problems. Studies exist in the literature regarding nurses' behavioral health; however, the research is sparse and even more limited in the United States. The key findings of this cross-sectional analysis were that three demographic variables (female gender, non-heterosexual, and having children living in the home), one work-related variable (being an advanced practice nurse/MSN/PhD), and two behavioral variables (having greater secondhand smoke exposure and more recent alcohol use) were associated with reporting any personal experience with behavioral health problems.

Demographic Variables

Perry et al (2015) completed a cross-sectional study in two Australian metropolitan teaching hospitals and found that nurses' mental health status and related characteristics had similar statistically significant findings. Like our study, Perry et al (2015) found that the female gender was a risk factor associated with behavioral health problems (p=<.001). The nurses in our study, however, reported having behavioral health problems at a much lower rate of 23.3% in

contrast to that of other studies at rates between 43% and 59% (Melnyk et al., 2018; Tajvar et al., 2015; Taghinejad et al., 2014). In addition, the study by Perry et al., (2015) also found a positive correlation between participants who reported better mental health if they were not informal caregivers, defined as caring for someone and not getting paid (Perry et al, 2015). This finding may be similar to ours regarding having children living in the home associated with higher rates of experience with behavioral health problems as compared to those who did not have children living in the home.

The nurses who participated in our study who identified themselves as being non-heterosexual, also had higher odds of having any personal experience with behavioral health problems than those who self-identified as heterosexual. To date, no research was found in the literature regarding nurses' sexual orientation and correlation with their perceived mental health or substance use. However, a U.S. study comparing mental health and sexual orientation in medical students across the country found that non-heterosexual students had a greater risk for developing depressive and anxiety symptoms, as well as reporting higher rates of social stressors such as harassment and isolation (Przedworski et al, 2015). Also, other studies support the findings that non-heterosexual individuals in the general population have a higher rate of behavioral health problems such as depression and anxiety, as well as lifetime suicidal ideation and substance abuse (Semlyen et al, 2016; Woodhead et al, 2019). This is a definite gap in nursing research that requires more focused study of a potentially high-risk population.

Work-Related Factors

Our study only found that the level of educational preparation, was associated with the reported experience of any behavioral health problems. Nurses with a master's degree or higher were more likely to have personal experiences with behavioral health problems than those with a

bachelor's or associate degree. This finding may be consistent with studies conducted in Iran and China. Khodadadi et al (2016), Tajvar et al. (2015), and Gao et al (2012) found that nurses who had higher levels of education had significantly higher chances of experiencing depression than other nurses. The researchers however did not find significant correlation between nurses' anxiety or stress and education level.

Behavioral Health Factors

Two behavioral variables, exposure to secondhand smoke and recent alcohol use, were positively correlated with self-reported experience with any behavioral health problems. Rojas and colleagues (2013) found that 87.1% of nurses who were admitted to a professional substance abuse rehabilitation program had a comorbid psychiatric disorder and 25.8% of the nurses had a family history of mental illness. In another study by Cares et al (2015) 55.0% of nurses in a substance abuse program reported that their substance of choice was alcohol. A study by Cheung and Yip (2015) found that nurses who endorsed current alcohol use were 1.6 times more likely to suffer from depression, anxiety and/or stress than those who were not current alcohol users. Bertussi and colleagues (2018) reported that 16.2% and 23.2% of nurses who binged alcohol also had symptoms of depression and anxiety respectively. These finding are similar to our sample that nurses who reported their last alcohol use to be 1 month or greater were less likely to have experience with any behavioral health problems than those who last drank more recently. These results highlight the significance of behavioral health problems in the nursing workforce related to comorbid psychiatric and substance abuse.

The second variable that was correlated to nurses' experience with behavioral health problems was perceived exposure to secondhand smoke. Although 66% of respondents in the survey reported having never used a tobacco product in their lifetime, a statistically significant

finding was that nurses who had a higher level of perceived secondhand smoke exposure were more likely to have a personal experience with behavioral health problems. No additional research in the literature was found to support this finding indicating yet another possible area for future investigation.

Limitations

One limitation of this study is the lack of racial and ethnic demographic data. Race and ethnicity have been shown to impact how an individual perceives mental illness (Villatoro et al., 2018). Wong et al. (2017) found that only 5.0% of Asian-Americans and 5.0% Latinos were likely to self-report a mental illness and 95.0% of Asian-Americans who reported a mental health problem endorsed that they felt inferior to those who had not experienced mental illness. In the same study, Asian-Americans and Latinos were also more likely to negatively view mental illness, as compared to the other ethnicities represented in the survey. In another study, African-American, African-Caribbean and Asian-American participants were significantly less likely to endorse a need for mental health care as compared to Latinos and Non-Latino whites (Villatoro et al., 2018).

A second limitation of the study is a lack of validated screening tools, such as the Patient Stress Questionnaire (adapted from PHQ-9, GAD-7, PC-PTSD, & AUDIT) to screen for behavioral health problems (SAMHSA, 2019). The absence of a validated screening tool results in participants applying their own definition of what a behavioral health problem is to self-reported personal experiences. Utilizing a personal definition of behavioral health problem could lead to under or over reporting. Studies that use standardized screening tools have found a much higher rates of behavioral health issues among the nursing workforce (Melnyk et al., 2018).

A final limitation is that the sample from the parent study was obtained at convenience. Individuals suffering with behavioral health problems may have been less likely to participate in the survey due to the very nature of their illness. In addition, individuals may have feared exposure regardless of assurances of anonymity and third-party survey utilization. These factors may have also led participants to under report or minimize their experiences with behavioral health problems. Additionally, external validity may be limited because this study used a convenience sample. The generalizability of the study to the entire U.S. nursing population should be cautioned, specifically related to education levels. The percentage of BSN prepared nurses in our study sample (65%) is much higher as compared to the national average (41.7%), a slightly lower number of ADN represented in our sample at 21% compared to the national average of 28% (Nursing Workforce Survey, 2017). However, nurses with a MSN or higher were similar at 14% compared to 15% nationally.

Recommendations

In spite of the limitations, this study may provide additional support for the notion that nurses are at higher risk for experiencing behavioral health problems than the general public. It also demonstrates that certain demographic, work-related and behavioral factors may predict behavioral health problem experience risk level. Nurses' daily work is stressful and demanding. They are called upon not only to make life and death decisions, but also react and perform in these highly stressful situations. Not only do patients deserve to receive the highest quality of care, but nurses deserve to be cared for and offered compassion and services to treat those hidden, psychological injuries. A possible recommendation related to the findings of this study would be for healthcare organizations to implement a standardized, self-administered mental health screening, at least annually, among nursing staff, to facilitate early identification of mental

health symptoms. The Patient Stress Questionnaire is a validated, standardized tool that combines the Patient Health Questionnaire-9 (PHQ-9) that screens for depression, the Generalized Anxiety Disorder-7 (GAD-7) tool that screens for anxiety, the Primary Care Post Traumatic Stress Disorder (PC-PTSD) tool that screens for PTSD, and the Alcohol Use Disorder Identification Test (AUDIT) that screens for alcohol abuse/misuse that may be applied to nurses to help identify some of the common behavioral health problems in the nursing workforce (SAMHSA, 2019) .

In addition to consistent screening of nurses for behavioral health problems, this study also highlights that the nursing profession can be physically, mentally and emotionally demanding. However, online mental health promotion interventions for nurses can enhance positive mental health and psychological well-being (Sampson et al., 2019; Boiler et al., 2014; Geraedts et al., 2014). A feasibility study on implementing a web-based intervention called Happy@Work in six international companies showed not only that the online method was feasible, but also that the participants were satisfied and endorsed they would follow a web-based intervention in the future (Geraedts et al., 2014). A recent study identified the effectiveness of a cognitive behavioral skills program called MINDBODYSTRONG on newly registered nurses' mental health. MINDBODYSTRONG is an evidence-based intervention that has shown significant improvements in perceived stress, lower anxiety scores and lower depression scores in intervention group of nurses verses the control group (Sampson et al., 2019). Other potential interventions that are effective in improving mental health of nurses includes training in topics such as emotional intelligence and resilience (Sharif et al., 2013; Cleary et al., 2018). Focusing on primary, secondary, and tertiary prevention methods for nurses to improve and maintain

mental health and well-being is not only indicated, but necessary for ensuring that nurses are getting support and assistance in the workforce.

Education for frontline leaders is another key component to improving the well-being of nurses. It is important that nursing leaders and hospital administrators are aware that nurses are at higher risk for developing a behavioral health problem than the general public and that certain variables may further increase that risk. Education for nursing and healthcare executives and managers on risk factors, early identification of signs and symptoms of behavioral health problems, alternative disciplinary programs, how to create a culture of support and transparency and training on effective and compassionate ways to work with nurses affected by a behavioral health problem are other recommendations from this study. In addition, nurse managers can help remove the stigma associated with behavioral health problems by encouraging discussion and feedback from staff, having focus groups to identify stressors specific to their department, educating about alternative disciplinary programs, and implementing skill building opportunities to increase self-efficacy (NCSBN, 2011).

Organizations employing nurses have not only a responsibility to offer services to improve the health of its employees, but also a responsibility to protect the patients it serves. One recommendation for organizations is to offer a robust behavioral health program to nurses and other healthcare providers. Melnyk and colleagues (2018) reported that for every $1 spent by healthcare organizations on wellness, there is a $3-$4 return on investment. Employing mental health providers for a healthcare organization to provide services solely to the internal workforce has multiple benefits. Mental health care is not easily accessible and patients often find themselves being put on a wait list or having to wait months for a first-time appointment. Having a mental health provider for staff would offer nurses easier access for crisis intervention,

behavioral health education, and regular appointments. Faster services with a more readily available provider could potentially prevent a minor behavioral health problem from developing into something more severe. Tele-psychiatry services would allow for nurses, whose schedules often do not fall within regular work hours, to step away briefly from their work setting to access care without having to leave the facility or take a day off for an appointment. Mental health groups offered onsite that focus on nursing/healthcare specific topics such as loss and grief, trauma, stress management, LGBTQ support, and compassion fatigue, as well as, NA/AA meetings gives nurses not only onsite and convenient access, as well as anonymity from the public and their patients, in addition to providing a peer support group.

Another recommendation for organizations is to create organizational policies and procedures to help support employees' behavioral health needs, as well as guide nurses and leaders on resources available, options for reporting, and interventions. For example, alternative disciplinary programs, family medical leave (FMLA) that includes equal behavioral health coverage, nurses' rights regarding abuse by patients, workplace violence (internal and external), reasonable work accommodations, how to report a peer suspected of a substance abuse problem, fitness for duty, and maintaining confidentiality.

Recommendations on a broader scale include the need for national policies on nursing work environment (nurse-patient ratios, safety, workload), protection of nurses against violent patients, and protecting nurse privacy related to substance abuse. State nursing boards nationwide should also implement mandatory continuing education requirements on substance abuse and mental health. Most states have individual requirements, such as Kentucky's Pediatric Head Trauma Abuse requirement and Nevada has mandatory education on bioterrorism, but nurses across the U.S. are at high risk for behavioral health problems and this should be a

priority. In addition, state boards and nursing school accrediting agencies should require that nursing education programs integrate wellness, mental health and substance abuse programming throughout the curriculum. Behavioral health problems may begin during nursing school due to high stress, work load, competing priorities, and additional life stressors. Research is emerging showing that nurses can benefit from early education and health promotion interventions (Melnyk et al., 2018).

Conclusion

Nurses are at the forefront of caring for our most vulnerable patients and are called upon daily to identify, make decisions, and react to life and death situations. However, nurses have been found to be at greater risk of developing behavioral health disorders than the general public; and there have been minimal research efforts on identifying interventions to help this valuable healthcare resource, especially in the U.S. The lack of attention to nurses' mental health and well-being may place patients at risk for adverse outcomes, result in more medical errors, and increase organizational costs. More research is needed in the United States to identify different variables that may increase nurses' risks for developing behavioral health problems, as well as behaviors and characteristics that protect and/or promote mental health and well-being. In addition, future studies may focus on the development of a standardized behavioral health screening tool specific for nurses. Targeted research on the behavioral health needs of nurses who identify as non-heterosexual is another area of study that needs direct attention. Studies to determine the effectiveness of educational programs for healthcare administrators and managers on early identification of behavioral health problems, how to create a transparent and supportive environment, and non-punitive interventions for the nursing workforce are also needed. Such studies may be important in informing and guiding practice, policy, and research that addresses

behavioral health challenges among the nursing workforce. The behavioral health of nurses is not a topic we can continue to ignore and maintain a don't ask don't tell mentality. Nurses are a resource that healthcare in the United States cannot afford to lose and it is the responsibility of individuals, academia, peers, organizational leaders and policymakers to do their part in protecting those who have dedicated their lives to caring for others.

Table 1. Sample Characteristics

	n=385	%
Age		
18 to 25 years	74	19.2
26 to 35 years	150	39.0
36 to 50 years	101	26.2
51 and older	60	15.6
Gender		
Female	356	92.5
Male	29	7.5
Sexual Orientation		
Straight/Heterosexual	365	94.8
Non-Heterosexual	20	5.2
Marital Status		
Married Living with Spouse/Widowed	214	55.6
Member of an Unmarried Couple	47	12.2
Divorce/Separated	40	10.4
Single, Never Married	84	21.8
Children		
Children Living in Household	177	46.0
No Children in Household	208	54.0
Education		
LPN(n=6)/ADN	80	20.8
BSN	251	65.2
MSN/PhD/APRN	54	14.0
Primary Service Setting		
Inpatient	347	90.1
Outpatient	38	9.9
Age Group Served		
Primarily Adult	245	64.3
Primarily Pediatrics	136	35.7

	n=385	%
Primary Service Line		
Intensive/Surgical care	117	30.4

Emergency	49	12.7
General Medical Wards	136	35.3
Oncology	21	5.5
Psychiatry	38	9.9
Outpatient Services	24	6.2
Primary Shift		
Days	246	63.9
Nights	116	30.1
Other (e.g., rotation)	23	6.0
Typical Shift Length		
Less than 10 hours	71	18.4
10 hours or greater	314	81.6
Time Worked in Current Location		
Less than 6 months	36	9.4
7 months to 1 year	61	15.8
2 to 5 years	176	45.7
6 to 10 years	43	11.2
Greater than 10 years	69	17.9
Length of Time Practiced in Discipline		
Less than 6 months	21	5.5
7 months to 1 year	49	12.7
2 to 5 years	117	30.4
6 to 10 years	79	20.5
Greater than 10 years	119	30.9
Average Hours of Sleep		
Less than 7 hours	182	47.3
7 or more hours	203	52.7
Average quality of Sleep (M, SD)	5.8	1.9
Average Days Exercised for 30mins or More per Week (M, SD)	2.9	1.8
Perceived Secondhand Smoke Exposure (M, SD)	1.9	2.3

Table 2. Frequency of Substance Use Among Participants

	n=385	%
Tobacco Use		
Ever Used Tobacco Products (Yes)	131	34.0
Never Used Tobacco Products (No)	254	66.0
Last Alcohol Use		
Never	33	8.6
Past 7 days	167	43.4
1-4 weeks ago	78	20.3
1-3 months ago	50	13.0
More than 4 months ago	57	14.8

Table 3. Final Hierarchical Logistic Regression Analysis of Variables Associated with Any Personal Experience with a Behavioral Health Problems (Hosmer-Lemeshow Chi-square= 10.63 [df=8], p=.223)

	OR	95% CI
Age		
18 to 25 years	1.08	.31-3.72
26 to 35 years	.75	.26-2.15
36 to 50 years	.55	.21-1.41
51 and older (referent)	1.00	--
Gender		
Female	3.36*	1.27-8.88
Male (referent)	1.00	--
Sexual Orientation		
Straight/Heterosexual (referent)	1.00	--
Non-Heterosexual	20.25**	2.31-177.16
Marital Status		
Married Living with Spouse/Widowed (referent)	1.00	--
Member of an unmarried couple	.78	.33-1.87
Divorced/Separated	1.36	.53-3.48
Single, Never Married	.70	033-1.47
Children		
Children Living in Household	1.93*	1.03-3.63
	OR	95% CI
No Children in Household (referent)	1.00	--
Discipline		
LPN (n=6)/ADN (referent)	1.00	--
BSN	1.14	.60-2.19
MSN/PhD/APRN	2.58*	1.01-6.60
Primary Service Setting		
Inpatient	2.02	.49-8.30
Outpatient (referent)	1.00	--
Primary Service Line		
Intensive/Surgical care	.32	.06-1.80
Emergency	.37	.06-2.17

General Medical Wards	.42	.08-2.29
Oncology	1.44	.28-7.57
Psychiatry	.69	.12-3.81
Outpatient Services (referent)	1.00	--
Age Group Served		
Primarily Adults	1.53	.85-2.77
Primarily Pediatrics (referent)	1.00	--
Primary Shift		
Days	1.16	.40-3.39
Nights	1.62	.54-4.86
Other (e.g., rotation) (referent)	1.00	--
Typical Shift Length		
Less than 10 hours (referent)	1.00	--
10 hours or greater	2.16	.96-4.90
Time Worked in Current Location		
Less than 6 months	.83	.22-3.13
7 months to 1 year	2.14	.57-7.96
2 to 5 years	.76	.31-1.86
6 to 10 years	1.23	.40-3.81
Greater than 10 years (referent)	1.00	--
Length of Time Practiced in Discipline		
Less than 6 months	.66	.14-3.10
7 months to 1 year	.32	.08-1.31
2 to 5 years	1.14	.45-2.88
6 to 10 years	1.08	.42-2.80
	OR	95% CI
Greater than 10 years (referent)	1.00	--
Primary Service Line		
Intensive/Surgical care	.32	.06-1.80
Emergency	.37	.06-2.17
General Medical Wards	.42	.08-2.29
Oncology	1.44	.28-7.57
Psychiatry	.69	.12-3.81
Outpatient Services (referent)	1.00	--
Age Group Served		
Primarily Adults	1.53	.85-2.77
Primarily Pediatrics (referent)	1.00	--

Tobacco Use		
Ever Used Tobacco Products (Yes)	.93	.53-1.64
Never Used Tobacco Products (No) (referent)	1.00	--
Last Alcohol Use		
Past 7 days (referent)	1.00	--
1-4 weeks ago	1.13	.57-2.22
1-3 months ago	.31**	.14-.67
More than 4 months ago	.41*	.19-.88
Never	.45	.19-1.08

*P<.05, **P<.01

Figure 1: Self-Reported Experiences with Behavioral Health Problems

Self-Reported Experiences with Behavioral Health Problems
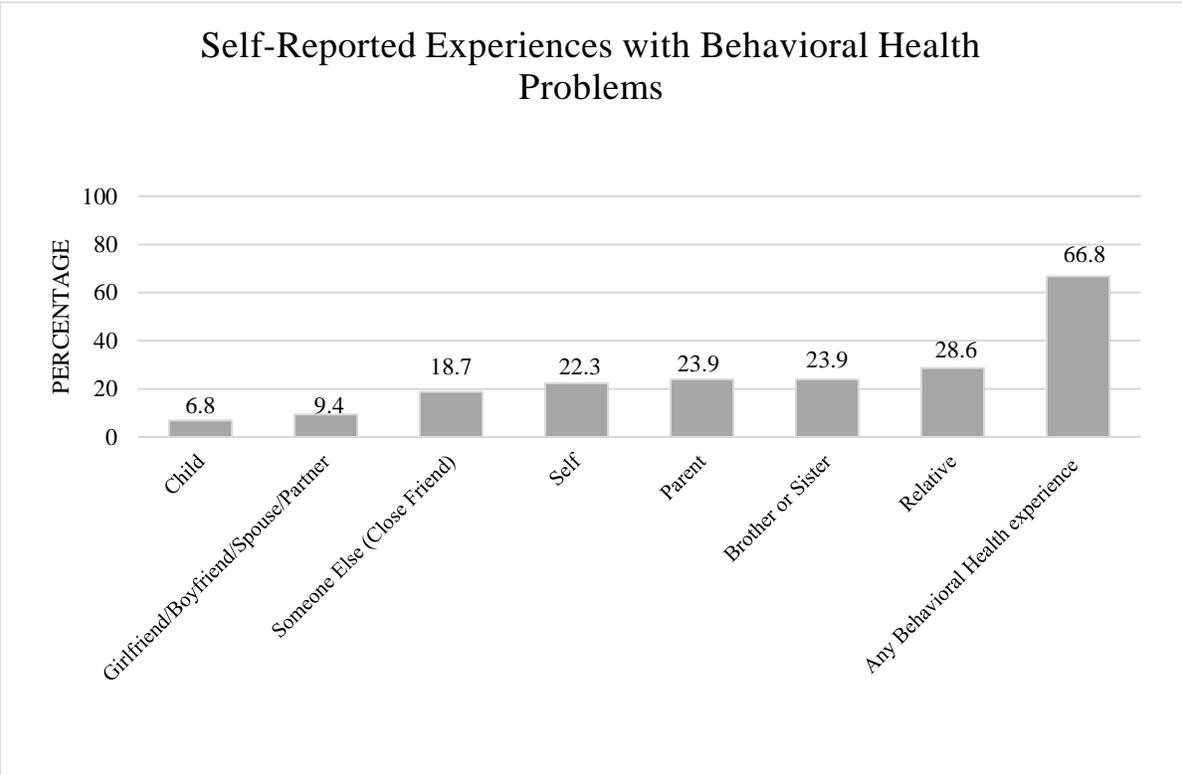
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Appendix A

Online Survey Questions

Q1.   What is your current age?

- o   18 to 25 years

- o   26 to 25 years

- o   36 to 50 years

- o   51 to 65 years

- o   66 years or older

Q2.   What is your gender?

- o   Male

- o   Female

- o   Non-binary/third gender

Q3.   What would you consider yourself?

- o   Straight/Heterosexual

- o   Lesbian

- o   Gay

- o   Bisexual

- o   Prefer to Describe _____

- o   Prefer Not to Say

Q4.   What is the highest grade or year of school you have completed?

o   High School Graduate or GED

o   Some College/Vocational/Trade School Degree

o   College Graduate

o   Post Graduate Degree

Q5.   What is your marital status?

o   Married, living with spouse

o   Member of an unmarried couple

o   Divorced/Separated

o   Single, never married

o   Other (please specify) _____

Q6.   Do you have any children living with you?

o   Yes

o   No

Q7.   Have you ever used any tobacco products?

o   Yes

o   No

Q7a.   Have you used any tobacco products in the past 30 days?

o   Yes

o   No

Q8.   On a scale of 0 being 'never' and 10 being 'all the time,' how often would you say that

you are exposed to secondhand tobacco smoke?

___0 ___1 ___ 2 ___3 ___4 ___5 ___6 ___7 ___8 ___9 ___10

Q9.   When was the last time you used alcohol?

o   Within the past 7 days

o   Between 1-4 weeks ago

o   Between 1-3 months ago

o   Between 4-12 months ago

o   More than 12 months ago

o   Never

Q10.   How many standard drinks containing alcohol do you have on a typical day?

o   1 or 2

o   3 or 4

o   5 or 6

o   7 or 9

o   10 or more

Q11.   How often do you have six or more drinks on one occasion?

o   Never

o   Less than monthly

o   Monthly

o   Weekly

o   Daily or almost daily

Q12.   On average, how many hours of sleep do you obtain in a 24-hour period?

o   4 hours or less

o   5 to 6 hours

o   7 to 8 hours

o   More than 8 hours

Q13.   One a scale of 0 being 'worst possible sleep,' and 10 being 'best possible sleep,' how would you rate your quality of sleep?

___0 ___1 ___ 2 ___3 ___4 ___5 ___6 ___7 ___8 ___9 ___10

Q14.   In the past week, on how many days have you done a total of 30 minutes or more of physical activity, which was enough to raise your breathing rate? This may include sport, exercise, and brisk walking or cycling for recreation or to get to and from places, but should not include housework or physical activity that may be part of your job.

o   No days in the past week

o   1 day in the past week

o   2 days in the past week

o   3 days in the past week

o   4 days in the past week

o   5 days in the past week

- o 6 days in the past week

- o 7 days in the past week

Q15. Which shift do you primarily work?

- o Days

- o Nights

- o Other (please specify) _____

Q16. What is the typical length of your work day?

- o 8 hours

- o 12 hours

- o Other (please specify) _____

Q17. Are you involved in creating your own work schedule?

- o Yes

- o No

Q18. What is your disciplinary background or job role? Are you:

- o Physician (MD)

- o Physician (DO)

- o Psychiatrist (MD)

- o Physician Assistant

- o Registered Nurse (ADN)

- Registered Nurse (BSN)

- Registered Nurse (MSN/PhD)

- Licensed Practical Nurse (LPN)

- Advanced Practice Registered Nurse (Nurse Practitioner/Clinical Nurse Specialist)

- Advanced Practice Registered Nurse (DNP)

- Social Worker (LCSW)

- Social Worker (CSW)

- Psychologist (PhD)

- Psychologist (PsyD)

- Psychologist (LPP)

- Nursing Care Technician/Patient Care Technician/Clinical Services Technician

- Certified Nursing Assistant/State Registered Nursing Assistant/Mental Health Associate/Patient Safety Companion

- Physical Therapy

- Occupational Therapy

- Recreational Therapy

- Other (please specify) _____

Q19. In which setting of UKHealthCare do you primarily work (i.e. 50% or more of your time)

- UK Chandler Intensive Care Services

- UK Chandler Emergency Department

- UK Chandler General Med-Surge Floors

- UK Markey Cancer Center

- UK Children's Hospital General Floors

- UK Children's Hospital Intensive Care Services

- Eastern State Hospital

- Central Kentucky Recovery Center Samaritan

- Hospital (Behavioral Health) Samaritan

- Hospital (Intensive Care Services) Samaritan

- Hospital (Emergency Services) Samaritan

- Hospital (General Med-Surge Floors)

- Outpatient (please specify) _____

Q20. Four how long have you worked at your specific work location?

- Less than 6 months

- 7 months to 1 year

- 2 to 5 years

- 6 to 10 years

- Greater than 10 years

Q21. For how long have you practiced in your discipline?

- Less than 6 months

- 7 months to 1 year

- 2 to 5 years

- 6 to 10 years

- Greater than 10 years

Q22. Have you, a family member, or close friend ever been diagnosed with a behavioral health (mental health, substance use disorder, drug use, or addictions) problem? Check all that apply.

- o Yes, myself

- o Yes, my girlfriend/boyfriend/spouse/partner

- o Yes, one of my parents

- o Yes, one of my brothers or sisters

- o Yes, one of my children

- o Yes, one of my relatives

- o Yes, someone else (e.g. a close friend)

- o No

- o Prefer not to say