Motivation to Provide Care to Patients with At-risk Alcohol and Opioid Use:

A Focus on Nursing Professionals

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University of Pittsburgh, 2019

Background: Alcohol and opioid (AO) use problems present a global public health issue that contributes to deaths as well as economic and social burden. Objectives: This study aimed to examine the relationship between nurses' demographic/background characteristics, personal attitudes, professional attitudes and their motivation to provide care to patients who use AOs. In addition, the study aimed to identify demographic/background and personal and professional attitudinal predictors of nurses' motivation to provide care for patients who use AOs (AOmotivation). Methods: A descriptive, correlational design was used. Nurses were recruited from four hospital settings and four national nursing organizations. Nurses' demographic/background characteristics, personal attitudes, professional attitudes, and motivation to provide AO-related were measured using an investigator-developed questionnaire as well as established personal and professional attitudinal subscales that targeted their perceptions related to alcohol and opioid use problems. Results: Demographic/background characteristics associated with AO-motivation were primary workplace and specialization. All personal attitudes were associated with nurses' motivation to provide care for patients who use AOs with the exception of the psychosocial model. In addition, all professional attitudes were associated with nurses' AO-motivation. Moreover, the AO-motivation model demonstrated that working in community-based setting, perceived dangerousness, perceptions related to the disease model, work experience with substance use and work satisfaction were significant predictors of nurses' motivation to provide AO-related care. Conclusions: The study demonstrated that there were demographic/background, personal and professional predictors of nurses' motivation to provide AO-related care. The findings of this study can facilitate the development of interventions designed to target nurses' motivation in order to promote the transfer of AO-acquired knowledge and skills into clinical practice, and to foster the implementation of AO-preventive measures.

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Preface

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1.0 PROPOSAL

1.1 SPECIFIC AIMS

Worldwide, substance use is considered a public health issue that significantly contributes to the global burden of disease, and increases the risk for injury, chronic disease, and premature death (Centers for Disease Control and Prevention [CDC], 2015; World Health Organization [WHO], 2018a; WHO, 2018b; WHO, 2019; WHO, 2018c; National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2019). Early identification and delivery of appropriate treatment to patients with at-risk use is considered one of the most effective ways to reduce the associated negative health and societal consequences and enhance the well-being of individuals and populations (McLellan, 2017; Substance Abuse and Mental Health Services Administration [SAMSHA], 2017). Nurses have always been in the forefront tackling critical health issues and taking the lead in addressing health inequity and disparities among vulnerable populations. Whether they are working in acute care settings, long-term care settings, or more general settings (i.e., school and community settings), nurses have been a driving force in implementing changes to meet current health challenges and demands. Thus, nurses, as the largest group of healthcare providers (approximately 4 million nurses in the United States) (American Nurses Association [ANA], 2018), have been proposed to be a key partner in the World Health Organization (WHO) and Institute of Medicine (IOM) strategies for addressing alcohol and opioid (AO) use through early identification, brief intervention and referral to treatment implementation (Naegle, 2017; Woolf & Aron, 2013; WHO, 2018d).

However, nurses often report that they feel unprepared and lack the knowledge and skills needed to provide care for patients who use AOs. According to Savage, Dyehouse, and Marcus (2014), pre-licensure nurses have reported receiving 11.3-hours of alcohol and other drug education on average, in which most of the content targeted treatment modalities for substance use disorders.

In addition to being unprepared, healthcare providers, including nurses, have often endorsed negative perceptions and attitudes toward patients with substance use problems (Corrigan et al. 2017a, Corrigan et al., 2017b). Healthcare providers' low motivation to provide care to these patients can also result in delays in the identification of substance use problems, access to healthcare services, and effective treatments and increase the likelihood of them dropping out of treatment (Naegle, 2017; Neville & Roan, 2014). Thus, nurses who are educationally unprepared to provide care to patients who use AOs, as well as nurses who endorse negative perceptions, can pose an increased risk of harm to patients' safety by not screening for AO use, consequently delaying access to treatment. This can then result in further increasing health inequities and disparities among this patient population. Patients with AO use problems place their trust in nurses, the most trusted healthcare professional group (Gallup, 2019), to provide them with the utmost quality of care. Nurses who do not screen patients for AO use can delay their identification, access to treatment, and cause an increased risk of harm, resulting in negative treatment outcomes.

With the current rise in opioid overdose deaths and its being recognized as a national emergency, nurses can no longer stand on the sideline. It is time for nurses in healthcare settings and organizations to take a more active role in reducing health inequity and disparity within this vulnerable patient group. It is also the time for nurses to recognize that AO use care can no longer be confined within specialized care settings or provided by specialized addiction-trained nurses. It is the ethical duty and professional responsibility of every nurse to be prepared with the necessary

education and skill set required to meet the complex healthcare demands associated with AO use regardless of healthcare setting.

Research has identified several factors that may contribute to low motivation among healthcare providers, including nurses. Demographic/background characteristics, personal attitudes, and professional attitudes are believed to be associated with nurses' motivation and willingness to work with patients who use AOs (Crothers & Dorrian, 2011; Ford, Bammer & Becker, 2008; Ford, Bammer & Becker, 2009; Skinner, Roche, Freeman & Addy, 2005; Skinner, Roche, Freeman & Mckinnon, 2009). These same characteristics are also thought to influence their willingness to screen for, provide brief interventions to, and refer patients in need of further treatment. Previous studies have assessed separately, the differences between healthcare providers (HCPs) working in general settings and more specialized settings (i.e., psychiatric mental-health and addiction specialized settings) and their personal attitudes (stigma perceptions) associated with specific substances, their motivation to work with patients who use substances, their attitudes, perceptions, and practices of alcohol and other drug (including opioid) screening, and their perceptions of role responsibility for addressing substance use problems within their workplace (Amaral-Sabadini, Saitz & Souza-Formigoni, 2010; Bendtsen & Åkerlind, 1999; Dumenco et al., 2019; Ford et al., 2008; Ford et al., 2009; Jacka, Clode, Patterson & Wyman, 1999; Kuthy, McQuistan, Riniker, Heller & Qian, 2005; Lock, Kaner, Lamont & Bond, 2002; Mahmoud et al., 2019; Meltzer et al., 2013; Mundon, Anderson & Najavits, 2015; Nash et al., 2017; Natan, Beyil & Neta, 2009; Neville & Roan, 2014; van Boekel, Brouwers, van Weeghel & Garretsen, 2014). However, these studies have not examined the relationship between nurses' demographic/ background characteristics, personal attitudes, professional attitudes, and their motivation to provide care to this patient population; nor have they examined the differences in addiction-trained nurses, psychiatric-mental health nurses, and general medical-surgical nurses' motivation to work with patients who use AOs. Therefore, the purpose of this study is to increase our understanding of nurses' motivation to provide AO-related care by identifying the factors that may influence it. Hence, <u>we specifically aim</u> to:

Aim 1: Conduct a literature review to explore factors influencing healthcare providers' motivation to provide care for patients with substance use problems.

Aim 2: Conduct a descriptive correlational pilot study to explore the relationship between nurses' demographic/background characteristics, personal attitudes (stigma perceptions), professional attitudes and their motivation to provide care to patients who use AOs as well as among the study's key variables.

2a: Determine the feasibility of conducting a larger study in the future by assessing the overall recruitment rate, the monthly accrual rate, and the survey completion time as a measure of participants' burden.

2b: Describe nurses' demographic/background characteristics, personal attitudes, and professional attitudes and their motivation to provide care to patients who use AOs.

2c: Explore the mean differences between behavioral health nurses' (psychiatric-mental health nurses and addiction-trained nurses) who have had specialized substance use education and training and work experience, and general nurses (medical-surgical nurses) who have not had specialized substance use education and training nor work experience in terms of their demographic/background characteristics, personal attitudes, professional attitudes and motivation to provide AO-related care.

2d: Explore the bivariate relationships between nurses' demographic/background characteristics, personal attitudes, and professional attitudes and their relationship to motivation to provide care to patients who use AOs as well as among the study's key variables.

Aim 3: Conduct an online nationwide study to examine the relationship between nurses' demographic/background characteristics, personal attitudes, professional attitudes and their motivation to provide care to patients who use AOs.

3a: Describe nurses' demographic/background characteristics, personal attitudes, and professional attitudes and their motivation to provide care to patients who use AOs.

3b: Examine the difference in demographic/background characteristics, personal attitudes, professional attitudes and motivation to provide AO-related care between behavioral nurses (psychiatric mental-health and addiction-trained nurses) and non-behavioral health (medical-surgical) nurses.

3c: Examine the bivariate relationships between nurses' demographic/background characteristics, personal attitudes, and professional attitudes and their relationship to motivation to provide care to patients who use AOs as well as among the study's key variables.

1.2 BACKGROUND AND SIGNIFICANCE

1.2.1 Background

1.2.1.1 Prevalence and economic impact of alcohol and opioid (AO) use

Alcohol and other drug use contribute to the global burden of disease and increases risk for injury and premature death (WHO, 2018a; WHO, 2018b). Alcohol use is among the top four factors contributing to increased morbidity and mortality rates as well as global burden of disease

and is linked to more than 200 physical and psychological diseases (WHO, 2018a; WHO, 2018d). According to the World Health Organization, alcohol use causes death and disability relatively early in life. In the age group 20–39 years, approximately 13.5 % of the total deaths are alcohol-attributable (WHO, 2018a). In addition, every year 88,000 Americans die of an alcohol use-related problem (CDC, 2015; NIAAA, 2019). Globally, 5.1 % of the global burden of disease and injury assessed in disability-adjusted life years is attributed to alcohol use and costs the United States \$249 billion per year in lost productivity, healthcare expenses, and law enforcement costs (SAMSHA, 2016; WHO, 2018a).

Moreover, 275 million people use illicit drugs and 31 million individuals suffer from drug use disorders (WHO, 2018b). In the United States, drug overdoses resulted in more than 700,000 deaths between 1999 and 2017, with approximately 57.0% of those deaths involving opioids (CDC, 2018). In 2017, 68% of 70,200 drug overdose-related death involved opioids (CDC, 2018). On average, more than 130 individuals die every day due to an opioid overdose in the United States (CDC, 2018). The current opioid epidemic is mainly driven by synthetic opioids such as Fentanyl (CDC, 2019a). In fact, in 2016 synthetic opioid overdoses surpassed opioid prescription deaths in the United States and were involved in 50% of all opioid deaths, compared to 14 % in 2010 (National Institute of Drug Abuse [NIDA], 2018). Despite the increasing prevalence of AO use problems, existing healthcare systems are often not prepared to provide care for these patients (via early screening and intervening). As a result, patient's AO-health related problems are often not recognized, and their needs are not adequately addressed within the healthcare system. Therefore, it is imperative for all nurses to learn how to and begin to assess patients for their alcohol and opioid use.

1.2.1.2 Efficiency of screening, brief intervention and referral to treatment (SBIRT) at reducing substance use

One of the most effective ways to reduce the negative health, social, and economic costs associated with AO use problems is early identification and delivery of appropriate treatment. Screening, brief intervention, and referral to treatment (SBIRT) is an evidence-based approach that is recommended to identify patients with at-risk alcohol use and provides brief interventions to reduce the risks associated with alcohol use (SAMSHA, 2011). SBIRT has been recognized as one of the most cost-effective preventive approaches for patients exhibiting alcohol use related problems (Pringle, Kowalchuk, Meyers & Seale, 2012; Young et al., 2014). For each dollar invested, SBIRT implementation saves more than \$4 and \$1000 in primary care and emergency related and hospital related costs, respectively (Mertens et al., 2015). In addition, extensive literature has demonstrated SBIRT efficiency at reducing long-term health consequences (i.e. decrease alcohol consumption, hospital length of stay and emergency department visits) associated with alcohol use in both primary and emergency care settings (Harris & Yu, 2016; Pringle et al., 2012; van Boekel, Brouwers, van Weeghel & Garretsen, 2013; Young et al., 2014). In fact, the U. S. Preventive Services Task Force recommends that all healthcare providers, including nurses, screen their patients for their alcohol use and, if indicated, provide brief intervention or referral to treatment to help reduce negative consequences associated with at-risk alcohol use (U.S. Preventive Services Task Force, 2018).

Despite SBIRT's effectiveness at reducing alcohol use and the recommendations of numerous national organizations for its implementation, nurses and other healthcare providers (HCPs) rarely implement SBIRT (Holland, Pringle & Barbetti, 2009; Mertens et al., 2015). Only 16% of HCPs assess their patients for AO use, less than 15% of patients who exhibited at-risk AO use are advised about their problematic use, while more than 50% of the patients in substance use

specialty treatment have stated that their healthcare provider did not do anything about their AO use problems (Amaral-Sabadini et al., 2010; Hingson, Heeren, Edwards & Saitz, 2012; McKnight-Eily et al., 2014).

1.2.1.3 Factors associated with healthcare providers' motivation to provide care

Nurses can be a key partner in the WHO and IOM strategies for addressing AO use through implementation of early identification, brief intervention, and referral to treatment as necessary (Naegle, 2017; Woolf & Aron, 2013; WHO, 2017d). Recent studies that have examined the impact of introducing SBIRT education and skill development (i.e. clinical training) into the nursing curricula found that SBIRT education and skill development has positive outcomes on participants' attitudes, beliefs and/or perceptions towards patients who use alcohol and increased their perceived knowledge (Baxter et al., 2014; Mahmoud et al., 2019; Mitchell et al, 2017; Mitchell et al., 2016; Mitchell et al., 2013; Nash et al, 2017; Puskar et al., 2013; Puskar et al., 2016a; Puskar et al., 2016b). However, students' motivation to provide care to patients who use alcohol and/ or opioids has often not been affected by the skill development (Mahmoud et al., 2019; Mitchell et al., 2017; Nash et al., 2017; Puskar et al., 2016a; Puskar et al., 2016b) and in some cases, their motivation has even decreased after alcohol use-related education (Mitchell et. al., 2016; Puskar et al., 2013). Nurses low motivation has been linked with delays in substance use problem identification, access to healthcare services, and further, increased the likelihood of patients dropping out of treatment (Naegle, 2017). Thus, it is imperative to explore the factors that are associated with nurses' motivation to provide care to patients who use AOs. Previous studies that have assessed nurses' attitudes identified a number of factors that are thought to influence nurses' motivation to work with this patient population. These factors can be grouped into three

main categories: demographic/background characteristics, personal attitudes, and professional attitudes (Skinner et al., 2009).

1.2.1.4 Demographic/background characteristics

Previous studies have explored the relationship between specific nurses' demographic/background characteristics, personal attitudes (stigma perceptions), professional attitudes and providers' motivation. Demographic/background characteristics that are associated with healthcare providers' motivation to work with patients with at-risk substance use include: age, gender, discipline of provider, and primary work setting/specialty. Nine studies have reported the association of age with motivation (Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Kuthy et al., 2005; Lev-Ran, Adler, Nitzan & Fennig, 2013; Lightfoot & Orford, 1986; Silins, Conigrave, Rakvin, Dobbins & Curry, 2007; Vadlamudi, Adams, Hogan, Wu & Wahid, 2008). In four studies, younger HCPs have been found to be more willing to work with patients with at-risk substance use (Crothers & Dorrian, 2011; Kuthy et al., 2005; Lightfoot & Orford, 1986; Silins et al., 2007). However, older healthcare providers have reported a higher level of confidence in implementing substance-related care and perceived substance use-related treatment as more effective but have been less likely to question their patients about their drug use (Jacka et al., 1999; Lev-Ran et al., 2013). Seven studies have reported on gender (Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Kuthy et al., 2005; Meltzer et al., 2013; Mundon et al., 2015; Silins et al., 2007). Although male providers have expressed greater comfort and confidence toward working with substance use-related problems and have had fewer negative perceptions or emotional response, they are less likely to be interested in pursuing a career in the addiction field, compared to their female counterparts (Jacka et al., 1999; Kuthy et al., 2005; Mundon et al., 2015; Silins et al., 2007).

Seven studies have reported on discipline of provider (Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Johansson, Bendtsen & Åkerlind, 2002; Lightfoot & Orford, 1986; Lock et al., 2002; Skinner et al., 2005; Wechsler & Rohman, 1982). Accordingly, motivation to provide substance use-related care varied by healthcare providers' discipline (Bendtsen & Åkerlind, 1999; Johansson et al., 2002; Lightfoot & Orford, 1986; Lock et al., 2002; Skinner et al., 2005; Wechsler & Rohman, 1982). Nurses are less likely to screen for alcohol use-related problems, compared to general practitioners (GPs) (Johansson et al., 2002). In addition, social workers have reported less awareness of the resources available to help patients with alcohol use problems, compared to nurses (Lightfoot & Orford, 1986). Weschler and Rohman (1982) found that medical students have reported the greatest willingness to work with patients with alcohol use problems, while social workers and counseling students have reported the least willingness. In spite of this high level of willingness to work with patients with alcohol use problems, medical students are the least willing, among all the four students' groups, to devote time for the care of patients with alcohol use problems. This lack of investment may indicate that medical students' motivation stem primarily from ethical duty rather than genuine interest in providing care to these patients.

Finally, nine studies have reported on providers' work setting/specialty (Cartwright, 1980; Ford et al., 2008; Ford et al., 2009; Lev-Ran et al., 2013; Lightfoot & Orford, 1986; Mundon et al., 2015; Silins et al., 2007; van Boekel et al., 2013; Wakeman, Baggett, Pham-Kanter & Campbell, 2013). Work setting/specialty is found to be associated with providers' motivation. For example, providers who work in an ambulatory setting rated their addiction training as good/excellent compared to those working in outpatient clinic or in-patient clinic (Wakeman et al., 2013). However, Lev-Ran and colleagues (2013) reported that there is no difference in substance use-related attitudes between physicians working in community and those working in hospitals. Providers specialized in alcohol and other drugs (AOD) have more positive attitudes towards AOD use problems compared to those working in a community setting (Cartwright, 1980). In Ford and colleagues' studies (2008; 2009), the authors found that nurses who are specialized in AOD or midwives and in maternal and child health practices have greater motivation compared to other practice groups. In addition, healthcare providers working in addiction and psychiatric-mental health fields report greater willingness and motivation to work with patients who use AOD, compared to GPs and other specializations (Lev-Ran et al., 2013; van Boekel et al., 2013). This finding is to be expected since those who work in addiction and/or psychiatric-mental health are more frequently exposed to this patient population and report receiving ample support and training related to substance use in these setting (Cartwright, 1980).

1.2.1.5 Personal attitudes

Across the set of studies, the results associated with attitudes that significantly influence nurses' and other HCPs' motivation correspond to two broad categories, personal attitudes and professional attitudes (Skinner et al., 2009). Based on the literature, personal attitudes are categorized into four main categories: familiarity and personal AOD-related experiences, perceptions related to AOD-condition and treatment, fear and perceived dangerousness, and AOD-related stereotypical perceptions.

Familiarity and personal AOD-related experiences have been reported in ten studies (Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Lock et al., 2002; Nash et al., 2017; Shepherd, Young, Clarkson, Bonetti & Ogden, 2010; Vadlamudi et al., 2008; Wakeman et al., 2013; Wechsler & Rohman, 1982). According to Lock and colleagues (2002), participants express hesitancy in working with patients with alcohol use problems because

of their own use. Yet, three studies have reported that providers' own AOD use is not associated with their motivation and therapeutic commitment toward patients who use drugs or their readiness to implement AOD-related preventive measures (Amaral-Sabadini et al., 2010; Ford et al., 2008; Ford et al., 2009). Participants in the study by Crothers and Dorrian (2011) who have reported drinking more than 2 standard drinks have expressed greater levels of personal attitudes (i.e. negative perceptions) toward alcohol use compared to those who did not drink.

Perceptions-related to AOD-condition and treatment has been reported in ten studies (Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Crothers & Dorrian, 2011; Jacka et al., 1999; Lev-Ran et al., 2013; Mundon et al., 2015; Natan et al., 2009; Vadlamudi et al., 2008; van Boekel et al., 2013; Wechsler & Rohman, 1982). Clinicians who attribute the cause of the AOD use-related problems to patients' weak will and their failure to sustain treatment to their inability to control their condition are more likely to be less willing to provide care to patients with AOD use problems (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; van Boekel et al., 2013; Wechsler & Rohman, 1982). Jacka and colleagues (1999) also state that a key factor in how providers' managed patients with AOD use problems is associated with patients' perceiving their own AOD use as a problem. However, some clinicians still believe that, although patients may be responsible for their condition, they still deserve high-quality care (Natan et al., 2009).

The expression of feelings of fear and perceived dangerousness related to AOD use problems has been reported in four studies (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; Natan et al., 2009; Neville & Roan, 2014). Accordingly, feeling afraid to work with patients who have AOD use problems and greater perceived dangerousness have been linked with poorer willingness and motivation to work with those patients (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; Natan et al., 2009; Neville & Roan, 2014). In addition, HCPs have reported concerns regarding contracting contagious diseases such as hepatitis and HIV when working with patients who have substance use problems (Natan et al., 2009).

Stereotypical perceptions related to AOD use are noted in 22 studies (Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Hettema, Sorensen, Uy & Jain, 2009; Jacka et al., 1999; Johansson et al., 2002; Lev-Ran et al., 2013; Lindberg, Vergara, Wild-Wesley & Gruman, 2006; Lock et al., 2002; Meltzer et al., 2013; Mundon et al., 2015; Natan et al., 2009; Neville & Roan, 2014; Nordqvist, Johansson, Lindqvist & Bendtsen, 2006; Shepherd et al., 2010; Silins et al., 2007; Skinner et al., 2005; Vadlamudi et al., 2008; van Boekel et al., 2013; Wechsler & Rohman, 1982). These studies reveal that healthcare providers who endorsed stereotypical perceptions related to AOD use (i.e. stigma perceptions) are less willing to screen for and provide healthcare services to patients who use AOD compared to other patient populations (Amaral-Sabadini et al., 2010; Ford et al., 2008; Ford et al., 2009; Lindberg et al., 2006; Lock et al., 2002; Mundon et al., 2015; Natan et al., 2009; Neville & Roan, 2014; Wechsler & Rohman, 1982). Stereotypical perceptions are also linked to lower quality of care provided to this patient population (Lev-Ran et al., 2013; Natan et al., 2009).

1.2.1.6 Professional attitudes

Professional attitudes are divided into five main factors: basic role requirement, overall therapeutic attitudes, perceived role responsibility, perceived self-efficacy, and situational constrains. Basic role requirement, which consists of AOD-related work experience, role support, AOD education, and general self-esteem has been reported in 21 studies (Albery et al., 2003; Cartwright, 1980; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Kuthy et al., 2005; Lightfoot & Orford, 1986; Lock et al., 2002; Meltzer et al., 2013; Mundon et al., 2015; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Nordqvist et al., 2006; Silins

et al., 2007; Skinner et al., 2005; Vadlamudi et al., 2008; van Boekel et al., 2013; Wakeman et al., 2013; Wechsler & Rohman, 1982). AOD-related work experience has been positively associated with a higher motivation level among healthcare providers (Albery et al., 2003; Cartwright, 1980; Kuthy et al., 2005; Lightfoot & Orford, 1986; Mundon et al., 2015; Silins et al., 2007; Vadlamudi et al., 2008; van Boekel et al., 2013). On the other hand, three studies report that previous negative experience with AOD use problems and years of experience as a nurse impact their willingness and preparedness to provide care to this population (Ford et al., 2008; Lock et al., 2002; Wakeman et al., 2013). As a result, increasing exposure to AOD use problems may not be enough to enhance providers' motivation. The context in which the patient encounter takes place may also play an important part in shaping HCPs perceptions and willingness to work with patients with AOD use-related problems.

Role support, in several studies, is also found to be an important influential factor of providers' motivation (Albery et al., 2003; Cartwright, 1980; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Lightfoot & Orford, 1986; Skinner et al., 2005). Role support also has an indirect effect on AOD use-related motivation through the mediation of AOD education and training, role legitimacy, role adequacy, and situational constraints on providers' motivation (Albery et al., 2003; Ford et al., 2008; Ford et al., 2009). Two studies that have examined the impact of drug use-related education on nurses' motivation found that education is counterproductive when nurses' perceived role support is low (Ford et al., 2008; Ford et al., 2009). In three studies, education has been associated with higher self-esteem, greater satisfaction, and motivation to provide drug-related care only when role support levels are moderate to high (Albery et al., 2003; Cartwright, 1980; Ford et al., 2009). The effect of education on HCPs' therapeutic commitment and motivation has been found to be potentiated by moderate to high levels of role support (e.g. formal supervision

and/or informal colleague support) (Ford et al., 2009). Thus, role support is considered a key factor in AOD use-related acquired knowledge and skills transfer into clinical practice.

The direction of the association between AOD education and providers' motivation is not clear. In six studies, AOD education is positively associated with greater willingness and motivation among healthcare providers (Albery et al., 2003; Ford et al., 2008; Lightfoot & Orford, 1986; Skinner et al., 2005; Wakeman et al., 2013; Wechsler & Rohman, 1982). However, in the Cartwright (1980) study, the association between AOD education and providers' attitudes is contingent upon providers' perceived role support and experience level. The relationship of AOD education and providers' attitudes is mediated by healthcare providers' perceived role support (Ford et al., 2009). In those reports, the authors convey that the effect of AOD education on HCPs' motivation is negated when role support to implement preventive AOD use measures in the workplace was low (Ford et al., 2009). These mixed results highlight the need to conduct studies that more precisely examine the relationship between AOD use-related education and healthcare providers' motivation. General self-esteem is also found to impact providers' therapeutic attitudes and AOD-motivation, but to a lesser degree than AOD-experience, role support, and AODeducation (Albery et al., 2003; Cartwright, 1980; Lightfoot & Orford, 1986). According to Cartwright (1980), the impact of providers' general self-esteem on therapeutic attitudes towards alcohol use depends upon their perceived role support and level of experience.

Findings related to overall therapeutic attitudes, which consist of role adequacy, role legitimacy, task-specific self-esteem, work satisfaction and motivation, have been reported in 25 studies (Albery et al., 2003; Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Kuthy et al., 2005; Lev-Ran et al., 2013; Lightfoot & Orford, 1986;

Lindberg et al., 2006; Lock et al., 2002; Meltzer et al., 2013; Mundon et al., 2015; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et al., 2007; Skinner et al., 2005; Wakeman et al., 2013; Wechsler & Rohman, 1982). Overall therapeutic attitudes have been positively associated with healthcare providers' motivation (Albery et al., 2003; Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Johansson et al., 2002; Nash et al., 2017; Skinner et al., 2005). Specifically, role adequacy has been found to be positively associated with motivation (Albery et al., 2003; Nash et al., 2017; Skinner et al., 2005). However, participants report that although they have the necessary knowledge and skills set to provide care to patients with AOD use problems, they still feel uncomfortable to treat this patient population (Natan et al., 2009). Role legitimacy has also emerged as a strong predictor of providers' AOD-motivation, especially among nurses (Albery et al., 2003; Ford et al., 2008; Ford et al., 2009; Nash et al., 2017; Skinner et al., 2005). Furthermore, task-specific self-esteem has also been positively correlated with motivation among healthcare providers (Albery et al., 2003; Nash et al., 2017). Likewise, work satisfaction has also been positively associated with providers' motivation (Albery et al., 2003; Amaral-Sabadini et al., 2010; Nash et al., 2017; Skinner et al., 2005). In fact, Amaral-Sabadini and colleagues (2010) indicate that healthcare providers who have reported high levels of work satisfaction are 6.2 and 10.6 times more likely to implement preventive measures for alcohol use and drug use, respectively.

The association between providers' motivation and perceived role responsibility has been reported in six studies (Hettema et al., 2009; Jacka et al., 1999; Nash et al., 2017; Neville & Roan, 2014; Nordqvist et al., 2006; Silins et al., 2007). Ten studies have reported on perceived self-efficacy/confidence (Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Natan et al., 2009; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et

al., 2007; Vadlamudi et al., 2008). Perceived role responsibility and self-efficacy (or confidence) have also been positively associated with providers' motivation (Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et al., 2007; Vadlamudi et al., 2008). Only two studies have reported on situational constraints' association with AOD-related motivation (Albery et al., 2003; Lightfoot & Orford, 1986). Situational constraints have negatively influenced providers' motivation (Albery et al., 2003; Lightfoot & Orford, 1986). According to Albery and colleagues (2003), the association between situational constraints and therapeutic commitment, including motivation, is also mediated by role security (role adequacy and role legitimacy).

1.2.1.7 Conceptual framework

The proposed study is based on an adapted model of the Alcohol and Alcohol Problems Perception Questionnaire (AAPPQ) theoretical framework that is originally developed during the Maudsley Alcohol Pilot Project (MAPP), which was conducted in the United Kingdom (Shaw, Cartwright, Spratley & Harwin, 1978). Cartwright (1980) theorized that overall therapeutic attitude towards patients who use alcohol is associated with their two main concepts, role security and therapeutic commitment. Based on the theoretical framework, healthcare providers' who are therapeutically committed are more likely to be effective when working with patients with alcohol use problems (Cartwright, 1981). Thus, enhancing general healthcare providers' attitudes toward working with patients who alcohol can be achieved by focusing on their therapeutic commitment (Gorman & Cartwright, 1991). Therapeutic commitment consists of three factors: motivation, taskspecific self-esteem, and work satisfaction. This framework suggests that healthcare provider's therapeutic commitment depends on their degree of perceived role security (RS), which consists of role adequacy and role legitimacy. Furthermore, the HCPs' degree of RS depends on their basic role requirements (BRR), which consists of the following situational and individual factors: (1) training (results in development of necessary knowledge and skill set), (2) self-esteem, (3) perceived support, and (4) experience (Gorman & Cartwright, 1991). Thus, this framework proposes that being prepared with the necessary knowledge and clinical skills (training), feeling confident, perceiving support within workplace, and experience facilitate the development of role security, which subsequently translates into enhanced therapeutic commitment (increased motivation towards working with patients who have AOD use problems and greater work satisfaction and professional self-esteem) (Gorman & Cartwright, 1991).



Figure 1 The Relationship between Basic Role Requirements, Role Security, and Therapeutic Commitment Framework by Gorman & Cartwright (1991)[Permission from Author]

An adapted model from the MAPP theoretical framework will be used to examine the relationships between nurses' demographic/background characteristics, personal attitudes, professional attitudes and their motivation to provide AO-related care (Cartwright, 1981; Cartwright, 1980; Gorman & Cartwright, 1991; Shaw et al.1978). This adapted model will expand on the MAPP theoretical framework by further examining nurses' demographic/background characteristics, personal attitudes (stigma perceptions), perceived role responsibility, and

perceived self-efficacy (Cartwright, 1981; Cartwright, 1980; Gorman & Cartwright, 1991; Shaw et al.1978). This adapted model adds to previous work that targeted nurses' motivation and willingness to provide care for patients with drug use problems (Ford et al., 2008; Ford et al., 2009) (See Figure 2).



Professional Attitudes

1.2.2 Study Significance and Innovation

The proposed study is significant and innovative in the following ways:

- 1. The current study adds to the previous literature by examining nurses' demographic/background characteristics, personal attitudes, and professional attitudes and their relationships with nurses' motivation to work with patients who use AOs.
- 2. The proposed study data will provide information for determining effect sizes in future studies and provide data for hypothesis generation (point and interval estimation) and testing for larger scale future studies targeting nurses' AO-motivation.
- 3. Very little is known about nurses' willingness to work with patients who use AOs and the factors that are associated with it. Previous interventions that targeted changing nurses' AO-attitudes have had less impact on changing their motivation to work with these patients (Mahmoud et al., 2019; Mitchell et al., 2017; Mitchell et. al., 2016; Nash et al., 2017; Puskar et al., 2013; Puskar et al., 2016a; Puskar et al., 2016b). Thus, the outcome of this study will inform future intervention studies that can target nurses' motivation within nursing curricula (in educational settings) and through continuing and in-service education (in hospital or clinical settings), promote AO-related knowledge and skill transfer into clinical practice, and consequently, enhance SBIRT implementation.

1.2.2.1 Contribution to nursing regulations

We aim to inform Nursing Education and Practice Regulation by:

 Increasing our understanding of the factors that can impede nurses' motivation to transfer AO-acquired knowledge and skills into clinical practice. According to Ford and colleagues
(2009), education alone may not be sufficient to enhance nurses' motivation to provide care for patients who use AOs. Other factors (such as personal and professional attitudes) must also be recognized to enable future nurse educators and administrators to address nurses' motivation to provide care for these patients.

- 2. Nationwide, there is a current momentum to target undergraduate nurses' AO-related education in approximately 70 schools of nursing through an informal collaborative and in conjunction with both the Centers for Disease Control and Prevention (CDC) and the American Association of Colleges of Nursing (AACN). We will extend our understanding of the gap between current nursing AO education (i.e., pre-licensure) as well as AO-continuing and in-service education (for the current registered nurses (RN) workforce). Addressing these gaps can provide the groundwork for successful implementation of the WHO's and the IOM's strategies to enhance the identification and treatment of patients affected by substance use (Naegle, 2017; Woolf & Aron, 2013; WHO, 2018d).
- 3. Furthermore, due to recent guidelines that took place in July 2017 requiring new certified registered nurse practitioners (CRNP) to have four hours of opioid education and renewing CRNPs to have two hours of opioid education, the findings from this study will expand the scope of these guidelines to include AO-continuing and in-service education.

At the completion of this study, we will inform future nursing education and practice regulation by creating alcohol and opioid specific education and skill-building modules that can target AO use in three areas:

- 1. Pre-licensure education requirements for new RN graduates
- 2. Continuing education for new and renewing CRNPs
- 3. In-service education and skill-building for the current nursing workforce (working RNs)

1.3 METHODS

1.3.1 Study Design

The pilot feasibility study will utilize a descriptive correlational design to explore the relationship between nurses' demographic/background characteristics, personal attitudes, professional attitudes and their motivation to provide AO-related care. The online nationwide study will also utilize a descriptive correlational design to examine the bivariate relationship between nurses' demographic/background characteristics, personal attitudes and their motivation to provide AO-related care.

The proposed design will provide information about the associations between the variables of interest, specifically between personal attitudes and nurses' motivation to work with patients who use AOs. The data will form the basis for future confirmatory and intervention studies that can target nurses' motivation to work with this patient population

1.3.2 Sample

For the pilot feasibility study, nurses will be recruited from four-hospital settings from Southwestern Pennsylvania. The data collection will be conducted over a period of nine months between May 2018 to January 2019. Psychiatric-mental health nurses/behavioral health nurses will be recruited from all units of Western Psychiatric Hospital (WPH) and designated psychiatric and behavioral health units in UPMC Mercy. At the same time, medical-surgical nurses will be recruited from designated general medical-surgical units of UPMC Shadyside and UPMC McKeesport. Prior to conducting the study, University of Pittsburgh Institutional Review Board will approve this study. In addition, chief nursing officer's (CNO) approval will be obtained from each of the four hospitals. The principle investigator (PI) will also coordinate with the hospital's designated unit managers to gain access to meet potential participants interested in participating in this study. Flyers will be distributed throughout each hospital. Participants who meet the eligibility criteria will be invited to participate in the study using a paper form. Participants will be asked to complete the questionnaires at a single time point. The inclusion criteria for the pilot study will be: (1) currently working as a nurse in one of the four targeted hospital settings; and (2) being 18 years of age and older.

For the online nationwide study, nurses will be recruited from four national nursing organizations: The American Nurses Association (ANA), the American Psychiatric Nurses Association (APNA), the International Society of Psychiatric Nurses (ISPN), and the International Nurses Society on Addictions (IntNSA), These organizations are targeted because they represent the largest groups of general nurses (ANA: 173,000 members) and behavioral health nurses (APNA: 12,500; members; ISPN: 500 members; and IntNSA: 700 members). The combined total number of nurses affiliated with these organizations is more than 185,000 members nationwide. The inclusion criteria for the nationwide study will be: (1) currently a member in one of the four targeted professional nursing organizations listed above; and (2) being 18 years of age and older. The PI will coordinate with the four nursing organizations designated membership coordinators to send the online survey via their email lists to recruit potential participants. Nurses who express interest to participate in the study will receive a link to an anonymous online Qualtrics survey.

1.3.3 Measures

The variables of interest include: nurses' demographic/background characteristics (age, years of experience in nursing, gender, race, primary work setting, specialization, and highest degree obtained in nursing); personal attitudes (personal experience with substance use,

familiarity, perceived dangerousness, fear, social distance, personal responsibility beliefs, disease model and psychosocial model), and professional attitudes (basic role requirement, role security, therapeutic commitment, perceived role responsibility, and perceived self-efficacy); and their motivation to work with patients who use AOs. For personal and professional attitudes questionnaires, participants will be asked to complete two versions of the same questionnaire (one targeting alcohol use and the other targeting opioid use). Participants will also be asked to complete at one time point the following questionnaires, with completion of the questionnaires to take about 30-40 minutes:

1.3.3.1 Demographic/background characteristics

An investigator-developed questionnaire will be used to gather information on demographic/background characteristics. This questionnaire will include questions regarding age (years), experience in nursing (years), gender (female or male), race (Black or African American, Native Hawaiian/ Other Pacific Islander, Asian, Alaska Native, American Indian, or White), primary work setting (inpatient facility, outpatient facility, residential facility, community mental-health center, substance use treatment center, educational institution, administration, or emergency department), specialization (primary care, medical-surgical, substance use field, psychiatric mental-health, obstetrics/ gynecology, pediatrics, education, administration, emergency or other), and highest degree obtained in nursing (vocational/technical school certificate, 2-year college [Associate's level], 4-year college [Bachelor's level], graduate school [Master's level], or doctoral degree [Doctoral level, i.e. PhD or DNP]).

1.3.3.2 Personal attitudes

Personal experience with substance use will be measured using an investigatordeveloped questionnaire and will be categorized as no personal experience, any personal experience, personal experience with self, a friend, a family-member, a co-worker, or other personal experiences with substance use. For the nationwide online study, participants will be asked about their personal experience related to either alcohol or drug use problem. Participants will be asked to respond to each of these personal experience categories listed above by either yes ("1") or no ("0").

Familiarity defined as the extent of experience and level of knowledge related to mental illness (Holmes, Corrigan, Williams, Canar & Kubiak, 1999), will be measured using an adapted version of Corrigan and colleagues' (2003) seven-item subscale after replacing the "persons with mental illness" or "a severe mental illness" term with either "individuals with mild-to-moderate alcohol use problems/ a person with mild-to-moderate alcohol use problems/ has mild-to-moderate alcohol use problems" term or "individuals with mild-to-moderate opioid use problems/ a person with mild-to-moderate opioid use problems a person with mild-to-moderate opioid use problems. The opioid use problems are problemed to produce an overall subscale score that ranges from 7 to 14. Higher overall scores will indicate higher levels of familiarity with patients who have alcohol or opioid use problems. The original measure has demonstrated good internal consistency for patients with mental illness with Cronbach's $\alpha = .62$ (Corrigan et al., 2003).

Perceived dangerousness will be measured using a modified version of Link and colleagues' (1987) perceived dangerousness subscale. The subscale consists of eight items that will be used to measure participants' perceived dangerousness after replacing the term "former mental patient/ mental patients/ a mental patient/ mentally ill people" with either "individuals who formally had mild-to-moderate alcohol use problem/ a person who formally had mild-to-moderate alcohol use problem/ people with mild-to-moderate alcohol use problem." or "individuals who formally had mild-to-moderate opioid use problem/ a person who formally had mild-to-moderate opioid use problem people with mild-to-moderate alcohol use problem." Item scores will range between 0 ("strongly disagree") and 5 ("strongly agree") and will be summed to yield an overall subscale score that ranges from 0 to 40. Higher scores will indicate higher level of perceived dangerousness toward patients who have alcohol or opioid use problems. The original measure has demonstrated good internal consistency for patients with mental illness with Cronbach's $\alpha = .85$ (Link, Cullen, Frank & Wozniak, 1987).

Fear will be measured using an adapted version of the Corrigan and colleagues' (2003) fear subscale. The subscale consists of three items that will be used to measure participants' fear after replacing the character's name (i.e. Harry) with either "a person with mild-to-moderate alcohol use problem" or "a person with mild-to-moderate opioid use problem" term. Item scores will range between 1 ("not at all", "no, not at all") and 9 ("very much", "yes, very much") and will be summed to produce a subscale score ranging from 3 to 27. Higher scores will indicate higher levels of fear. An adapted version of the fear subscale has also demonstrated good internal consistency for alcohol use (Cronbach's $\alpha = .97$) and heroin use (Cronbach's $\alpha = .98$) (Janulis, Ferrari & Fowler, 2013).

Social distance will be measured using an adapted version of Link and colleagues' (1987) seven-item subscale, in which each of the seven items' character's name (i.e. Jim Johnson) will be replaced with "someone with mild-to-moderate alcohol use problems" or "someone with mild-to-moderate opioid use problems". Each item score will range between 0 ("definitely willing") and 3 ("definitely unwilling") and will be summed to yield a subscale score that ranges from 0 to 21. Higher scores will indicate higher desire for social distance. The original measure has demonstrated good internal consistency for patients with mental illness with Cronbach's $\alpha = .92$ (Link et al. 1987). In addition, an adapted version of the subscale has shown good internal consistency for alcohol use (Cronbach's $\alpha = .88$) and heroin use (Cronbach's $\alpha = .89$) (Janulis et al., 2013).

Responsibility for the Problem and Chances of Recovery: An adapted version of the two questions from the responsibility for the problem and chances of recovery questionnaire (Q13: "To what extent do you think that the following addictions depend on the individual or on circumstances beyond his/her control?" and Q14: "Whose responsibility is it, according to you, to see to it that persons who have ended up in dependence or abuse problems can leave those behind? Is it the individual's own responsibility or the society's responsibility?"), which were developed by Koski-Jännes, Pennonen and Simmat-Durand (2016), will be used in this study after replacing each of the two questions' "addictions/ dependence or abuse" term with the term "persons with mild-to-moderate alcohol use problem" or "persons with mild-to-moderate opioid use problem". The response choices for the first question will range between 1 ("Mainly on the person") and 4 ("Mainly on other circumstances"). For the second question, the response choices will also range between 1 ("Mainly the person's job") and 4 ("Mainly society's job"). The summation of the two questions will then be dichotomized as 0 (for scores of 3 and 4) and 1 (for scores of 1 and 2). In

both questions, higher scores will attribute the responsibility for the substance use problem and recovery to the person rather than the society (Koski-Jännes et al., 2016). The original measure has demonstrated good internal consistency and reliability (Koski-Jännes et al., 2016).

Disease model will be measured using an adapted version of the of the Short Understanding of Substance Abuse Scale (SUSS) disease model subscale (Humphreys, Greenbaum, Noke & Finney, 1996). The subscale consists of seven items that will be used after replacing the term "alcoholics or drug addicts/ alcoholism and drug addiction" by either a "person with mild-to-moderate alcohol use problems" or "person with mild-to-moderate opioid use problems" as appropriate (Humphreys et al., 1996). In addition, each substance (i.e. alcohol or opioid) will be assessed separately. Each of the items' score will range between 1 ("strongly disagree") and 5 ("strongly disagree"). Items score will be transformed to range from 0 to 4 by subtracting 1 from the raw score of each item. The items score will then be summed to produce a subscale score that ranges from 0 to 28. The original disease subscale has demonstrated good internal consistency with Cronbach's $\alpha = .78$ (Humphreys et al., 1996).

Psychosocial model will be measured using an adapted version of the SUSS psychosocial model subscale (Humphreys et al., 1996). Each of the subscale's five items will be used after replacing the term "alcoholics or drug addicts/ alcoholism and drug addiction" by either a "person with mild-to- moderate alcohol use problems" or "person with mild-to-moderate opioid use problems" as appropriate. In addition, each substance (i.e. alcohol or opioid) will be assessed separately. Each of the five items score will range between 1 ("strongly disagree") and 5 ("strongly disagree"). Items score will be transformed to range from 0 to 4 by subtracting 1 from the raw score of each item. The items will then be summed to produce a subscale score that ranges from 0

to 20. The original psychosocial subscale has demonstrated good internal consistency with Cronbach's $\alpha = .75$ (Humphreys et al., 1996).

1.3.3.3 Professional attitudes

Work experience with substance use will be measured using an investigator-developed questionnaire. Participants will be asked to respond by either a yes ("1") or no ("0") depending on whether they have/had a work experience with substance use.

Substance use education will be measured using an investigator-developed questionnaire and categorized as no education in substance use, any education in substance use, substance use education in nursing school, continuing education in substance use, in-service education in substance use or other sources of education in substance use. In addition, participants will be asked to specify whether they have received any education in the neurobiology of addiction. Participants will also be asked to respond to each of the substance use education categories listed above by either yes ("1") or no ("0"). Finally, participants will be asked to specify the number of hours they have received in either substance use education or the neurobiology of addiction.

The person-centered alcohol and alcohol perception problems questionnaires (PC-AAPPQ) is a 30-item instrument originally developed during the MAPP project (Cartwright, 1981; Cartwright, 1980; Shaw et al., 1978) to examine HCPs' attitudes towards working with patients who use alcohol. In this study, each item score will range between 1 ("strongly agree") and 5 ("strongly disagree"). In Anderson and Clement (1987) study, the author's combined Cartwright's (1980) original five subscales (role adequacy, role legitimacy, motivation, task-specific self-esteem and work satisfaction) with the three role support items to form an AAPPQ version that consists of six subscales. This AAPPQ version has demonstrated good internal

consistency (α = .70 to .90 or .705 - .903) and validity (Hughes et al., 2008; Terhorst et al., 2013). In 2019, Johnson and colleagues adapted the original AAPPQ using a person-centered language to create the Person Centered (PC)-AAPPQ (Johnson et al., 2019). This version will be used in the study.

The drug and drug problems perception questionnaire (DDPPQ) is a 20-item measure that is adapted from the AAPPQ by Watson and colleagues (2007) and has been used to examine healthcare providers' overall therapeutic attitudes towards working with patients who use drugs (Watson, Maclaren & Kerr, 2007). In this study, the DDPPQ will be adapted to opioid use utilizing a person-centered language. Each item score will range between 1 ("strongly agree") and 5 ("strongly disagree"). The DDPPQ consists of the six subscales similar to the AAPPQ. The DDPPQ has demonstrated good internal consistency ($\alpha = .87$) and validity (Watson et al., 2007).

Perceived role responsibility will be measured using an adapted version of the role responsibility subscale developed by Saitz and colleagues (2002). This subscale is used to assess provider's sense of responsibility in addressing substance use problems (screening, counseling, referring and following-up) within their workplace. In the study, the term "primary care setting" will be replaced by the term "work setting". In addition, the term "patients with mild-to-moderate alcohol use problems" or "patients with mild-to-moderate opioid use problems" will be used for the four-item subscale. Each item score will range between 1 ("not at all responsible") and 5 ("very responsible") and will be summed to produce a subscale score that ranges from 4 to 20. Higher scores will indicate a greater sense of responsibility to address alcohol or opioid use problems within nurses' workplace. The subscale has reported good internal consistency and validity (Saitz et al., 2002).

Perceived self-efficacy will be measured using the perceived self-efficacy subscale developed by Saitz and colleagues (2002) to assess providers' confidence in their ability to implement the needed skills to reduce patients' substance use (Elwy, Horton & Saitz, 2013; Saitz et al., 2002). The self-efficacy overall score is divided into three subscales: screening (three items, Cronbach's $\alpha = .73$ for alcohol use), initiating change (two items, Cronbach's $\alpha = .73$ for alcohol use) and assessment and intervention (five items, Cronbach's $\alpha = 0.84$ for alcohol use) (Elwy et al., 2013). In this study, we will separate alcohol use from opioid use. Thus, the number of items that will be used to assess each substance will drop to seven items. Each item score will range between 1 ("not confident at all") and 5 ("very confident") and will be summed to yield a subscale score that ranges from 5 to 25. Higher scores will indicate higher levels of confidence in implementing AO-related care.

1.3.3.4 Social desirability

Social desirability will be measured using a 13-item Marlowe–Crowne social desirability scale adapted by Reynolds (1982). Each item score will range between 1 ("false") and 2 (" true") and will be summed up to produce an overall score. This tool has reported good internal consistency with Cronbach's $\alpha = .76$ (Reynolds, 1982).

1.3.4 Statistical Analysis Plan

Statistical analyses will be performed using IBM[®] SPSS[®] Statistics Version 26 for Mac (IBM Corp., Armonk, NY).

1.3.4.1 Sample size justification

For the pilot feasibility study (Aims 2a through 2d), the goal is to recruit 80 participants to evaluate the feasibility of conducting a larger study in the future by assessing the overall recruitment rate, the monthly accrual rate, and the survey completion time as a measure of participants' burden. However, the selected sample size is large enough to estimate associations between the key study variables. For this study, a total sample of 80 (40 behavioral health nurses and 40 general medical nurses, where 40 nurses are 10% of the sample size required for the larger scale study) will be recruited. This sample size is chosen based on a number of factors such as cost, time, availability of nurses, and/or expected nonparticipation. In addition, this sample size is chosen to evaluate the feasibility of conducting a larger scale study using the same data collection methods in this pilot study rather than to provide adequate power for hypothesis testing. With a total sample size of 80, feasibility parameters and key study variables may be estimated using means and proportions with precision (or margin of error in terms of the half-width of the twosided confidence interval) of .050 σ (where σ is the population standard deviation for the particular continuous type variable) and .109 (conservatively assuming a base proportion of .50), respectively, with 95% confidence (Aims 2a and 2b). Precision of .4900 would be obtained when estimating the mean difference between the two groups of nurses (behavioral vs. non-behavioral health nurses), where here σ is the pooled standard deviation with a sample size of 40 for each group (Aim 2c). For correlational analyses, precision (or margin of error in terms of the half-width of the two-sided confidence interval) of .435, .402, and .334 would be obtained when estimating population correlations of size .10 (small), .30 (medium) and .50 (large), respectively, with 95% confidence (Aim 2d). The correlation values of small, medium and large are chosen from a behavioral science perspective.

For the nationwide online study (Aims 3a through 3c), a total sample of 374 nurses will be recruited. This sample size is estimated based on a previous study that showed that the correlation between certain personal attitudes (familiarity, perceived dangerousness, fear, social distance) and motivation to provide care ranged between .113 and .329 for alcohol use and between .084 and .349 for opioid use problems (Mahmoud et al. 2018). The sample size was inflated to allow for up to 20% non-response rate. With a sample size of 374, means and proportions may be estimated with precision (or margin of error in terms of the half-width of the two-sided confidence interval) of .102 σ (where σ is the population standard deviation for the particular continuous type variable) and .050 (conservatively assuming a base proportion of .50), with 95% confidence (Aim 3a). Precision of $.227\sigma$ would be obtained when estimating the mean difference on continuous type study variables between the behavioral and non-behavioral health nurses where here σ is the pooled standard deviation with a sample size of at least 150 for each study group (behavioral vs nonbehavioral health nurses) (Aim 3b). For correlational analyses, precision (or margin of error in terms of the half-width of the two-sided confidence interval) of .201, .185, and .153 would be obtained when estimating population correlations of size .10 (small), .30 (medium) and .50 (large), respectively, with 95% confidence (Aim 3c). Similar to the pilot feasibility study, the correlation values of small, medium and large are chosen from a behavioral science perspective.

1.3.4.2 Preliminary analysis procedures

Prior to the primary analyses to address study aims, all data will be screened for accuracy, potential outliers and influential values, amount and pattern of missing data, and potential violations of assumptions for the planned statistical analyses. Screening for data accuracy will be conducted through examining both the graphical representations of the study's variables and descriptive statistics. For continuous variables, means, standard deviations, minimum values,

maximum values, and ranges will be examined for plausibility. For discrete variables, data will be assessed for out-of-range category values and inaccurately entered data. Out-of-range values will be checked for accuracy and used in data analysis if valid. Incorrect data entries, implausible values and demographic/ background characteristics questions or questions related to personal experience with substance use or substance use education, in which participants may state they prefer not to answer will all be treated as missing data.

For missing data, the amount and pattern of missing data will be assessed. Missing data for any continuous variable related to personal or professional attitudes subscales that have less than 20% missing, will be substituted using mean imputation, where the mean of the remaining item values of that specific subscale for that individual score will be calculated. Little's test will be performed to assess whether the missing data are missing completely at random (MCAR). Listwise deletion will be performed for data that are MCAR and if the amount of missing data does not markedly affect the precision when estimating parameters. If data appear to be not missing at random (NMAR), we will explore the sensitivity of the results, assuming different patterns of data missingness.

Outlying values that are not a result of incorrect data entry will be further explored. Both univariate and multivariate outliers for discrete and continuous variables will be screened. Outliers will be identified using frequency distributions to check for any very uneven category splits on categorical variables such as gender and race. For continuous variables, histograms, boxplots, normal probability plots, and de-trended normal probability plots will be used to identify points that are far removed from the bulk of the data for continuous type variables. In addition, Z-scores will be calculated for each continuous variable, and any continuous variable with |Z-score| > 3.29 will be flagged as potential outlier. Mahalanobis distance and scatterplots will be used to identify

multivariate outliers. Additionally, potentially influential points identified through data screening will be examined using standardized DFFITS and DFBETAS, COVRATIO, and Cook's distance to determine the extent of their influence when later conducting regression analyses. Winsorization technique, in which extreme values below the 5th percentile or above the 95th percentiles will be set to their respective 5th and 95th percentiles, will be applied to any primary continuous predictor variables with extreme values.

Underlying assumptions for the statistical procedures will be assessed. To assess for normality, both inferential statistics (i.e. Shapiro–Wilk test or Kolmogorov–Smirnov test) and graphical methods (i.e., histogram) will be used depending on the target sample size. Appropriate data transformations (e.g., log base 10 or square root) will be considered when data deviate from normality. To assess linearity, bivariate residual scatterplots will be generated (e.g., plot of the studentized residual against the predicted value and plot of studentized residuals against each independent variable). Homoscedasticity will be assessed using both the Breusch-Pagan test and White test for heteroscedasticity. Variance inflation factors (VIF) will be computed to assess for multicollinearity.

1.3.4.3 Data analysis procedures

Data analysis plan for Aim 2: To estimate the feasibility parameters of the study, the analysis will focus on computing appropriate descriptive statistics for the overall recruitment (proportion and 95% confidence interval (CI)), monthly accrual rate (proportion and 95% CI for each month), and survey time of completion (mean and 95% CI) (Aim 2a). The analysis will also involve calculation of descriptive statistics of the key study variables. All variables will be described using frequency distributions and summarized (in tables) using appropriate measures of central tendency and dispersion given the variable's level of measurement and observed data

distribution (i.e., means and standard deviations for interval/ratio scaled variables demonstrating normal distributions; medians and inter-quartile ranges for ordinal scaled variables and interval/ratio scaled variables that are non-normally distributed; modes and ranges for nominal scaled variables) (Aim 2b).

Means and proportions (with 95% CIs) will be calculated for each study group (behavioral and non-behavioral health nurses). In addition, the differences in means and proportions (with 95% CIs) of participants' demographic/background characteristics, personal attitudes, professional attitudes and AO-related motivation between behavioral and non-behavioral health nurses will be reported (Aim 2c). In most instances, Pearson product-moment correlation coefficient analyses will bivariate also be performed to summarize the relations among nurses' demographic/background characteristics, personal attitudes, professional attitudes and motivation to work patients who use AOs. However, in instances where nominal (e.g., gender) and ordinal scaled (e.g., AO-education and training) variables are being considered in the bivariate relation or non-normality is encountered, appropriate alternate types of correlations will be used (e.g., point biserial correlation coefficient, Spearman rank-order correlation). Multiple regression will only be performed to control for potential covariates or confounders (e.g., social desirability) based on the literature and the results of data screening to yield adjusted regression coefficients with 95% confidence intervals to summarize the bivariate relations (Aim 2d).

Data analysis plan for Aim 3: All variables will be described using frequency distributions and summarized (in tables) using appropriate measures of central tendency and dispersion given the variable's level of measurement and observed data distribution (i.e., means and standard deviations for interval/ratio scaled variables demonstrating normal distributions;

medians and inter-quartile ranges for ordinal scaled variables and interval/ratio scaled variables that are non-normally distributed; modes and ranges for nominal scaled variables) (Aim 3a).

To examine the differences in participants' continuous-type demographic/background characteristics, personal attitudes, and professional attitudes between behavioral and non-behavioral nurses, means will be calculated for each nurse group as well as the differences in means between behavioral and non-behavioral health nurses will be reported. In addition, proportions will be calculated for each nurse group as well as the differences in proportions for binary categorical descriptive variables between behavioral and non-behavioral health nurses will be reported (Aim 3b).

Linear regression will be used to estimate the strength of bivariate associations between nurses' demographic/background characteristics, personal attitudes, and professional attitudes and their motivation to provide AO-related care (Aim 3c). The strength of association between categorical variables (i.e., gender, race, highest nursing degree obtained, primary work setting, specialization, personal experience with substance use (SU), and SU-education) will be estimated using appropriate measures of association. Point biserial correlation will be used to summarize the strength of association of binary variables (i.e., gender) with continuous variables. Spearman's rank correlation coefficient will be used to estimate the strength of the bivariate relationship between non-normally distributed, nominal (i.e., gender) or ordinal scaled variables (i.e., highest nursing degree obtained).

1.4 POTENTIAL LIMITATIONS OF THE PROPOSED PROCEDURES AND ALTERNATIVE APPROCHES

The proposed study has three main limitations: first, a descriptive correlational design will be utilized, thus a cause and effect relationship between the study's variables cannot be deduced using this design. Secondly, it is anticipated that there might be a low response rate that may result in response bias. In addition, nurses who choose to participate in the study may already be interested in the addiction field, which can further contribute to the issue of response bias. Lastly, the study will use a self-report method to measure nurses' demographics/background characteristics, personal attitudes, professional attitudes and motivation to provide AO-related care. Given the sensitive nature of the topic being assessed, some participants may tend to respond in a more socially desirable way.

To reduce response bias, the PI will target both behavioral and non-behavioral hospital settings and national nursing organizations. In addition, the PI will limit the number of nurses who will participate in the study to have a good representation of both nursing groups (behavioral and non-behavioral health nurses). The PI will also include a social desirability scale to account for any potential socially desirable bias. Moreover, the PI will limit participants' socially desirable responses by using anonymous surveys.

1.5 RESEARCH PARTICIPANT RISK AND PROTECTION

Human subjects' anonymity and rights will be maintained. Prior to conducting the study, ethical approval will be obtained from the University of Pittsburgh IRB, as well as, the four hospitals (WPH, UPMC Mercy, UPMC Shadyside and UPMC McKeesport) where the study will be conducted. For the online nationwide study, permissions will be obtained from the four national nursing organizations (ANA, APNA, ISPN, IntNSA) to send an email invitation to potential participants. Permission for using the instruments will also be obtained prior to data collection. All interactions with participants will be conducted using flyers or email invitations. To ensure participants anonymity, no identifying data will be collected. With respect to data security, a database will be created and maintained within the School of Nursing. Multiple levels of password protection (e.g., record, file, directory, server, and computer levels) will be employed to ensure data security. All data files will be securely stored and back-up in an on-site archive within the School of Nursing. Participants will have the right to decide voluntarily whether to participate in the study or not. In addition, participants will have the right to ask questions and to withdraw from the study at any time. We perceive no potential risk on the participants; however, if any arise, we will make sure to ensure the safety and well-being of all participants. Although the participants will not receive a direct benefit from participating in the study, the overall potential benefits are considerable; if proven effective, understanding the factors that are associated with nurses' motivation towards working with patients who use AOs, may help identify educational and skill development needs within the nursing profession that can facilitate AO use screening and promote transfer of AO-acquired knowledge and skills into clinical practice.

2.0 CHANGES TO THE PROPOSAL

Several changes were made to the proposal:

2.1 CHANGES TO SPECIFIC AIM 2 AND SPECIFIC AIM 3

Since we were able to obtain a larger sample size than we anticipated for both the pilot (N = 234) and nationwide (N = 460) studies, we were able to modify specific Aims 2 (c and d) and specific Aims 3 (b and c) to include hypotheses testing. For specific Aim 3b, we were also able to expand our aim to examine the differences among three nursing groups (addiction-trained nurses, psychiatric mental-health nurses and medical-surgical nurses). The changes in Specific Aim 2 (c and d) and Aim 3 (b and c) are as follows:

2.1.1 Specific Aim 2

2c: Examine the differences between behavioral health nurses' (psychiatric-mental health nurses and addiction-trained nurses), and non-behavioral general nurses (medical-surgical nurses) in relation to their demographic/background characteristics, personal attitudes, professional attitudes and motivation to provide AO-related care.

2d: Examine the bivariate relationships between nurses' demographic/background characteristics, personal attitudes, and professional attitudes and their relationship to motivation to provide care to patients who use AOs as well as among the key study variables.

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2.1.2 Specific Aim 3

3b: Examine the difference in demographic/background characteristics, personal attitudes, professional attitudes and motivation to provide AO-related care among addiction-trained nurses, psychiatric mental-health nurses, and general medical-surgical nurses.

3c: Identify demographic/background characteristics, personal attitudes, and professional attitudes and potential interactions among these variables as predictors of nurses' motivation to provide care to patients who use AOs.

2.2 SAMPLE SIZE JUSTIFICATIONS

The larger sample sizes enabled us to conduct hypotheses testing analyses. As a result, there were changes to the sample size justifications for both studies as follows:

2.2.1 Feasibility Study

For Aim 2c: Group samples of 111 and 123 achieve .80 power to reject the null hypothesis of equal means when the standardized mean difference equal 0.4 with a significance level of .05 using a two-sided two-sample equal variance t-test. For Aim 2d: A previous study showed that the correlation between certain personal attitudes (familiarity, perceived dangerousness, fear, social distance) and motivation to provide care ranged between .113 and .329 for alcohol use problems and between .084 and .349 for opioid use problems (Mahmoud et al., 2018). Thus, this correlation range was used as a basis for the feasibility study. A sample size of 234 achieves .80 power to detect a correlation of at least .084 using a two-sided significance level of .05.

2.2.2 Nationwide Study

For Aim 3b using one-way Analysis of Variance (ANOVA), with the observed sample sizes of 86, 126, 248 from the three nursing groups (addiction-trained, psychiatric-mental health and medical-surgical nurses, respectively), whose means are compared, we have .80 power to detect differences among the means versus the alternative of equal means using an F-test with a .05 significance level with an effect size of $\eta^2 = 0.0206$.

For Aim 3c using multiple linear regression, a sample size of 460 achieves .80 power to detect small effect size of $R^2 = 0.063$ for 38 independent variables (demographic/background characteristics, personal attitudes, and professional attitudes main variables) using an F-test with a two-tailed significance level of .05. A sample size of 460 achieves .80 power to detect small effect size of $R^2 = 0.017$ for each predictor after adjusting for a set of 37 covariates explaining an R^2 that ranges from .007 - .121 (Mahmoud et al., 2018) using an F-Test with a two-tailed significance level of .05.

Two-way interactions will also be explored using multiple regression and included in the parsimonious model if significant.

2.3 TARGETED SAMPLE

For the nationwide online study, we had to change two of the four nursing organizations we initially targeted (the ANA and ISPN). We initially targeted ANA because it was the largest nursing organization in the United States, however, because one of our three nursing specialization groups of interest was medical-surgical nurses we decided to target medical-surgical nursing organizations instead. Meanwhile, we decided not to send the online survey to ISPN members because we had a high response rate from the APNA, and we wanted to target more medicalsurgical nurses. Therefore, we included two new national nursing organizations: The National Association of Nurse Practitioners in Women's Health (NPWH), and the Academy of Medical-Surgical Nurses (AMSN). These organizations were targeted because they represent two of the largest groups of general medical-surgical nurses in the United States (NPWH: 2,600; AMSN: 13,000).

2.4 STUDY VARIABLES

Three variables were omitted for the analyses due to missingness and/ or implausible data: Education in the neurobiology of addiction, number of hours received in substance use education and number of hours received in the neurobiology of addiction.

2.5 MEASURES

We made changes to two measures, the responsibility for the problem and chances of recovery and the DDPPQ.

2.5.1 Responsibility for the Problem and Chances of Recovery

When adapting the responsibility for problem and chances of recovery tool to alcohol and opioid use, we experienced some difficulty and decided to substitute it with the personal responsibility beliefs questionnaire by Corrigan and colleagues (2003). A detailed information related to the personal responsibility beliefs questionnaire is listed below. **Personal responsibility beliefs** are measured using an adapted version of Corrigan and colleagues (2003) personal responsibility beliefs subscale. The subscale consists of three items that will be used to measure participants' personal responsibility beliefs after replacing the character's name (i.e. Harry) with either "a person with mild to moderate alcohol use problem" or "a person with mild to moderate opioid use problem". Each item score will range between 1 ("no, not all", "not at all under personal control" or "not at all responsible") and 9 ("yes absolutely", "completely under personal control", or "very much responsible") and will be summed to produce a subscale score that ranges from 3 to 27. Higher scores will indicate a higher belief of personal responsibility for the patients' alcohol or opioid use. The original measure has reported good internal consistency for patients with mental illness with Cronbach's $\alpha = .70$ (Corrigan et al., 2003).

2.5.2 The Drug and Drug Perception Problems Questionnaire (DDPPQ)

We originally planned to adapt the DDPPQ for opioid use. However, since the DDPPQ's motivation subscale only consists of one-item, the decision was made to adapt the 30-item PC-AAPPQ for opioid use instead because its motivation subscale consists of 5-items.

2.6 STATISTICAL ANALYSES

2.6.1 Specific Aim 2

Aim 2c: To examine the difference in participants' demographic/background characteristics, personal and professional attitudes among the two-nursing specializations (behavioral and non-behavioral health nurses), Independent t-test or Mann-Whitney were used as appropriate for continuous variables (i.e. age, years of experience in nursing, etc.). Chi-square test

of independence or Fisher exact test were performed as appropriate to examine differences among the two-nursing specializations for categorical variables (i.e. gender, race, primary workplace, etc.).

Aim 2d: To examine the associations between motivation and all the study' variables for both alcohol and opioid use, multiple linear regression was used. Unstandardized regression coefficients (*b*), standardized coefficients (Beta), including 95% CI for *b* and p-values were reported for each of the variables. Chi-square test of independence was used to assess the associations between categorical variables (i.e. gender, race, highest nursing degree obtained, primary work setting, specialization, personal experience with substance use, substance use education, etc.). Point biserial correlation was used to assess the strength of associations of binary variables (i.e., gender) with continuous variables. Spearman's rank correlation coefficient was used to assess the strength of the bivariate relationship between two non-normally distributed, nominal (i.e., gender) or ordinal scaled variables (i.e., highest nursing degree obtained).

2.6.2 Specific Aim 3

Aim 3b: To examine the difference in participants' demographic/background characteristics, personal and professional attitudes among the three-nursing specializations (addiction-trained nurses, psychiatric mental-health nurses, and medical-surgical nurses), one-way ANOVA and Kruskal–Wallis test were used as appropriate for continuous variables (i.e. age, years of experience, etc.). Chi-square test of independence and Fisher exact test were performed as appropriate to examine differences among the three nursing specializations for categorical variables (i.e. gender, race, primary workplace, etc.).

Aim 3c: Stepwise multiple linear regression was used to identify potential demographic/background and personal and professional attitudinal predictors of nurses' motivation to provide AO-related care (Aim 3c). All two-way interactions between the predictor variables were also examined. Outliers were identified using univariate plots including histograms, boxplots, detrends Q-Q plots, bivariate scatterplots, centered leverage and studentized deleted residuals. Influential data points were assessed using standardized DFFITS and DFBETAS, COVRATIO, Cook's distance. Multicollinearity was assessed using VIF. For each of the predictor variables (demographic/background characteristics, personal attitudes and professional attitudes), the test statistics, unadjusted regression coefficients (b), adjusted regression coefficients for full multivariate model with only main effects, and adjusted coefficients for the parsimonious model (including only significant interactions) and their corresponding standard errors (SE) and p-values were reported. Significant two-way interactions were only included in the parsimonious model, in which their adjusted regression coefficient and corresponding standard error (SE) and p-values were reported.

3.0 SUMMARY OF THE STUDY

According to the World Health Organization, alcohol use has been linked to over more than 200 physical and psychological illnesses (WHO, 2018a). Nurses' low motivation to work with this patient population is considered a main barrier to screening for AO-related problems. Examining factors that are associated with nurses' motivation to work with these patients is critical if we are to move forward in our efforts to improve patient outcomes. Of the factors related to nurses' motivation, their demographic/background characteristics, personal attitudes and professional attitudes are important factors and yet, have been less targeted by interventions designed to improve their attitudes and perceptions.

Therefore, three manuscripts are developed. The first manuscript is a literature review aimed to explore factors associated with healthcare motivation to provide care to patients with substance use problems. This manuscript provides information related to demographic/background characteristics as well as personal attitudes, and professional attitudes that may influence providers' motivation to provide substance use care. While these factors are evident across the studies reviewed in the literature review, no single study has provided a comprehensive examination of all, or even a majority of the possible factors. In addition, a limited number of studies have focused on the impact of personal attitudes on healthcare providers' motivation.

The findings of the literature review have established the basis for conducting a feasibility study, which examined the association between the factors identified in the literature. Although the literature review has focused on alcohol and other drugs, both the feasibility and nationwide studies focus on alcohol and opioid use because of the current opioid epidemic, thus the study examined the association of the factors identified in the literature with nurses' AO-motivation. The second manuscript also aims to examine the differences in nurses' demographic/background characteristics, personal attitudes, professional attitudes and motivation to provide AO-related care between behavioral (psychiatric mental-health nurses and addiction-trained nurses)' and non-behavioral health nurses. In addition, the study examines the relationships between nurses' demographic characteristics, personal attitudes, professional attitudes and their motivation to work with patients who have at-risk AO use as well as among the key study variables.

The third and final manuscript aims to examine the differences in demographic/background characteristics, personal attitudes, professional attitudes and motivation among three-nursing specialization (addiction-trained nurses, psychiatric mental-health nurses and medical-surgical nurses). The study also aims to identify potential demographic/background, personal and professional predictors of nurses' motivation to provide AO-related care. In addition, the study assesses for possible two-way interactions predictors among these variables.

The findings from these studies are expected to inform the development of interventions designed to target nurses' motivation in order to promote the transfer of AO-acquired knowledge and skills into clinical practice, and to foster the implementation of screening, brief intervention, and referral to treatment (SBIRT). In addition, these studies are expected to inform future nursing education and practice regulations regarding substance use pre-licensure, continuing, and inservice education needs.

3.1 FUTURE IMPLICATIONS

In light of the current findings, there are a number of future implications: First, further studies are needed to replicate the findings of these studies using larger sample sizes. Second, future studies should develop strategies that enhance minority and male nurse representation such as using complex sample survey method to ensure a more diverse representation of the nursing population. Third, the current study is able to establish that certain personal experiences with alcohol and opioid use are significantly associated with nurses' motivation to work with persons who use AOs. However, more information is needed regarding (1) how nurses perceived these experiences (i.e. negative or positive), (2) the extent of their involvement in the care during these experinces, and (3) whether these experiences occurred before or after they have specialized in the addiction field. In addition, it would be interesting to know how such experiences influenced these nurses' career choices. This information can be helpful in our attempt to enhance nurses' empathy and regard towards this patient population. Fourth, the study has also revealed that certain types of substance use education are significant predictors of nurses AO-related motivation. Nevertheless, further information is needed regarding the content of these educational and clinical activities. Moreover, it is important to examine the theoretical foundations that nurses have received related to addiction (i.e. disease model, neurobiology of addiction) and how this content shapes nurses' perceptions regarding substance use relapse and recovery concepts. Fifth, the ultimate goal of these studies is to promote patients' outcomes via enhancing nurses' motivation. Therefore, future studies should attempt to investigate the influence nurses' motivation may have on identification of patients with substance use problems and their treatment outcomes.

4.0 MANUSCRIPT 1: FACTORS INFLUENCING HEALTHCARE PROVIDERS' MOTIVATION TO PROVIDE CARE FOR PATIENTS WITH SUBSTANCE USE PROBLEMS: A LITERATURE REVIEW

4.1 ABSTRACT

Background: At-risk alcohol and other drug (AOD) use is considered a public health issue that significantly contributes to the global burden of disease, and increases the risk for injury, and premature death. Objective: To explore factors associated with healthcare providers' motivation to provide care to patients with at-risk AOD use. Methods: All potentially applicable studies identified from both PubMed and Ovid PsychInfo databases were reviewed by two independent evaluators. A total of 973 articles were identified in our search. Each relevant article was examined for potential factors influencing motivation to provide AOD-related care. Data were extracted and organized using a PRISMA diagram and tables of evidence. Results: The manuscript summarizes the findings across 28 studies related to age, gender, discipline of provider, work setting/specialty, healthcare provider personal attitudes, or a person's moral and/or stereotypical perceptions related to substance use and the people who use these substances. In addition, the focus of this paper is on the healthcare providers' views regarding their responsibility to respond to AOD use-related problems within their work context. Conclusions: Examining these factors as a collective and their interactions will help identify additional educational and clinical practice gaps that may inform interventions aiming to enhance screening for at-risk AOD use, promote the transfer of AODacquired knowledge and skills into clinical practice, and foster implementation of evidence-based interventions.

Keywords: healthcare providers, substance use, motivation, factors

4.2 INTRODUCTION

At-risk alcohol and other drug (AOD) use includes any pattern of substance use that increases a person's or others' risk of harm but does not meet the diagnostic criteria of a substance use disorder (SUD) (Finnell et al., 2015; Mahmoud, Finnell, Savage, Puskar, & Mitchell, 2017). Worldwide, at-risk AOD use is considered a public health issue that significantly contributes to the global burden of disease, and increases the risk for injury, chronic disease, and premature death (Centers for Disease Control and Prevention [CDC], 2015; World Health Organization [WHO], 2018a; WHO, 2018b; WHO, 2019; WHO, 2018c). In addition, the recent increase in opioid overdose deaths has also captured the public attention when 66% of the 63,000 American drug overdose deaths in 2016 was attributed to opioid use (CDC, 2018; CDC, 2019a). According to the National Institute on Drug Abuse (NIDA, 2018) report, unintentional opioid overdose deaths have quadrupled since 1999 and, since 2002, they have exceeded deaths related to cocaine and heroin use. As a result, the opioid epidemic was declared a national emergency in need of an immediate action. In terms of economic burden, the annual costs associated with the negative consequences of AOD use in the United States amount to \$78.5 billion (NIDA, 2017). Early identification and delivery of appropriate treatment to patients with at-risk use is considered one of the most effective ways to reduce the associated negative health and societal consequences and enhance the wellbeing of individuals and populations (McLellan, 2017; Substance Abuse and Mental Health Services Administration [SAMSHA], 2017).

Despite the continued increase in morbidity and mortality rates associated with at-risk AOD use, less than 10% of patients reported receiving care related to their at-risk AOD use (McLellan, 2017; Park-Lee, Lipari, Hedden, Kroutil & Porter, 2017). Healthcare providers' (HCPs) low motivation to work with patients who use AOD has been associated with delays in AOD use problems identification, access to healthcare services, and further increased the likelihood of patients dropping out of treatment (Naegle, 2017). In addition, low motivation among HCPs has been associated with lower quality of care (Naegle, 2017; Neville & Roan, 2014). According to Wechsler and Rohman (1982), professional attitudes toward patients with alcohol use problems play a major role in shaping the therapeutic relationship between providers and patients and influencing providers' willingness to screen for and treat patients with AOD use-related problems.

There is a need to better understand the factors associated with HCPs' motivation to screen for and provide brief intervention and referral to patients with at-risk AOD use. This literature review was conducted to explore factors associated with HCPs' motivation to provide care to patients with at-risk AOD use. For the purpose of this review, the term "motivation" is broadly defined as readiness, engagement, comfort, interest, willingness to provide AOD use-related preventive care to patients who use AOD and/or the actual implementation of screening, brief intervention, and referral to treatment (SBIRT) in clinical practice.

4.3 METHODOLOGY

4.3.1 Search Strategy

The electronic databases PubMed (1947 – June 2017) and Ovid PsycINFO (1967 – June week 3 2017) were searched to identify relevant articles. Both database searches were run in June 2017 and search updates were run in June 2018. An experienced health sciences librarian (MLK) designed and created the PubMed search and translated it for use in Ovid PsycINFO (Appendix A). Each search string consisted of natural language terms and controlled vocabulary to represent the search concepts of "health care providers" and "stigma". Additional publications were identified from the bibliography of the selected literature. Only included peer reviewed publications were included in the review.

4.3.2 Study Selection

English-language peer-reviewed studies conducted on healthcare providers' attitudes towards alcohol and other drugs use were included in the study. Inclusion criteria included studies that: (1) were restricted to healthcare providers; and (2) targeted attitudes and perceptions towards alcohol and other drugs. Exclusion criteria included: (1) literature reviews, editorials, and commentary papers; and (2) studies conducted on patients' attitudes or perceptions. There was no limitation on the sample size, design, setting or the country in which the study was conducted.

4.3.3 Data Extraction

Information was extracted from the studies that met the previously mentioned inclusion and exclusion criteria using a structured proforma (i.e., authors, year, study design/description, substance used, country, sample, motivation assessment tools, and main factors related to HCPs and motivation). Data were extracted by two authors using the predefined criteria. The main factors related to HCPs motivation were further categorized into three main factors: demographic/background characteristics, personal attitudes, and professional attitudes.

4.4 RESULTS

The search results and study selection are presented in Figure 3. Of the total articles related to motivation, fifteen articles met the predefined inclusion criteria. An additional thirteen articles were identified from the bibliography of the selected fifteen articles. Thus, a total of twenty-eight articles were included in this review. In an attempt to reduce stigma associated with substance use, when outlining the findings of the studies included in this review, the language was modified to person-centered language.



Figure 3 PRISMA Flow Diagram of Articles Included in the Motivation Literature Review

4.4.1 Description of the Studies Included

Publication years were from 1980 to 2017 with half of the articles published within the past decade (Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Lev-Ran et al., 2013; Meltzer et al., 2013; Mundon et al., 2015; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Shepherd et al., 2010; van Boekel et al., 2013; Wakeman et al., 2013). The greatest number of studies were conducted in the United States (n=9), followed by Australia (n=6), the United Kingdom (n=4), Sweden (n=3), Israel (n=2), and one each conducted in Brazil, the Netherlands, and Scotland.

Cross-sectional descriptive designs were predominant (Albery et al., 2003, Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Kuthy et al., 2005; Lev-Ran et al., 2013; Lightfoot & Orford et al., 1986; Lindberg et al., 2006; Natan et al., 2009; Skinner et al., 2005; van Boekel et al., 2013; Wakeman et al., 2013; Wechsler & Rohman, 1982). Six studies conducted a single-sample educational interventional design (Bendtsen & Åkerlind, 1999; Cartwright, 1980; Hettema et al., 2009; Johansson et al., 2002; Meltzer et al., 2013; Nash et al., 2017). Three studies applied qualitative approaches such as grounded theory (Lock et al., 2002) or inductive approaches (Neville & Roan, 2014; Shepherd et al., 2010). The remaining four studies used either an observational design (Silins et al., 2007), a factorial survey-vignette design (Mundon et al., 2015), or a mixed methods design (Nordqvist et al., 2006; Vadlamudi et al., 2008).

The majority of the studies utilized a convenience sample (Albery et al., 2003; Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind , 1999; Cartwright, 1980; Crothers & Dorrian, 2011; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Kuthy et al., 2005; Lightfoot & Orford, 1986; Lindberg et al., 2006; Meltzer et al., 2013; Nash et al., 2017; Natan et al., 2009;
Neville & Roan, 2014; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et al., 2007; Skinner et al., 2005; Vadlamudi et al., 2008; Wakeman et al., 2013), and of those specifying the setting, primary healthcare centers were predominant (Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Johansson et al., 2002; Natan et al., 2009; Skinner et al., 2005). Across the set of studies, sample sizes ranged from nine to 1,605 participants and were predominately female with women representing 25% - 100% of the total sample. Two separate publications were derived from the same sample (Ford et al., 2008; Ford et al., 2009). Of the five studies that reported ethnicity/race or racial the samples were dominantly Caucasian (66.2% to 92%) (Hettema et al., 2009; Lindberg et al., 2006; Mundon et al., 2015; Neville & Roan, 2014; Wechsler & Rohman, 1982).

The types of substances reported across the set of studies varied from a single substance to polysubstance. Alcohol use was the focus of ten studies (Bendtsen & Åkerlind, 1999; Cartwright, 1980; Crothers & Dorrian, 2011; Johansson et al., 2002; Lightfoot & Orford, 1986; Lock et al., 2002; Nordqvist et al., 2006; Shepherd et al., 2010; Vadlamudi et al., 2008; Wechsler & Rohman, 1982) and drug use (including illicit drugs) the focus of five studies (Albery et al., 2003; Ford et al., 2008; Ford et al., 2009; Kuthy et al., 2005; Natan et al., 2009). Thirteen studies included participants who were using alcohol and other drugs.

A single HCP population was the focus in the majority of studies (17 of 28 studies), representing nursing, medicine, dentistry or psychology (Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Jacka et al., 1999; Kuthy et al., 2005; Lev-Ran et al., 2013; Lindberg et al., 2006; Lock et al., 2002; Meltzer et al., 2013; Mundon et al., 2015; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Shepherd et al., 2010; Vadlamudi et al., 2008; Wakeman et al., 2013) The remaining studies included two or more HCPs. Studies in which the HCP's substance use-related experience was reported revealed a range from no experience to 30-

years or more years of experience (Albery et al., 2003; Bendtsen & Åkerlind, 1999; Jacka et al., 1999; Johansson et al., 2002; Lock et al., 2002; Mundon et al., 2015; Natan et al., 2009; Neville & Roan, 2014; Skinner et al., 2005; Vadlamudi et al., 2008; van Boekel et al., 2013). Of the 25% of studies providing information about the level of education, participants were either: (1) post-graduate year (Wakeman et al., 2013); (2) residency program (Hettema et al., 2009; Meltzer et al., 2013); (3) undergraduate or graduate students (Kuthy et al., 2005; Silins et al., 2007; Wechsler & Rohman, 1982); or (4) a combination of medical students and residency (Lindberg et al., 2006). Among the eight studies that reported participants' AOD use-related education, two reported that 30 - 51.3% of their participants received more than 10-hours of education related to drug (Albery et al., 2003) or addiction education (Meltzer et al., 2013), one study specified that five of their nurse participants received 14 days of alcohol-related education (Lightfoot & Orford, 1986), and the remaining five studies only mentioned that some or the majority of participants had completed either alcohol, drug, or AOD use-related pre-service or workplace education (Ford et al., 2008; Ford et al., 2009; Skinner et al., 2005; Wakeman et al., 2013; Wechsler & Rohman, 1982).

4.4.2 Motivation Assessment Tools

The dominant tool for measuring motivation was the Alcohol and Alcohol Problems Perception Questionnaire (AAPPQ) (Cartwright, 1980; Lightfoot & Orford, 1986) or a short version, modified or derived from the AAPPQ (SAAPPQ) (Albery et al., 2003; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Nash et al., 2017; Silins et al., 2007). Additional established tools included the Medical Condition Regard Scale (Meltzer et al., 2013; van Boekel et al., 2013), and an adapted version of the Romelsjo and Karlsson (1986) questionnaire (Bendtsen & Åkerlind, 1999; Johansson et al., 2002; Nordqvist et al., 2006). Investigator-developed questionnaires were utilized in eight studies (Amaral-Sabadini et al., 2010; Kuthy et al., 2005; Lev-Ran et al., 2013; Lindberg et al., 2006; Natan et al., 2009; Vadlamudi et al., 2008; Wakeman et al., 2013; Wechsler & Rohman, 1982). Studies that reported the psychometric properties of the different motivation scales reported an internal consistency that ranged from .55 to .97 (Albery et al., 2003; Cartwright, 1980; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Skinner et al., 2005; van Boekel et al., 2013). In the five qualitative and mixed methods studies, assessment of HCPs motivation was obtained using semi-structured interviews (Lock et al., 2002; Nash et al., 2017; Neville & Roan, 2014; Nordqvist et al., 2006; Shepherd et al., 2010).

Author / Year	Country	Design	Sample	Substance	Motivation Assessment
Cartwright, 1980	UK	One sample pre-post interventional design Follow-up conducted at six months	 n= 115 directors, volunteers, social workers, nurses and doctors; Gender: 50% were female; Race: NR; Age: M=38 years; AOD-education: NR; WE: NR; AOD-WPE: NR 	Alcohol	APPQ Psychometrics: Tested at two occasions, Cronbach's alpha ranged between 0.7 to 0.9 for each of the seven scales
Weschler & Rohman, 1982	USA	Cross-sectional design	 n= 1,106 graduate students from nursing, medical, social work, and counselling programs; Gender: 66 % were female; Race: 92% Caucasian; Age: M= 27 years; AOD-education: 79 % had taken a course on issues of alcohol use; WE: 82% had a professional experience in their major field; AOD-WPE: NR 	Alcohol	 Self-reported answers on topics including: Demographics, Exposure to alcohol education, Willingness to treat alcohol use issues, Preferred treatment modalities, Prognosis for alcoholics, Attitudes toward AUD including interest in alcohol-related issues Psychometrics: NR
Lightfoot & Orford, 1986	UK	Cross-sectional design	 n= 48 nurses and social workers; Gender: NR; Race: NR; Age: NR; AOD-education: five nurses received 14- days of alcohol related education; WE: NR; AOD-WPE: NR 	Alcohol	AAPPQ Psychometrics: NR
Bendsten & Akerlind, 1999	Sweden	One sample pre-post interventional design	n=37 GPs and nurses; Gender: 35% of GPs and 100% of nurses were female;	Alcohol	Adaptive version of the Romelsjo (1986) to

Author / Year	Country	Design	Sample	Substance	Motivation Assessment
			Race: NR; Age: GPs' R=19, MD=51; nurses' R=31, MD=48; AOD-education: NR; WE: 14 years; AOD-WPE: NR		assess change in attitudes and practices Psychometrics: NR
Jacka & colleagues, 1999	Australia	Cross-sectional design	n=26 GPs; Gender: 42.3% were female; Race: NR; Age: M= 38 ±9.1; AOD-education: NR; WE: 2-10 years; AOD-WPE: NR	Alcohol, benzodiazepine and illicit drug	Modified SAAPPQ and DDPPQ Psychometrics: NR
Johansson & colleagues, 2002	Sweden	One sample pre-post interventional design	n= 206 GPs and nurses; Gender: 48% of GPs and 97% of nurses were female; Race: NR; Age: GPs' M= 46; and nurses' M= 49; AOD-education: NR; WE: 14 years for GPs and 10 years for nurses; AOD-WPE: NR	Alcohol	Adapted from the Romelsoj and Karlsson (1986) 28-item questionnaire assessing: - Attitudes and beliefs about the role of primary care in identifying and treating alcohol- related problems
Lock & colleagues, 2002	UK	Qualitative approach using grounded theory	n= 24 primary care nurses; Gender: 100% were female; Race: NR; Age: R=30–57; AOD-education: NR; WE: 1-24 years; AOD-WPE: brief experience implementing SBIRT	Alcohol	 Psychometrics: NR Semi-structured interviews that addressed: Perceived barriers, facilitating factors, attitudes toward alcohol intervention Psychometrics: NA
Albery & colleagues, 2003	UK	Cross-sectional survey design	n= 189 clinical and non-clinical, non- specialized drug workers; Gender: 51.9% were female;	Drug	Adapted version of the AAPPQ

Author / Year	Country	Design	Sample	Substance	Motivation Assessment
			Race: NR; Age: M=34.7 \pm 8.4; AOD-related education: 16.2% none and 25.4% over 40 hours; WE: M= 29.98 \pm 28.02 months; AOD-WPE: 30.7% worked with more than 50 patients		Psychometrics: Cronbach's alpha: 0.71
Kuthy & colleagues, 2005	USA	Cross-sectional survey design	 n= 690 senior dental students who graduated between 1992 and 2004; Gender: NR; Race: NR; Age: 51.9% were in the older of two cohorts (i.e. graduated 1992-1998); AOD-education: NR; WE: NR; AOD-WPE: 36.6% reported experience working with patients with drug use problem 	Drug	Students' level of comfort was measured using a five-point Likert-style scale Psychometrics: NR
Skinner & colleagues, 2005	Australia	Cross-sectional design	<i>n</i> = 351 nurses and MHPs; Gender: 77.5% were female; Race: NR; Age: nurses: M= 42.8 \pm 8.9, and MHPs: M=40.2 \pm 10.5; AOD-education: 73% of nurses and 84% of MHPs reported completing some form of AOD education; WE: NR; AOD-WPE: nurses (M \pm SD=10.5 \pm 7.7) years, and MHPs (M \pm SD =9.1 \pm 6.8)	AOD	Subset of WPQ scales addressing AOD-related work practice Psychometrics: "The five WPQ scales demonstrated good internal consistency (0.70 to 0.93 and test- retest reliability (0.81 to 0.95)"
Lindberg & colleagues, 2006	USA	Cross-sectional design	n=207 medical students and residents; Gender: 40.7% were female; Race: 67% Caucasian; Age: M= 30.82; AOD-education: NR; WE: NR; AOD-WPE: NR	Alcohol and illicit drug	Investigators developed 31-item questionnaire to measure:Participants' demographics,

Author / Year	Country	Design	Sample	Substance	Motivation Assessment
					 Attitudes towards treating patients with AOD use problems, Previous education, Experience in and comfort with diagnosing and treating AOD use problems, Satisfaction in working with this patient population Psychometrics: NR
Nordqvist & colleagues, 2006	Sweden	Mixed method of interviews and surveys	 n= 29 nurses and medical secretaries in the ED; Gender: all participants were female; Race: NR; Age: NR; AOD-education: NR; WE: NR; AOD-WPE: NR 	Alcohol	Staff questionnaire: 14- question survey about attitude toward alcohol prevention, adapted from Romelsjo (1986); Staff interview: semi- structured, open-ended interview guide Psychometrics: NR
Silins & colleagues, 2007	Australia	Observational study	 n= 445 first and fourth-year medical students; Gender: 56% were female in first year and were 55% female in fourth year; Race: NR; Age: 95% of first year medical students and 86% of fourth year medical students were under the age 30 (R= 19-29); AOD-education: NR; WE: NR; AOD-WPE: NR 	Alcohol, drug (heroin) and tobacco	Questionnaire derived from the AAPPQ Psychometrics: NR
Ford & colleagues, 2008	Australia	Cross-sectional survey design	n= 1,605 RN; Gender: 94% were female; Race: NR;	Illicit drug	Modified version of AAPPQ for illicit drug

Author / Year	Country	Design	Sample	Substance	Motivation Assessment
			Age: M±SD =44 ±9; AOD-education: 1/3 had no pre-service education, 1/3 had no workplace education, and 22% reported workplace education in the past year; WE: NR; AOD-WPE: 50% reported 8-hour episodes of care with more than 11 patients		use called "Therapeutic Attitude Scale" Psychometrics: "Cronbach alpha of the five subscales ranged from 0.68 to 0.94, with an alpha for the entire scale of 0.93"
Vadlamudi & colleagues, 2008	USA	Pre-training and post- training survey design	n= 180 NP students, Gender: 96% were female; Race: NR Age: ranging from 22-57; AOD-education: NR; WE: 40% with 0-1 years in practice; AOD-WE: 55.8% with little past experience with alcohol abuse	Alcohol	Likert scale questionnaire (100 questions) to assess knowledge, attitudes, and confidence levels, pre- and post- educational intervention Psychometrics: Cronbach's alpha reported for the above scales were 0.55, 0.88, and 0.77
Ford & colleagues, 2009	Australia	Cross-sectional survey design	Same as Ford & colleagues (2008) study	Illicit drug	Same as Ford & colleagues (2008) study Psychometrics: Same as Ford & colleagues (2008) study
Hettema & colleagues, 2009	USA	One sample pre-post interventional design	n=9 second- and third-year internal medical residents; Gender: 55.6% were female; Race: A range of ethnicities were represented (Asian, Black, Native American, and White); Age: M±SD= 30.8 ±1.6; AOD-education: NR; WE: NR; AOD-WPE: NR	AOD	 Boston Medical Center Primary Care survey to measure: Barriers to engaging in SBIRT, SBIRT behaviors, Professional satisfaction with engaging in SBIRT,

Author / Year	Country	Design	Sample	Substance	Motivation Assessment
					 Perceived responsibility for engaging in SBIRT, Confidence in SBIRT abilities, Negative attitudes towards AOD use Psychometrics: Cronbach's alpha ranged between 0.56 and 0.97
Natan & colleagues, 2009	Israel	Cross-sectional survey design	n=135 nursing staff members from general hospitals; Gender: 85.9% were female; Race: NR; Age: M±SD= 38.6±9.62; AOD-education: NR; WE: 15.1±9.96; AOD-WPE: NR	Drug	Investigators developed 82-question survey to assess intended and actual provision of quality care for patients who use drugs Psychometrics: NR
Amaral-Sabadini & colleagues, 2010	Sao Paulo, Brazil	Cross-sectional design	n= 96 physicians, nurses, nursing assistants and community health workers in five health centers; Gender: 87% were female; Race: NR; Age: M±SD= 40.6±9.7; AOD-education: NR; WE: NR; AOD-WPE: NR	AOD	 Investigators developed questionnaire to measure: Socio-demographic data, Prevention practices, AOD-beliefs, AOD-satisfaction and AOD-implementation readiness Psychometrics: NR
Shepherd & colleagues, 2010	Scotland	Cross-sectional qualitative survey design	 n= 12 GDPs; Gender: 25% were female; Race: NR; Age: NR; AOD-education: NR; WE: NR; AOD-WPE: NR 	Alcohol	Semi-structured interviews Psychometrics: NA

Author / Year	Country	Design	Sample	Substance	Motivation Assessment
Crothers & Dorrian, 2011	Australia	Cross-sectional survey design	n=49 nurses; Gender: 92% were female; Race: NR; Age: M±SD= 39 ±11; AOD-education: NR; WE: NR; AOD-WPE: 94% had professional and 73% had personal experience with alcohol problems	Alcohol	SAAPPQ Psychometrics: SAAPPQ (established reliability between 0.7 and 0.9).
Lev-Ran & colleagues, 2013	Israel	Cross-sectional design	n= 208 physicians; Gender: 51.9% were female; Race: NR; Age: 65.9% were 41 years old or older; AOD-education: NR; WE: NR; AOD-WPE: NR	Alcohol, cannabis (marijuana), heroine and nicotine	Investigators' developed questionnaire with items derived from prior surveys assessing attitudes towards alcohol and drug abuse and called "Attitudes towards addiction questionnaire" Psychometrics: NR
Meltzer & colleagues, 2013	USA	A prospective cohort one-sample pre-post interventional design	 n= 99 internal medicine residents; Gender: 46% were female; Race: NR; Age: NR; AOD-education: 30% had more than 10-hours; WE: NR; AOD-WPE: NR 	Alcohol and narcotic pain medication	MCRS Psychometrics: NR
Wakeman & colleagues, 2013	USA	Cross-sectional survey design	 <i>n</i>= 101 resident physicians; Gender: 42% were female; Race: NR; Age: NR; AOD-education: 37% reported not receiving any education; half of those who reported some addictions training 	AOD	Investigator-developed questionnaire to assess residents' self-perceived preparedness to diagnose and treat addiction Psychometrics: NR

Author / Year	Country	Design	Sample	Substance	Motivation Assessment
			during medical school, had attended a single lecture; WE:NR; AOD-WPE: 21.8% of inpatients are admitted for AOD use related conditions; 25.9% of all inpatients had a SUD, and 12.3% of clinic patients had a SUD		
Neville & Roan, 2014	USA	Qualitative inductive approach	n= 24 nurses; Gender: 96% were female; Race: 70.8% Caucasian; Age: 41.7% between 20-40 years old; AOD-education: NR; WE: 75% had 11-30 years of experience; AOD-WPE: NR	AOD	Questionnaires regarding the nurses' perceptions of caring for hospitalized patients with substance abuse and/ or dependence Psychometrics: NA
van Boekel & colleagues, 2014	Netherland	Cross-sectional design	n= 347 GPs, HCPs of general psychiatry and specialists of addiction services; Gender: 54.5% were female; Race: NR; Age: M±SD=45.58± 10.43; AOD-education: NR; WE: GPs had on average 16.63 years of experience, general psychiatry providers 10.94 years and addiction specialists 7.88 years AOD-WPE: 42.8% general practitioner had monthly working experience, 53.9% in psychiatric services and 89.7% in addiction services had daily working experience	AOD	MCRS Psychometrics: Cronbach's alpha of 0.87 and test-retest reliability of 0.84
Mundon & colleagues, 2015	USA	Factorial survey- vignette design	n=155 clinical psychology graduate- level doctoral students; Gender: 72.3% were female; Race: 66.2% Caucasian; Age: 87.2% between age 20 and 30; AOD-education: NR;	Alcohol and cocaine	Socio-demographics, SUD experiences, and clinical interests' questionnaire; The REACT scale Psychometrics: NR

Author / Year	Country	Design	Sample	Substance	Motivation Assessment
			WE: 65.2% had 2 – 5 years of clinical experience; AOD-WPE: 71.6% had AOD-working experience and 76.8% had AOD-personal or relational experience with SUD		
Nash & colleagues, 2017	USA	Pretest-posttest survey design, qualitative and quantitative data (Mixed methods)	n= 62 Bachelor of nursing students; Gender: 93% were female; Race: NR Age: 81% between ages of 18 and 29; AOD-education: NR; WE: NR; AOD-WE: NR	Alcohol and drug	 SAAPPQ and DDPPQ; Qualitative evaluation about: Personal or professional change after the practicum New learning during practicum Elements of practicum to change and/or continue Psychometrics: NR

Note. NR= not reported; M= mean; AOD= alcohol and other drug; WE: working experience; WPE= work or personal experience; AAPPQ= alcohol and alcohol problems perception questionnaire; AUD= alcohol use disorder; GP: general practitioner; R=range; MD= median; SAAPPQ= short AAPPQ; DDPPQ= drug and drug problems perception questionnaire; SBIRT= screening, brief intervention, referral to treatment; MHP= mental health professional; SD= standard deviation; WPQ= work practice questionnaire; ED= emergency department; RN= registered nurse; NP= nurse practitioner; GDP= general dental practitioner; MCRS= medical condition regard scale; HCPs: healthcare providers; SUD= substance use disorder; REACT= the ratings of emotional attitudes to clients by treaters.

4.4.3 Demographic/Background Characteristics

Of the 28 studies included in this review, 20 studies reported on HCPs' demographic/ background characteristics association with personal attitudes, professional attitudes, and motivation (Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Cartwright, 1980; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Kuthy et al., 2005; Lev-Ran et al., 2013; Lightfoot & Orford, 1986; Lock et al., 2002; Meltzer et al., 2013; Mundon et al., 2015; Silins et al., 2007; Skinner et al., 2005; Vadlamudi et al., 2008; van Boekel et al., 2013; Wakeman et al., 2013; Wechsler & Rohman, 1982). The main demographic/background characteristics reported by this literature review were: age, gender, discipline of provider, and work setting/specialty.

In this review, nine studies reported on age (Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Kuthy et al., 2005; Lev-Ran et al., 2013; Lightfoot & Orford, 1986; Silins et al., 2007; Vadlamudi et al., 2008). Seven studies reported on gender (Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Kuthy et al., 2005; Meltzer et al., 2013; Mundon et al., 2015; Silins et al., 2007). Seven studies reported on discipline of provider (Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Johansson et al., 2002; Lightfoot & Orford, 1986; Lock et al., 2002; Skinner et al., 2005; Wechsler & Rohman, 1982). Finally, nine studies reported on providers' work setting/specialty (Cartwright, 1980; Ford et al., 2008; Ford et al., 2009; Lev-Ran et al., 2013; Lightfoot & Orford, 1986; Mundon et al., 2015; Silins et al., 2007; van Boekel et al., 2013; Wakeman et al., 2013). Appendix B provides detailed information on these variables' association with personal attitudes, professional attitudes and/or motivation.

4.4.4 Attitudes

Across the set of studies, the results associated with attitudes that significantly influenced nurses' and other HCPs' motivation corresponded to two broad categories, personal and professional attitudes (see Table 2 for definitions related to these categories), described by Skinner and colleagues (Skinner et al., 2009). Personal attitudes focus on capturing a person's moral and/or social perceptions related to substance use and the people who use these substances (Skinner et al, 2009). Accordingly, personal attitudes focus mainly on understanding HCPs stigma perceptions related to AOD use. Professional attitudes relate to a person's view of his/her responsibility to respond to AOD use-related problems within their work context (Skinner et al., 2009).

Table 2 Important Defintions

	Variable	Definition
Perso	onal Attitudes focuses on capt	uring a person's moral and/ or social perceptions related to substance use and the people who use these substances
(Skin	ner et al., 2009)	
1	. Familiarity defined as a me	asure of a person's experience and knowledge-related to substance use (Janulis et al., 2013)
2	. Perceived Dangerousness d	lefined as the level of threat a person with substance use poses to others and/or themselves (Janulis et al., 2013)
3	. Fear defined as a measure of	f how afraid a person is from a person with substance use problems (Janulis et al., 2013)
Profe	essional Attitudes focuses on a	a person's views regarding their responsibility to respond to AOD use-related problems within their work context
(Skin	ner et al., 2009)	
1.	Basic Role Requirement def	ined as "individual and situational factors hypothesized as facilitating (therapeutic commitment)" (Gorman and
	Cartwright, 1991, p. 328)	
a.	Role Support	The degree to which a provider feels supported to provide care to persons with AOD use-related problems
		(Terhorst et al., 2013; Watson et al., 2007)
2.	Role Security defined as how	w secure a healthcare provider feels about their AOD use-related knowledge and skills and the appropriateness of
	engaging in the care of patien	ts with these problems (Watson et al., 2007)
b.	Role Adequacy	"Addresses professionals' confidence in their capacity to respond to AOD issues effectively" (Skinner et al., 2009,
		p. 235)
c.	Role Legitimacy	"The extent to which an individual perceives their profession has a right to intervene in regard to AOD issues,
		and that it is an expectation of clients that they do so" (Skinner et al., 2009, p. 235)
3.	Therapeutic Commitment d	efined as the degree to which healthcare providers seek to engage persons with AOD use-related problems in treatment
	and the extent to which they f	ind such work rewarding on a personal and professional level (Gorman and Cartwright, 1991)
d.	Task-specific Self-esteem	Professional self-esteem associated with working with persons who use AOD (Gorman and Cartwright, 1991)

e. Work Satisfaction Expectations of satisfaction when providing care to persons who use AOD (Gorman and Cartwright, 1991)

- Perceived Role Responsibility defined as healthcare providers' perceived responsibility for substance use screening and treatment (Saitz et al., 2002)
- 5. Perceived Self-efficacy defined as healthcare providers' confidence in their ability to perform substance use screening and subsequent interventions (Saitz et al., 2002)
- 6. Situational Constraints defined as "factors operating in the agents' occupational situations" (Lightfoot and Orford, 1986, p. 751)

Other Definitions

1. AOD Use-Related Preventive Care defined as "any type of screening or intervention done in any primary care or hospital care setting studied" (Amaral-Sabadini et al., 2010, p. 3).

Note. AOD= Alcohol and other drug

4.4.4.1 Personal attitudes

All the studies, except for five (Albery et al., 2003; Cartwright, 1980; Kuthy et al., 2005; Lightfoot & Orford, 1986; Skinner et al., 2005), reported on the correlation between personal attitudes and demographic/background characteristics, professional attitudes, and motivation. Based on the literature, personal attitudes were categorized into four main categories: familiarity and personal AOD-related experiences, perceptions related to AOD-condition and treatment, fear and perceived dangerousness, and AOD-related stereotypical perceptions.

Familiarity and personal AOD-related experiences, which included AOD-experiences with a family member, friend, or their own use was reported in ten studies (Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Lock et al., 2002; Nash et al., 2017; Shepherd et al., 2010; Vadlamudi et al., 2008; Wakeman et al., 2013; Wechsler & Rohman, 1982). Perceptions-related to AOD-condition and treatment was also reported in ten studies (Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Crothers & Dorrian, 2011; Jacka et al., 1999; Lev-Ran et al., 2013; Mundon et al., 2015; Natan et al., 2009; Vadlamudi et al., 2008; van Boekel et al., 2013; Wechsler & Rohman, 1982). The expression of feelings of fear and perceived dangerousness related to AOD use problems was evident in four studies (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; Natan et al., 2009; Neville & Roan, 2014). Stereotypical perceptions related to AOD use was noted in 22 studies (Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Lev-Ran et al., 2013; Lindberg et al., 2006; Lock et al., 2002; Meltzer et al., 2013; Mundon et al., 2015; Natan et al., 2009; Neville & Roan, 2014; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et al., 2007; Skinner et al., 2005; Vadlamudi et al., 2008; van Boekel et al., 2013; Wechsler & Rohman, 1982). Appendix C provides detailed information on these variables' association with demographic/background characteristics, professional attitudes, and/ or motivation.

4.4.4.2 Professional attitudes

All studies included in this review reported professional attitude association with demographic/background characteristics, personal attitudes, and/ or motivation. For the purpose of this review, professional attitudes were divided into five main factors: basic role requirement, overall therapeutic attitudes, perceived role responsibility, perceived self-efficacy, and situational constrains.

Basic role requirement, which consists of AOD-related work experience, role support, AOD-education and general self-esteem, was reported in 21 studies (Albery et al., 2003; Cartwright, 1980; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Kuthy et al., 2005; Lightfoot & Orford, 1986; Lock et al., 2002; Meltzer et al., 2013; Mundon et al., 2015; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Nordqvist et al., 2006; Silins et al., 2007; Skinner et al., 2005; Vadlamudi et al., 2008; van Boekel et al., 2013; Wakeman et al., 2013; Wechsler & Rohman, 1982. Of these 21 studies, 18 studies reported on AOD-related working experience (Albery et al., 2003; Cartwright, 1980; Crothers & Dorrian, 2011; Ford et al., 2008; Kuthy et al., 2005; Lightfoot & Orford, 1986; Lock et al., 2002; Meltzer et al., 2013; Mundon et al., 2015; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Nordqvist et al., 2006; Silins et al., 2007; Skinner et al., 2005; Vadlamudi et al., 2008; van Boekel et al., 2013; Wakeman et al., 2013), nine studies reported on role support (Albery et al., 2003; Cartwright, 1980; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Lightfoot & Orford, 1986; Natan et al., 2009; Neville & Roan, 2014; Skinner et al., 2005), ten studies reported on AOD-education (Albery et al., 2003; Cartwright, 1980; Ford et al., 2008; Ford et al., 2009; Lightfoot & Orford, 1986; Meltzer et al.,

2013; Skinner et al., 2005; Vadlamudi et al., 2008; Wakeman et al., 2013; Wechsler & Rohman, 1982), and only three studies reported on providers' general self-esteem (Albery et al., 2003; Cartwright, 1980; Lightfoot & Orford, 1986).

Findings related to overall therapeutic attitudes, which consisted of role adequacy, role legitimacy, task-specific self-esteem, work satisfaction and motivation, was reported in 25 studies (Albery et al., 2003; Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Kuthy et al., 2005; Lev-Ran et al., 2013; Lightfoot & Orford, 1986; Lindberg et al., 2006; Lock et al., 2002; Meltzer et al., 2013; Mundon et al., 2015; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et al., 2007; Skinner et al., 2005; Wakeman et al., 2013; Wechsler & Rohman, 1982). Of these 25 studies, 19 studies reported on role adequacy (Albery et al., 2003; Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Lightfoot & Orford, 1986; Lindberg et al., 2006; Lock et al., 2002; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et al., 2007; Skinner et al., 2005; Wakeman et al., 2013; Wechsler & Rohman, 1982), 16 studies reported on role legitimacy (Albery et al., 2003; Amaral-Sabadini et al., 2010; Bendtsen and Åkerlind, 1999; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Lightfoot & Orford, 1986; Lock et al., 2002; Nash et al., 2017; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et al., 2007; Skinner et al., 2005), four studies reported on task-specific self-esteem (Albery et al., 2003; Crothers & Dorrian, 2011; Lightfoot & Orford, 1986; Nash et al., 2017), 14 studies reported on work satisfaction (Albery et al., 2003; Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al.,

2009; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Lev-Ran et al., 2013; Lightfoot & Orford, 1986; Lindberg et al., 2006; Nash et al., 2017; Natan et al., 2009; Skinner et al., 2005), and 12 studies reported on motivation and overall therapeutic attitudes (Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Kuthy et al., 2005; Lightfoot & Orford, 1986; Meltzer et al., 2013; Mundon et al., 2015; Nash et al., 2017; Natan et al., 2009; Silins et al., 2007; Wakeman et al., 2013).

Perceived role responsibility was reported in six studies (Hettema et al., 2009; Jacka et al., 1999; Nash et al., 2017; Neville & Roan, 2014; Nordqvist et al., 2006; Silins et al., 2007). Ten studies reported on perceived self-efficacy/ confidence (Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Natan et al., 2009; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et al., 2007; Vadlamudi et al., 2008), and only two studies reported on situational constraints (Albery et al., 2003; Lightfoot & Orford, 1986). Appendix D provides detailed information about the professional attitudes across the set of studies.

4.5 DISCUSSION

This review synthesized the existing evidence from twenty-eight articles on factors that influence HCPs' motivation to provide AOD use-related care. This review identified that HCPs' motivation was associated with three main factors: healthcare providers' demographic/ background characteristics, personal attitudes, and professional attitudes.

The review revealed that certain demographic characteristics, including age, gender, AODeducation, discipline of provider, and work setting/ specialty influenced healthcare providers' motivation to provide AOD-related care. In four studies, younger HCPs were found to be more willing to work with patients with at-risk AOD use (Crothers & Dorrian, 2011; Kuthy et al., 2005; Lightfoot & Orford, 1986; Silins et al., 2007). However, older healthcare providers reported higher level of confidence and perceived AOD use-related treatment as more effective but were less likely to question their patients about their drug use (Jacka et al., 1999; Lev-Ran et al., 2013). Yet, three studies reported that age was not correlated with providers' motivation or modifying effect on educational intervention impact (Ford et al., 2008; Ford et al., 2009; Vadlamudi et al., 2008). Although male providers expressed greater comfort and confidence working with AOD use-related problems and had fewer negative perceptions or emotional response, they were less likely to be interested in pursuing a career in the addictions specialty, compared to their female counterparts (Jacka et al., 1999; Kuthy et al., 2005; Mundon et al., 2015; Silins et al., 2007). However, there was no difference in perceived levels of treatment efficacy for drug use-related problems based on gender (Jacka et al., 1999). In three studies, gender was not associated with providers' motivation or regard (Ford et al., 2008; Ford et al., 2009; Meltzer et al., 2013).

Motivations also varied by healthcare providers' discipline (Bendtsen & Åkerlind, 1999; Johansson et al., 2002; Lightfoot & Orford, 1986; Lock et al., 2002; Skinner et al., 2005; Wechsler & Rohman, 1982). Nurses were less likely to screen for alcohol use-related problems, compared to GPs (Johansson et al., 2002). In addition, social workers reported less awareness of the resources available to help patients with alcohol use problems, compared to nurses (Lightfoot & Orford, 1986). Weschler and Rohman (1982) found that medical graduate students reported the greatest willingness to work with patients with alcohol use problems, while social workers and counseling students reported the least. In spite of this high level of willingness to work with patients with alcohol use problems, medical students were the least willing, among all the four students' groups, to devote time for the care of patients with alcohol use problems. This lack of investment may indicate that medical students' motivation stem primarily from ethical duty rather than genuine interest in providing care to these patients. One study by Amaral-Sabadini and colleagues (2010), however, revealed that providers' readiness to implement AOD use-related preventive measure did not differ by discipline.

Work setting/specialty was also found to be associated with providers' motivation (Cartwright, 1980; Ford et al., 2008; Ford et al., 2009; Lev-Ran et al., 2013; Lightfoot & Orford, 1986; Mundon et al., 2015; Silins et al., 2007; van Boekel et al., 2013; Wakeman et al., 2013). For example, providers who work in an ambulatory setting rated their addiction training as good/excellent compared to those working in outpatient clinic or in-patient clinic (Wakeman et al., 2013). However, Lev-Ran and colleagues (2013) reported that there was no difference in AODrelated attitudes between physicians working in community and those working in hospitals. Providers specialized in AOD reported more positive attitudes compared to those working in a community setting (Cartwright, 1980). In a study by Ford and colleagues (2008; 2009), the authors found that nurses specialized in AOD or midwives and in maternal and child health practices reported greater motivation compared to other practice groups. Healthcare providers working in addiction and psychiatric-mental health fields reported greater willingness and motivation to work with patients who use AOD, compared to GPs and other specialization (Lev-Ran et al., 2013; van Boekel et al., 2013). This finding is to be expected since those who work in addiction and/or psychiatric-mental health are more frequently exposed to this patient population and report receiving ample support and training related to substance use in these setting (Cartwright, 1980). However, Wakeman and colleagues (2013) reported that there was no difference in preparedness to treat, based on years of training and between those who intend to pursue general medicine and those who want to be specialized.

Other factors that may influence healthcare providers' motivation included both personal and professional attitudes. Personal attitudes examined included: familiarity and personal AODrelated experiences, perceptions-related to AOD-condition and treatment, fear and perceived dangerousness, and AOD-related stereotypical perceptions. Findings related to the association with providers' motivation to provide AOD-related care and familiarity and personal experience with AOD use-related problems were mixed (Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Lock et al., 2002; Nash et al., 2017; Shepherd et al., 2010; Vadlamudi et al., 2008; Wakeman et al., 2013; Wechsler & Rohman, 1982). According to Lock and colleagues (2002), participants expressed hesitancy in working with patients with alcohol use problems because of their own use. Yet, three studies reported that providers' own AOD use was not associated with their motivation and therapeutic commitment toward patients who use drugs or their readiness to implement AOD-related preventive measures (Amaral-Sabadini et al., 2010; Ford et al., 2008; Ford et al., 2009). Likewise, Vadlamudi and colleague's study (2008) revealed that being acquainted with someone with alcohol use problems or providers' own use did not influence the educational intervention impact on participants' confidence to provide alcoholrelated care. Participants in the study by Crothers and Dorrian (2011) who reported drinking more 1-2 or more than 2 standard drinks reported greater levels of personal attitudes (i.e. negative perceptions) toward alcohol use compared to those who did not drink.

Providers' perceptions about whether patients were responsible for their AOD-condition and their treatment efficiency was also associated with their willingness and motivation to work with these patients (Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Jacka et al., 1999; Lev-Ran et al., 2013; Mundon et al., 2015; Natan et al., 2009; Vadlamudi et al., 2008; van Boekel et al., 2013; Wechsler & Rohman, 1982). Clinicians who attribute the cause of the AOD use-related problems to patients' weak will and their failure to sustain treatment to their inability to control their condition were more likely to be less willing to provide care to patients with AOD use problems (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; van Boekel et al., 2013; Wechsler & Rohman, 1982). Jacka and colleagues (1999) reported that a key factor in how providers' managed patients with AOD use problems was associated with patients' perceiving their own AOD use as a problem. However, some clinicians still believed that, although patients may be responsible for their condition, they still deserved high-quality care (Natan et al., 2009). Thus, blaming patients for their condition and efficacy of treatment management may be a salient determinant of the healthcare provider's reactions and motivation to provide care. Additionally, feeling afraid to work with patients who have AOD use problems and greater perceived dangerousness were linked with poorer willingness and motivation to work with those patients (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; Natan et al., 2009; Neville & Roan, 2014). In addition, participants reported concerns regarding contracting contagious diseases such as hepatitis and HIV (Natan et al., 2009). The review also revealed that healthcare providers who endorsed stereotypical perceptions related to AOD use (i.e. stigma perceptions) were less willing to screen for and provide healthcare services to AOD patients compared to other patient populations (Amaral-Sabadini et al., 2010; Ford et al., 2008; Ford et al., 2009; Lindberg et al., 2006; Lock et al., 2002; Mundon et al., 2015; Natan et al., 2009; Neville & Roan, 2014; Wechsler & Rohman, 1982). Stereotypical perceptions were also linked to lower quality of care provided to this patient population (Lev-Ran et al., 2013; Natan et al., 2009).

Professional attitudes were also found to have considerable impact on providers' AODmotivation. Basic role requirement was positively associated with providers' motivation (Albery et al., 2003; Cartwright, 1980; Jacka et al., 1999; Kuthy et al., 2005; Lightfoot & Orford, 1986;

Mundon et al., 2015; Silins et al., 2007; Skinner et al., 2005; van Boekel et al., 2013; Wakeman et al., 2013; Wechsler & Rohman, 1982). Likewise, AOD-related work experience was positively associated with a higher motivation level among healthcare providers (Albery et al., 2003; Cartwright, 1980; Kuthy et al., 2005; Lightfoot & Orford, 1986; Mundon et al., 2015; Silins et al., 2007; Vadlamudi et al., 2008; van Boekel et al., 2013). Lightfoot and Orford (1986), however, found no correlation between length of service and motivation to provide care to patients with alcohol use problems. In addition, Silins and colleagues (2007) found that contact with alcohol use problems did not impact their attitudes towards this patient population. Similarly, two studies reported that AOD-years of experience or years of training were not associated with providers' motivation to provide care (Meltzer et al., 2013; Skinner et al., 2005). On the other hand, three studies reported that previous negative experience with AOD use problems and years of experience as a nurse impacted their willingness and preparedness to provide care to this population (Ford et al., 2008; Lock et al., 2002; Wakeman et al., 2013). As a result, increasing exposure to AOD use problems may not be enough to enhance providers' motivation. The context in which the patient encounter takes place may also play an important part in shaping HCPs perceptions and willingness to work with patients with AOD use-related problems.

Role support, in several studies, was also found to be an important influential factor of providers' motivation (Albery et al., 2003; Cartwright, 1980; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Lightfoot & Orford, 1986; Skinner et al., 2005). Role support also had an indirect effect on AOD use-related motivation through the mediation of AOD-education and training, role legitimacy, role adequacy, and situational constraints on providers' motivation (Albery et al., 2003; Ford et al., 2008; Ford et al., 2009). Two studies that examined the impact of drug use-related education on nurses' motivation found that education was counterproductive

when nurses' perceived role support was low (Ford et al., 2008; Ford et al., 2009). In three studies, education was associated with higher self-esteem, greater satisfaction, and motivation to provide drug-related care only when role support levels were moderate to high (Albery et al., 2003; Cartwright, 1980; Ford et al., 2009). The effect of education on HCPs' therapeutic commitment and motivation was found to be potentiated by moderate to high levels of role support (e.g. formal supervision and/or informal colleague support) (Ford et al., 2009). Thus, role support is considered a key factor in AOD use-related acquired knowledge and skills transfer into clinical practice.

The association between AOD-education and providers' motivation was not clear. In six studies, AOD-education was positively associated with greater willingness and motivation among healthcare providers (Albery et al., 2003; Ford et al., 2008; Lightfoot & Orford, 1986; Skinner et al., 2005; Wakeman et al., 2013; Wechsler & Rohman, 1982). However, in the Cartwright (1980) study, the impact AOD-education had on providers' attitudes was contingent upon providers' perceived role support and experience level. In addition, Meltzer and colleagues (2013) reported no change in internal medicine residents' motivation to work with patients who presented with narcotic use disorder. Moreover, Nash and colleagues (2017) found no change in baccalaureate nursing students' motivation to work with patients who have alcohol use problems. The effects of AOD-education seem to be mediated by healthcare providers' perceived role support (Ford et al., 2008; Ford et al., 2009). In those reports, the authors conveyed that the effect of AOD-education on HCPs' motivation was negated when role support to implement preventive AOD use measures in the workplace was low (Ford et al., 2008; Ford et al., 2009). These mixed results highlight the need to conduct studies that more precisely examine the relationship between AOD use-related education and healthcare providers' motivation. General self-esteem was also found to impact providers' therapeutic attitudes and AOD-motivation, but to a lesser degree than AOD-experience,

role support, and AOD-education (Albery et al., 2003; Cartwright, 1980; Lightfoot & Orford, 1986). According to Cartwright (1980), the impact of providers' general self-esteem on therapeutic attitudes towards alcohol use depends upon their perceived role support and level of experience.

Overall therapeutic attitudes, which consist of role security and therapeutic commitment, had a positive on healthcare providers' motivation (Albery et al., 2003; Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Johansson et al., 2002; Nash et al., 2017; Skinner et al., 2005). Role adequacy was found to be positively associated with motivation (Albery et al., 2003; Nash et al., 2017; Skinner et al., 2005). However, participants reported that although they had the necessary knowledge and skills set to provide care to patients with AOD use problems, they still felt uncomfortable to treat this patient population (Natan et al., 2009). Role legitimacy emerged as a strong predictor of providers' AOD-motivation, especially among nurses (Albery et al., 2003; Ford et al., 2008; Ford et al., 2009; Nash et al., 2017; Skinner et al., 2005). Furthermore, task-specific self-esteem was also positively correlated with motivation among healthcare providers (Albery et al., 2003; Nash et al., 2017). Work satisfaction was also positively associated with providers' motivation (Albery et al., 2003; Amaral-Sabadini et al., 2010; Nash et al., 2017; Skinner et al., 2005). In fact, Amaral-Sabadini and colleagues (2010) reported that healthcare providers who reported high levels of work satisfaction were 6.2 and 10.6 times more likely to implement preventive measures for alcohol use and drug use, respectively. Similarly, perceived role responsibility and self-efficacy (or confidence) were positively associated with providers' motivation (Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et al., 2007; Vadlamudi et al., 2008). On the other hand, situational constraints negatively influenced providers' motivation (Albery et al.,

2003; Lightfoot & Orford, 1986). According to Albery and colleagues (2003), the association between situational constraints and therapeutic commitment, including motivation, was also medicated by role security (role adequacy and role legitimacy).

4.5.1 Limitations

Most of the included studies used a descriptive design and had some methodological weaknesses such as the use of a convenience sample, low response rate, and small sample size (Albery et al., 2003; Amaral-Sabadini et al., 2010; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; ; Kuthy et al., 2005; Lev-Ran et al., 2013; Lightfoot & Orford, 1986; Lindberg et al., 2006; Natan et al., 2009; ; Skinner et al., 2005; van Boekel et al., 2013; Wakeman et al., 2013; Wechsler & Rohman, 1982). The seven studies that utilized an interventional design also had methodological restrictions because of the use of a single pretestposttest sample (Bendtsen & Åkerlind, 1999; Cartwright, 1980; Hettema et al., 2009; Johansson et al., 2002; Meltzer et al., 2013; Nash et al., 2017; Vadlamudi et al., 2008). The absence of control groups in these interventional studies limited the authors' ability to establish causality. A reactivity effect can be a limitation when there is a short duration between the pre-test and posttest. In three of the seven studies, the duration between pre-test and post-test was less than a month (Hettema et al., 2009; Johansson et al., 2002; Vadlamudi et al., 2008). Furthermore, most of the studies that performed interventional designs either did not perform a follow-up or had a short follow-up time period, which poses concerns about the sustainability of the intervention effects over time (Bendtsen & Åkerlind, 1999; Cartwright, 1980; Hettema et al., 2009; Johansson et al., 2002; Meltzer et al., 2013; Nash et al., 2017; Vadlamudi et al., 2008).

All the studies included in this review utilized self-report methods to measure HCPs' motivation. Only six expressed concerns about social desirability bias (Crothers & Dorrian, 2011; Lev-Ran et al., 2013; Meltzer et al., 2013; Mundon et al., 2015; Silins et al., 2007; van Boekel et al., 2013). One study found that social desirability was positively correlated with providers' regard (van Boekel et al., 2013). Of those six studies, three reported that extra measures were taken to reduce social desirability bias effects, such as ensuring the participants anonymity or not inquiring about participants' own AOD use (Crothers & Dorrian, 2011; Lev-Ran et al., 2013; Silins et al., 2007).

An additional methodological limitation of these studies is related to the diversity of the assessment tools used to measure healthcare providers' motivation. None of the studies included a clear definition of motivation. Only nine of the selected studies had motivation as their main outcome (Amaral-Sabadini et al., 2010; Hettema et al., 2009; Johansson et al., 2002; Kuthy et al., 2005; Nash et al., 2017; Skinner et al., 2005; Vadlamudi et al., 2008; van Boekel et al., 2013; Wakeman et al., 2013). Kuthy and colleagues (2005) reported that participants' interpretation of the term "willingness to treat" varied, which made the validity of their results questionable. In the quantitative studies that examined motivation, multiple assessment tools were used, thus, limiting the generalizability of their findings. Moreover, the majority of the studies that utilized a developed motivation assessment tool did not report its psychometric properties (Amaral-Sabadini et al., 2010; Bendtsen & Åkerlind, 1999; Jacka et al., 1999; Johansson et al., 2002; Kuthy et al., 2005; Lev-Ran et al., 2013; Lightfoot & Orford, 1986; Lindberg et al., 2006; Meltzer et al., 2013; Mundon et al., 2015; Nash et al., 2017; Natan et al., 2009; Nordqvist et al., 2006; Silins et al., 2007; Wakeman et al., 2013; Wechsler & Rohman, 1982). Another major limitation of the reviewed studies is related to the use of samples that were predominantly female and Caucasian participants and were therefore, not representative of all clinicians. This highlights the need to target a more diverse providers' population in future studies.

These limitations affect the quality of available evidence and, thus, impact the generalizability and interpretation of the findings presented in this review. To enhance our understanding of factors influencing HCPs' motivation, future research may explore all three main factors together to see how they collectively enhance HCPs' motivation and must include a more diverse population that include men and minorities as participants. Future studies should perform a randomized control design (RCT) to examine the direct causal relationship between AOD use-related education and providers' motivation as well as to control for potential confounding factors.

In addition, this study has several limitations. First, the findings of this review are particular to the broad definition of the term motivation. Second, because of the interaction between some of the factors mentioned in the study, when categorizing the findings, decisions to place them under one factor or another may not be in accord with everyone else's views. Third, while motivation and confidence were used interchangeably in this review, when outlining the findings in the tables, the decision was made to put confidence under self-efficacy.

4.5.2 Clinical Implications

The findings of this literature review provide valuable insights to enhance HCPs' AODmotivation. First, in order to enhance the influence AOD-education has on HCPs' motivation, medium to high levels of role support in their workplace is needed. Perceived role support might take the form of having an addiction specialist available to provide clinical expertise and consultation for general clinicians. In addition, enhancing role support may also help improve general clinicians' AOD perceived role adequacy, legitimacy, and confidence. This level of role support will subsequently enhance HCPs' motivation to provide AOD-related care. Secondly, increasing HCPs' experience with patients with AOD use problems, including more frequent contact may help decrease their feelings of fear and perceived dangerousness as well as increase their motivation to work with this patient population. However, the context in which the first patient encounter takes place may be instrumental in shaping providers' perceptions for the future and eventually, their motivation to provide care AOD use problems (Mahmoud et al., 2019). For example, having providers work with patients in recovery early in their career may have a more positive impact on their willingness in the long term to work with patients with similar conditions, compared to providers whose early AOD-experience is with patients who are in withdrawal or who have overdosed. Thirdly, healthcare providers' perceptions related to patients' responsibility for and control over their AOD use condition also play an important role in shaping their personal attitudes (i.e. stereotypical perceptions) and motivation to provide care. Incorporating the neurobiological basis of SUD education as a part of medical, nursing, and other health affiliated schools, continuing and in-service education may contribute to enhancing providers understanding about the disease nature of SUDs. Having individuals share their personal experiences with substance use and recovery can be influential on attitudes toward patients (Dumenco et al., 2019), helping to dispel negative views related to the causes of SUD and promote understanding of the efficacy of available treatments.

4.6 CONCLUSION

This review provides insights about demographic/background characteristics as well as personal, and professional factors that may influence HCPs' AOD-motivation. While these factors were evident across the studies, no study provided a comprehensive examination of all, or even a majority of the possible factors. A limited number of studies focused on the impact of HCPs' AOD-related personal attitudes on their motivation. Examining these factors as a collective and their interactions will help identify additional educational and clinical practice gaps that may inform interventions aiming to enhance screening for at-risk AOD use, promote the transfer of AOD-acquired knowledge and skills into clinical practice, and foster implementation of evidence-based interventions.

5.0 MANUSCRIPT 2: Factors Associated with Nurses' Motivation to Provide Alcohol- and Opioid-Related Care

5.1 ABSTRACT

Background: Alcohol and opioid use (AO) problems present a national public health issue that contributes significantly to increased morbidity rates and premature deaths as well as increased economic burden. Understanding factors associated with nurses' AO-motivation is important in developing interventions to enhance AO-motivation to provide care. Methods: A descriptive, correlational design was used. Behavioral and non-behavioral health nurses were recruited from four hospital settings in Southwestern Pennsylvania. Data on nurses' demographic/background characteristics, personal attitudes, professional attitudes, and motivation related to AO use were collected using an investigator-developed questionnaire and adapted personal and professional attitudinal subscales targeting their perceptions related to alcohol and opioid use problems. **Results:** A sample of 234 nurses (111 behavioral health nurses and 123 non-behavioral nurses) were included in the analyses. The study revealed demographics/background characteristics associated with AO-motivation were primary workplace and nursing specialization. For AOmotivation, all personal attitudes were associated with nurses' motivation with the exception of the psychosocial model of illness. In addition, all professional attitudes were associated with AOmotivation. Conclusions: The study demonstrated that certain demographic/background characteristics, personal and professional attitudes were associated with nurses' AO-motivation. The findings of this study provide the basis for future studies that aim to examine factors associated with nurses' AO-motivation and their possible interactions.

Keywords: nurses, motivation, factors, alcohol and opioid

5.2 INTRODUCTION

Alcohol and other drug (AOD) use contributes to the global burden of disease and increases risk for injury and premature death (World Health Organization [WHO], 2018a). Alcohol use is among the top four factors contributing to increased morbidity and mortality rates as well as the global burden of disease and has been linked to more than 200 physical and psychological diseases (WHO, 2018a; WHO, 2018c). According to the World Health Organization (WHO), alcohol use causes death and disability relatively early in life. In the age group 20–39 years, around 13.5 % of total deaths are attributed to alcohol use (WHO, 2018a). In addition, every year 88,000 Americans die of an alcohol use problem (Centers for Disease Control and Prevention [CDC], 2018; National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2019). Globally, 5.1 % of the global burden of disease and injury are attributed to alcohol use and costs the United States \$249 billion per year as a result of loss in productivity, health care expenses, and law enforcement costs (Substance Abuse and Mental Health Services Administration [SAMSHA], 2016; WHO, 2018a).

Moreover, 275 million people use illicit drugs and 31 million suffer from drug use disorders (WHO, 2018b). In the United States, drug overdoses resulted in 702,568 deaths between 1999 and 2017, with 56.8% of those deaths involving opioids (CDC, 2019a). From 2016 to 2017, death rates from opioid overdoses increased by 9.6%, reaching 70,237 (CDC, 2019a). In addition, more than 130 Americans die from an opioid overdose everyday (CDC, 2018). The current opioid epidemic surge is mainly driven by synthetic opioids such as Fentanyl (CDC, 2019a). In fact, in 2016 synthetic opioid overdoses surpassed opioid prescription deaths in the United States, and was involved in 50% of all opioid deaths, compared to 10% in 2010 (National Institute on Drug Abuse [NIDA], 2018).

Despite the growing prevalence of alcohol and opioid (AO) use problems, existing healthcare systems are often not adequately prepared to provide care for this patient population. As a result, patient's AO-health related problems are often not recognized, and their needs are not adequately addressed within the healthcare system. As change agents, nurses can promote the WHO and Institute of Medicine (IOM) strategies to address AO use through implementation of early identification, brief intervention, and referral to treatment as necessary (Naegle, 2017; Woolf & Aron, 2013; WHO, 2018d). Recent intervention studies that targeted nurses' professional attitudes via the introduction of screening, brief intervention and referral to treatment (SBIRT) education and clinical exposure into nursing curricula revealed that although participants' attitudes and beliefs towards patients who use alcohol and other drugs increased (Mitchell et al, 2017; Mitchell et al., 2016; Mitchell et al., 2013; Puskar et al., 2013; Puskar et al., 2016a; Puskar et al., 2016b), their motivation to work with people who use alcohol did not increase significantly using education and clinical exposure (Mahmoud et al., 2019; Mitchell et al., 2017; Nash et al., 2017; Puskar et al., 2016a; Puskar et al., 2016b). In fact, in some cases, nursing students' motivation decreased after intervention (Mitchell et. al., 2016; Puskar et al., 2013). Nurses' low motivation has been linked to delays in AO-related use problem identification, access to healthcare services, and further, increased the likelihood of patients dropping out of treatment (Naegle, 2017). Thus, it is imperative to explore the factors that are associated with nurses' motivation to provide care to patients who use AO, in order to promote the transfer of AO-related acquired knowledge and skills into clinical practice, and to foster the implementation of AO-related preventive measures.

5.2.1 Purpose

The purpose of this pilot study was to examine the relationship between nurses' demographics/background characteristics, personal attitudes, professional attitudes, and their motivation to provide care to patients who use AOs. Studies are lacking that explore the relationship between these variables and nurses' motivation to provide care to patients who use alcohol and opioids.

5.3 METHODS

5.3.1 Design

A descriptive, correlational design was used to examine the associations between nurses' demographic/background characteristics, personal attitudes and professional attitudes and their motivation to provide AO-related care. We also examined whether behavioral health nurses (psychiatric mental-health and addiction-trained nurses) and general medical-surgical (i.e., non-behavioral) nurses differed in their motivation to provide AO-related care.

5.3.2 Sample and Setting

A total sample of 264 nurses were recruited from four hospital settings from southwestern Pennsylvania. Inclusion criteria were: (1) currently working as a nurse in one of the four targeted hospital settings; and (2) being 18 years of age and older. The data collection was conducted over a period of nine months and occurred between May 2018 and January 2019. The study was approved by the Institutional Review Boards (IRB) of the university and the four hospitals (UPMC
Western Psychiatric Hospital (WPH), UPMC Mercy, UPMC Shadyside and UPMC McKeesport) where the study was conducted.

5.3.3 Measures

The pilot study feasibility was examined using an investigator developed questionnaire that assessed: (1) the overall recruitment; (2) monthly accrual rate (per month); and subject's burden via survey completion time (per minute).

Demographic/background characteristics were measured using an investigator developed questionnaire. The questionnaire included questions regarding age (years), experience in nursing (years), gender (female or male), race (Black or African American, Native Hawaiian/ Other Pacific Islander, Asian, Alaska Native, American Indian, or White), primary work setting (inpatient facility, outpatient facility, residential facility, community mental-health center, substance use treatment center, educational institution, administration, emergency department), specialization (primary medical-surgical, substance field, psychiatric mental-health, care, use obstetrics/gynecology, pediatrics, education, administration, emergency or other), and highest degree obtained in nursing (vocational/ technical certificate, 2-year college, 4-year college, graduate/master's level degree, or doctoral degree).

In addition, the investigator-developed questionnaire assessed nurses' personal experience with substance use (SU) (no-personal experience, self, friend, family member, co-worker, or other), work experience with SU (yes or no) and SU-education (No education, SU-nursing school education, SU-continuing education, SU-in-service education, or other sources of SU-education).

Participants were asked to complete a survey that focused on questions related to alcohol use problems and the same set of questions tailored for opioid use problems. The survey included scales that were adapted to measure participants' personal and professional attitudes related to alcohol and opioid use problems, along with a social desirability scale. The 30-item Person Centered Alcohol and Alcohol Perception Problems Questionnaire (PC-AAPPQ) was adapted to examine specific nurses' opioid related professional attitudes, as well as opioid use-related motivation (Johnson et al., 2019). While the Drug and Drug Perception Problems Questionnaire (DDPPQ) was considered, the motivation subscale consisted of only one item, whereas the PC-AAPPQ had five items relating to motivation. An overview of the study variables is provided in Table 3.

5.4 STATISTICAL ANALYSES

Analyses were performed using IBM[®] SPSS[®] Statistics (IBM Corp., Armonk, NY). Descriptive statistics were calculated for all variables based on the variable's level of measurement. For continuous variables with normal distributions, means and standard deviations were reported, whereas medians and interquartile ranges (IQR) were used to summarize continuous variables with skewed distributions. Frequencies and percentages were reported for categorical variables. In addition, appropriate descriptive analyses were used to summarize nurses' demographic/background characteristics, personal attitudes and professional attitudes by study group (behavioral vs non-behavioral health nurses).

Table 3 Study Variables

Variable	Measures	No. Items	as Reliability (Cronbach's α)	
Demographic/Background Characteristics			Alcohol	Opioid
Age	Years	1	-	-
Years of Experience in Nursing	Years	1	-	-
Gender	Female or Male	1	-	-
Race	White or Non-White	3	-	-
Primary Work Setting	Inpatient facility, Other settings, or Multiple settings	1	-	-
Specialization	Behavioral nurses or Non-behavioral medical- surgical nurses		-	-
Highest degree obtained in Nursing	Vocational/technical certificate, 2-year college, 4- year college, or Graduate level	1	-	-
Personal Attitudes			-	-
Personal Experience with Substance Use	Substance use personal experience with self, friend, family member, co-worker, or other. Each of these questions were answered as either 0 ("no") or 1 "yes"	6	-	-
Familiarity	An adapted version of the Corrigan and colleagues' (2003) Familiarity subscale was used. Each of the seven-items score ranged between 1 "no" and 2 "yes". The scores of the 7-items were summed into a single score	7	.516 ^a	.596
Perceived Dangerousness	An adapted version of the Link and colleagues' (1987) Perceived Dangerousness subscale was used. Each of the 8-items was scored using a 6-level Likert scale that ranged between 0 ("strongly disagree") and 5 ("strongly agree"). The scores of the 8-items were summed into a single score.	8	.766 ^b	.808ª
Fear	An adapted version of the Corrigan and colleagues' (2003) Fear subscale was used. Each of the 3-items was scored using a 9-level Likert scale that ranged between 1 ("not at all", "no, not at all") and 9 ("very much", "yes, very much"). The scores of the 3-items were summed into a single score.	3	.957	.982

Social Distance	An adapted version of Link and colleagues' (1987) Social Distance subscale was used. Each of the 7- items was scored using a 4-level Likert scale that ranged between 0 ("definitely willing") and 3 ("definitely unwilling"). The scores of the 7-items were summed into a single score	7	.857°	.892
Personal Responsibility Beliefs	An adapted version of the Corrigan and colleagues' (2003) Personal Responsibility Beliefs subscale was used. Each of the 3-items was measured using a 9- level Likert scale and between 1 ("no, not all", "not at all under personal control" or "not at all responsible") and 9 ("yes absolutely", "completely under personal control", or "very much responsible"). The 3-items and were summed to produce a single score.	3	.860	.897
Disease Model	An adapted version of the Disease Model subscale from the SUSS was used (Humphreys et al., 1996). Each of the 7-items subscales score was measured using a 5-level Likert scale that ranged between 1("strongly disagree") and 5 ("strongly agree"). The scores were summed into a single score.	7	.757	.792
Psychosocial Model	An adapted version of the Psychosocial Model subscale from the SUSS was used (Humphreys et al., 1996). Each of the 5-items subscales score was measured using a 5-level Likert scale that ranged between 1("strongly disagree") and 5 ("strongly agree"). The scores were summed into a single score.	5	.711ª	.788
Professional Attitudes				
Work Experience with Substance Use	0 ("no") or 1 ("yes").	1	-	-
Substance Use Education	Substance use education in nursing school, continuing education in substance use, in-service substance use education, or other sources of substance use education. Each of these questions is answered by either 0 ("no") or 1 ("yes")	5	-	-

Role Adequacy	* Role Adequacy subscale from the PC-AAPPQ was used (Anderson & Clement, 1987; Johnson et al., 2019). Each of the of the 7-items subscales score was measured using a 5-level Likert scale that ranged between 1("strongly disagree") and 5 ("strongly agree"). The scores were summed into a single score.	7	.909	.942
Role Legitimacy	* Role Legitimacy subscale from the PC-AAPPQ was used (Anderson & Clement, 1987; Johnson et al., 2019). Each of the of the 4-items subscales score was measured using a 5-level Likert scale that ranged between 1("strongly disagree") and 5 ("strongly agree"). The scores were summed into a single score.	4	.686	.725
Role Support	* Role Support subscale from the PC-AAPPQ was used (Anderson & Clement, 1987; Johnson et al., 2019). Each of the of the 3-items subscales score was measured using a 5-level Likert scale that ranged between 1("strongly disagree") and 5 ("strongly agree"). The scores were summed into a single score.	3	.832	.920
Task-specific Self-esteem	* Task-Specific Self-Esteem subscale in from the PC-AAPPQ was used (Anderson & Clement, 1987; Johnson et al., 2019). Each of the of the 6- items subscales score was measured using a 5-level Likert scale that ranged between 1("strongly disagree") and 5 ("strongly agree"). The scores were summed into a single score.	6	.835ª	.827ª
Work Satisfaction	* Work Satisfaction subscale from the PC-AAPPQ was used (Anderson & Clement, 1987; Johnson et al., 2019). Each of the of the 5-items subscales score was measured using a 5-level Likert scale that ranged between 1("strongly disagree") and 5 ("strongly agree"). The scores were summed into a single score.	5	.801	.841ª

Perceived Role Responsibility	An Adapted version of Saitz and colleagues' (2002)	4	.853	.891
	Role Responsibility subscale was used. Each of the			
	of the 4-items subscales score was measured using a			
	5-level Likert scale that ranged between 1("not at all			
	responsible") and 5 ("very responsible"). The scores			
	were summed into a single score.			
Perceived Self-efficacy	An Adapted version of Saitz and colleagues' (2002)	7	.916	.930
	Perceived Self-efficacy subscale was used. Each of			
	the of the 7-items subscales score was measured			
	using a 5-level Likert scale that ranged between			
	1("not at all confident") and 5 ("very confident").			
	The scores were summed into a single score.			
AO-Motivation				
Motivation	* Motivation subscale from the PC-AAPPQ was	5	.737	.746 ^a
	used (Anderson & Clement, 1987; Johnson et			
	al., 2019). Each of the of the 5-items subscales			
	score was measured using a 5-level Likert scale that			
	ranged between 1("strongly disagree") and 5			
	("strongly agree"). The scores were summed into a			
	single score.			
Social Desirability			Reliability (Cro	onbach's α)
Social Desirability	Reynold's (1982) 13-item Social Desirability scale	13	.7	09°
	was used. Each of the 13-items are measured using			
	ranged between 1 "False" and 2 "True". The scores			
	of the 13-items were summed into a single score.			

Note. ^a n=233; ^b n=230; ^c n=232; SUSS= Short Understanding of Substance Abuse Scale; PC-AAPPQ= Alcohol and Alcohol Perception Problems Questionnaire; AO= alcohol and opioid; * These subscales were adapted for opioid use

For scale and subscale scores with missing item information that was less than 20%, mean imputation using the item information available for the participant was used to substitute missing item values. The percentage of patients with missing data (n = 30) was less than 12% of the total sample (N = 264). Since the missing data were demographic/ background characteristics data we were not able to compare between the sample with missing data and the sample without missing data. However, the findings indicated that both groups were similar in age and years of experience, were predominately female, White, worked in inpatient setting, and around half of them had a 4-year degree in nursing. In addition, little's test for data missingness indicated that the data were missing completely at random (p = .426). Therefore, listwise deletion was performed and the sample size for analysis dropped from 264 to 234. This sample size was used in subsequent analyses. Finally, Winsorization technique, in which extreme values below the 5th percentile or above the 95th percentiles were set to their respective 5th and 95th percentiles, was applied to any primary continuous predictor variables with extreme values.

The pilot study's feasibility of overall recruitment was assessed by examining the total sample size recruited over the 9-month study period. The monthly accrual rate was calculated for the entire study regardless of the study site (total sample size/ 9-months) as well as by study site, which also varied by total number of months. Subject burden, which is reflected by the survey completion time (minutes), was calculated by subtracting the completion time from the starting time.

To examine the differences in participants' demographic/background characteristics, personal attitudes, professional attitudes and AO-related motivation between behavioral and nonbehavioral health nurses, two sample t-tests, Mann-Whitney U-tests, Chi-square tests of independence or Fisher exact tests were performed as appropriate. Linear regression analysis was used to examine the relationship between AO-related motivation and each nurses' demographic/background characteristics, personal attitudes, and professional attitudes. Unstandardized regression coefficient (*b*), standardized regression coefficient, including 95% confidence interval (CI) for the *b*, the test statistics and the exact p-value were reported for each of the predictor variables. The relationship between each study variable and the social desirability score was examined, as well as, the bivariate relationship between all study variables were examined using either the point biserial correlation, Pearson product-moment correlation, or Spearman rank-order correlation as appropriate.

Certain variables such as race, highest nursing degree obtained, primary work setting, and specialization had relatively small number of cases in certain categories. Therefore, these variables were further examined, and these sparse categories were meaningfully collapsed as appropriate. For race, non-white race categories, which include "Black or African American", "Alaska Native", "Asian", or "other" were grouped together as "Non-White". For the highest nursing degree obtained the categories of "doctoral degree" and "graduate level" were grouped together as "graduate degree". For the primary work setting the categories of "outpatient facility", "residential facility", "community mental health center", "substance use treatment center", "educational institution", "administration", "emergency department" and "other" were collapsed into "other". For specialty the categories of "medical-surgical", "primary care", "education", "administration", "emergency", and "other" were grouped together as "non-behavioral health nurses", while the categories of "substance use field" and "psychiatric-mental health" were grouped together as "behavioral-health nurses".

5.5 RESULTS

5.5.1 Feasibility Data

The overall sample size was 264 participants (Proportion=16.3%, 95% CI = [9.07%, 23.53%]). The monthly accrual rate across all study sites was 29 participants per month (Proportion=10.98%, 95% CI = [4.85%, 17.11%]). The overall median of survey completion time in minutes was 35 minutes (IQR = 16).

	Site 1 (n=290	Site 2 (n=147	Site 3 (n=999	Site 4 (n=180	Total (n=1616
Feasibility Parameter	7 months)	7 months)	3 months)	5 months)	9 months)
1. Overall recruitment, n (%)	106 (36.55)	86 (58.50)	37 (3.70)	35 (19.44)	264 (16.34)
2. Completeness of response, n (%)	95 (89.62)	72 (83.72)	35 (94.59)	32 (91.43)	234 (88.64)
2. Monthly accrual rate*	15	12	12	7	29
3. Subject burden (time in minutes	34 (<i>16</i>) ^a	37 (<i>18.50</i>) ^b	30 (10.50)	36 (<i>33</i>) °	35 (<i>16</i>) ^d
to complete the questionnaires),					
Median (IQR)					

Table 4 Feasibility of Study (N=264)

Note. *Monthly accrual rate= overall recruitment / number of months; IQR= Interquartile; ^a n= 105; ^b n= 84; ^c n= 31; ^d n= 257

5.5.2 Study Variables and Nurses' Specialization

5.5.2.1 Demographic/background characteristics

White females comprised the majority of the total sample (n=234) with a median age of 38.5 years (IQR = 26.0) and a median of 8.0 years of experience (IQR = 19.5). Most reported having a 4-year degree (n=108, 46.2%) and worked in inpatient settings (n=166, 70.9%). Behavioral health nurses comprised 47.4% of the sample. Table 5 provides descriptive statistics for the entire sample and by the type of nurse specialization (behavioral health or non-behavioral health), including the results of corresponding group comparative analyses. Demographic/background characteristics between behavioral health and non-behavioral health nurses differed significantly

for the following variables: study site (p < .001), age (p < .001), years of experience in nursing (p = .036), and primary workplace (p = .002). Behavioral health nurses were older and had more years of experience in nursing compared to their non-behavioral colleagues. The majority of non-behavioral health nurses reported working in inpatient settings (79.67%) compared to 61.26% of behavioral health nurses who worked in inpatient settings.

5.5.2.2 Personal attitudes

In contrast to non-behavioral health nurses, behavioral health nurses were more familiar with alcohol use problems (p = .015). In addition, behavioral health nurses perceived patients with at-risk alcohol use as less dangerous (p < .001), were less afraid to work with these patients (p = .015) and perceived less need to maintain a safe distance from this patient population (p = .004) compared to non-behavioral nurses. Moreover, behavioral health nurses were less likely to hold patients with at-risk alcohol use responsible for their alcohol-related condition and the control of their condition (p = .002). Non-behavioral health nurses were more likely to attribute the cause of a patient's alcohol-related condition to psychosocial factors (p = .011).

Personal attitudes related to opioid use problems also differed between behavioral health nurses and non-behavioral health nurses. When compared to non-behavioral health nurses, nurses who specialized in behavioral health were less likely to perceive patients with at-risk opioid use as dangerous (p < .001), were less afraid to provide care for these patients (p < .001) and were less likely to want to maintain a safe distance from the opioid patient population (p < .001). Furthermore, behavioral health nurses were less likely to attribute the responsibility for the opioid-related condition and its control to the patients themselves than general medical-surgical nurses (p < .001).

5.5.2.3 Professional attitudes

Professional attitudes among nurses differed significantly based on specialization for alcohol and opioid use (see Table 5). Behavioral nurses were more likely to report work experience with SU than non-behavioral nurses, χ^2 (1, N = 234) = 44.101, p < .001. Nurses specialized in behavioral health were also more likely to pursue continuing education in substance use compared to non-behavioral specialized nurses, χ^2 (1, N = 234) = 24.220, p < .001. In addition, nurses specialized in addiction and psychiatry were more likely to report receiving an in-service SU-education than non-behavioral nurses, χ^2 (1, N = 234) = 23.395, p < .001.

For alcohol use problems, behavioral health nurses reported having more alcohol-related knowledge and skills (role adequacy) (p < .001), perceived greater role legitimacy to inquire about patient's drinking habits (p < .001), and reported higher levels of perceived role support (p < .001), compared to nurses not specialized in behavioral health. Moreover, behavioral health nurses reported greater willingness to work with patients with alcohol use problems (p < .001), had a higher level of task-specific self-esteem towards alcohol use problems (p < .001) and felt more satisfied working with this patient population (p < .001) than non-behavioral health nurses. Behavioral health nurses were also more likely to report higher levels of perceived role responsibility towards addressing alcohol use problems within their workplace (p < .001) and higher levels of perceived self-efficacy levels towards alcohol use problems (p < .001) than non-behavioral health nurses.

Professional attitudes related to opioid use differed based on nurses' specialization. Behavioral health nurses had higher levels of role adequacy (p < .001), role legitimacy (p < .001) and role support related to opioid-related problems than non-behavioral nurses (p < .001). Motivation to provide care for patients with opioid use problems was also greater among behavioral specialized nurses (p < .001). Furthermore, nurses specializing in behavioral health reported higher levels of task-specific self-esteem (p < .001) and felt more satisfied working with patients with opioid use problems (p < .001), and had higher levels of perceived role responsibility and perceived self-efficacy towards responding to opioid use problems (p < .001) than non-behavioral health specialized nurses.

	Total	Behavioral	Non-Behavioral	
Variables	(N=234)	(n=111)	(n=123)	Test Statistic, p-value
A. Demographic/Background Characteristics				
Study Site				$\chi^2(3) = 142.198, p < .001$
Site 1, n (%)	95 (40.60)	86 (77.48)	9 (7.32)	
Site 2, n (%)	72 (30.77)	0 (0.00)	72 (58.54)	
Site 3, n (%)	35 (14.95)	17 (15.31)	18 (14.63)	
Site 4, n (%)	32 (13.68)	8 (7.21)	24 (19.51)	
Age, Median (IQR)	38.50 (26.00)	45.00 (25.00)	33.00 (22.00)	<i>U</i> = <i>4837.000</i> , <i>p</i> <.001
Years of Experience in Nursing, Median (IQR)	8.00 (19.50)	9.00 (24.00)	7.00 (17.00)	<i>U</i> = <i>5742.500</i> , <i>p</i> =. <i>036</i>
Gender				
Female, n (%)	190 (81.20)	88 (79.28)	102 (82.93)	$\chi^2(1) = 0.508, p = .476$
Race				$\chi^2(1) = 0.355, p = .551$
White, n (%)	219 (93.59)	105 (94.59)	114 (92.68)	
Primary Workplace				$\chi^2(2) = 12.180, p = .002$
Inpatient, n (%)	166 (70.94)	68 (61.26)	98 (79.67)	
Multiple, n (%)	25 (10.68)	19 (17.12)	6 (4.88)	
Other, n (%)	43 (18.38)	24 (21.62)	19 (15.45)	
Highest Degree Obtained in Nursing				$\chi^2(3) = 4.242, p = .236$
Vocational/Technical school certificate, n (%)	21 (8.98)	12 (10.81)	9 (7.32)	
2-year college (Associate's level), n (%)	63 (26.92)	34 (30.63)	29 (23.58)	
4-year college (Bachelors' level), n (%)	108 (46.15)	50 (45.05)	58 (47.15)	
Graduate Nursing Degree, n (%)	42 (17.95)	15 (13.51)	27 (21.95)	
B. Personal Attitudes				
Personal Experience with Substance Use				
Self, n (%)	36 (15.38)	19 (17.12)	17 (13.82)	$\chi^2(1) = 0.487, p = .485$
Friend, n (%)	94 (40.17)	41 (36.94)	53 (43.09)	$\chi^2(1) = 0.919, p = .338$
Family Member, n (%)	137 (58.55)	71 (63.96)	66 (53.66)	$\chi^2(1) = 2.553, p = .110$
Co-Worker, n (%)	40 (17.09)	21 (18.92)	19 (15.45)	$\chi^2(1) = 0.496, p = .481$
Other, n (%)	9 (3.85)	6 (5.41)	3 (2.44)	* <i>p</i> =.315
For Alcohol				
Familiarity, Median (IQR)	12.00 (2.00)	12.00 (2.00)	11.00 (2.00)	<i>U</i> = <i>5599.00, p</i> =. <i>015</i>

Table 5 Demographic/Background Characteristics, Personal Attitudes and Professional Attitudes Based on Specialization (N=234)

Perceived Dangerousness, Mean (SD)	13.63 (6.00)	11.67 (5.54)	15.40 (5.86)	t(232) = -5.00, p < .001
Fear, Median (IQR)	5.00 (4.00)	3.00 (3.00)	6.00 (6.00)	<i>U</i> = 4117.00, <i>p</i> <.001
Social Distance, Mean (SD)	12.47 (4.01)	11.68 (3.93)	13.18 (3.96)	t(232) = -2.891, p=.004
Personal Responsibility Beliefs, Mean (SD)	13.62 (5.47)	12.49 (5.16)	14.65 (5.56)	t(232) = -3.076, p=.002
Disease Model, Mean (SD)	12.33 (4.86)	12.27 (4.89)	12.38 (4.85)	t(232) = -0.176, p = .861
Psychosocial Model, Mean (SD)	13.17 (2.61)	12.72 (2.60)	13.58 (2.55)	t(232) = -2.554, p=.011
For Opioid				
Familiarity, Mean (SD)	10.63 (1.58)	10.72 (1.69)	10.55 (1.48)	t(232) = 0.810, p=.418
Perceived Dangerousness, Mean (SD)	18.00 (7.06)	15.59 (6.45)	20.17 (6.91)	t(232) = -5.229, p < .001
Fear, Median (IQR)	6.00 (6.00)	3.00 (4.00)	7.00 (6.00)	<i>U</i> = <i>4285.500</i> , <i>p</i> <.001
Social Distance, Median (IQR)	17.00 (6.00)	15.00 (7.00)	17.00 (5.00)	<i>U</i> = 4935.500, <i>p</i> <.001
Personal Responsibility Beliefs, Mean (SD)	13.70 (5.94)	12.11 (5.37)	15.13 (6.09)	t(232) = -4.008, p < .001
Disease Model, Mean (SD)	15.12 (5.11)	14.87 (5.27)	15.33 (4.97)	t(232) = -0.686, p = .494
Psychosocial Model, Mean (SD)	12.81 (3.04)	12.46 (3.15)	13.12 (2.91)	t(232) = -1.672, p=.096
C. Professional Attitudes				
Work Experience with Substance Use, n (%)	71 (30.34)	57 (51.35)	14 (11.38)	$\chi^2(1) = 44.101, p < .001$
Substance Use-Education	139 (59.40)	72 (64.86)	67 (54.47)	$\chi^2(1) = 2.613, p = .106$
School of Nursing, n (%)	62 (26.50)	46 (41.44)	16 (13.01)	$\chi^2(1) = 24.220, p < .001$
Continuous Education, n (%)	81 (34.62)	56 (50.45)	25 (20.33)	$\chi^2(1) = 23.395, p < .001$
In-Service Education, n (%)	15 (6.41)	11 (9.91)	4 (3.25)	$\chi^2(1) = 4.311, p = .038$
Other, n (%)	139 (59.40)	72 (64.86)	67 (54.47)	$\chi^2(1) = 2.613, p = .106$
For Alcohol				
Role Adequacy, Median (IQR)	25.00 (6.25)	27.00 (5.00)	24.00 (6.00)	<i>U</i> = 4431.00, <i>p</i> <.001
Role Legitimacy, Mean (SD)	14.53 (2.29)	15.40 (2.19)	13.75 (2.10)	t(232) = 5.875, p < .001
Role Support, Mean (SD)	11.24 (2.06)	11.74 (2.11)	10.79 (1.91)	<i>t</i> (232) = 3.609, <i>p</i> <.001
Motivation, Mean (SD)	17.65 (3.17)	18.94 (3.01)	16.48 (2.86)	<i>t (232) =6.400, p<.001</i>
Task-Specific Self-Esteem, Mean (SD)	22.42 (3.89)	23.53 (3.74)	21.41 (3.76)	<i>t</i> (232) = 4.310, <i>p</i> <.001
Work Satisfaction, Mean (SD)	17.47 (3.14)	18.64 (2.91)	16.41 (2.97)	t(232) = 5.802, p < .001
Perceived Role-Responsibility, Median (IQR)	3.25 (1.75)	3.75 (1.25)	2.75 (1.75)	<i>U</i> = <i>3372.500</i> , <i>p</i> <.001
Perceived Self-Efficacy, Mean (SD)	2.93 (1.11)	3.48 (1.03)	2.43 (.92)	t(232) = 8.211, p < .001
For Opioid				
Role Adequacy, Median (IQR)	25.00 (8.00)	27.00 (6.00)	22.00 (7.00)	<i>U</i> = 4011.00, <i>p</i> <.001
Role Legitimacy, Mean (SD)	14.87 (2.13)	15.54 (2.07)	14.27 (2.00)	<i>t</i> (232) = 4.773, <i>p</i> <.001
Role Support, Median (IQR)	12.00 (2.25)	12.00 (1.00)	11.00 (3.00)	<i>U</i> = 4608.500, <i>p</i> <.001
Motivation, Mean (SD)	17.01 (3.46)	18.70 (3.26)	15.49 (2.89)	<i>t (232) =7.990, p<.001</i>

Task-Specific Self-Esteem, Mean (SD)	21.11 (4.27)	22.89 (4.19)	19.51 (3.68)	<i>t</i> (232) = 6.571, <i>p</i> <.001
Work Satisfaction, Mean (SD)	16.45 (3.76)	18.25 (3.21)	14.83 (3.48)	t(232) = 7.805, p < .001
Perceived Role-Responsibility, Median (IQR)	3.00 (2.00)	4.00 (1.75)	2.50 (1.50)	<i>U</i> = <i>3399.00, p</i> < <i>.001</i>
Perceived Self-Efficacy, Mean (SD)	2.79 (1.14)	3.32 (1.08)	2.31 (.97)	t(232) = 7.581, p < .001

Note. IQR= interquartile range; * Fisher Exact Test was used; SD= standard deviation

5.5.3 Motivation to Provide Care

5.5.3.1 Demographic/ background characteristics

As reported in Table 6, linear regression revealed that nurses' age, years of experience in nursing, race, and highest degree obtained in nursing were not significantly associated with their motivation to provide alcohol-related care, whereas being a male nurse was associated with greater motivation to provide care for patients with at-risk alcohol use (p = .004). In addition, nurses' motivation to provide care for patients with at-risk alcohol use was greater among nurses who reported that they worked in multiple settings (p = .001) compared to those who reported working in either inpatient or other settings. Moreover, non-behavioral specialization was associated with lower motivation to provide alcohol-related care (p < .001).

The study also revealed that nurses' age, years of experience in nursing, gender, race, and highest degree obtained in nursing were not significantly associated with their motivation to provide opioid-related care. In addition, nurses' motivation to provide care for patients with at-risk opioid use was significantly greater among nurses who had worked in multiple settings (p < .001), while non-behavioral specialization was also associated with lower motivation to provide opioid-related care (p < .001).

5.5.3.2 Personal attitudes

As reported in Table 7, nurses who had previously experienced a substance use problem themselves (p = .018) or had a personal experience with a co-worker who had a substance use problem (p = .017) had significantly greater motivation to provide care to patients with at-risk

alcohol use. Being familiar with alcohol use problems was also associated with greater willingness to provide alcohol-related care (p = .002).

However, greater perceived dangerousness (p < .001), feeling afraid to work with alcohol use problems (p < .001), or preference to maintain a safe social distance (p < .001) from patients with alcohol use problems were associated with lower motivation to provide care to this patient population.

Nurses' who believed that patients were responsible for their alcohol-related condition and its control (personal responsibility beliefs) reported lower motivation (p < .001). Nurses who viewed alcohol use problems as a disease were less motivated to provide care to these patients (p= .033). Perceptions related to attributing the alcohol use problems to psychosocial factors were not associated with nurses' motivation.

Unlike alcohol use, nurses' opioid-related motivation was only significantly associated with nurses' personal experience if they had a previous substance use experience with a familymember (p = .033). Nurses who had a personal experience with a family member who had a substance use problem reported greater willingness to provide opioid-related care to their patients.

Nurses who were more familiar with opioid use problems and people who suffered from it were more willing to provide care to this patient population (p < .001). However, nurses who perceived patients with at-risk opioid use as dangerous (p < .001), expressed being afraid of them (p < .001), or preferred to maintain a safe distance from patients with opioid use problems (p < .001) had lower motivation. Moreover, nurses' who held patients responsible for their opioid use problems condition and its control were less motivated to provide opioid-related care (p < .001).

Predictor Variable	b	Standardized	t-test		95%Confidence Interval	
For Alcohol Use		Regression Coefficient		p-value	Lower Limit	Upper Limit
Age (years)	0.013	.055	0.833	.406	-0.017	0.043
Experience in Nursing (years)	-0.014	055	-0.844	.400	-0.046	0.018
Gender						
Female	Reference					
Male	1.544	.188	2.909	.004	0.498	2.590
Race						
White	Reference					
Non-White	0.535	.041	0.621	.535	-1.162	2.232
Primary Workplace						
Inpatient Settings	Reference					
Multiple Settings	2.225	.214	3.279	.001	0.888	3.562
Other Settings	0.542	.065	1.002	.318	-0.524	1.608
Specialization						
Behavioral-Health Nurses	Reference					
Non-Behavioral Medical-Surgical	-2.413	375	-6.155	<.001	-3.186	-1.641
Nurses						
Highest Degree Obtained in Nursing						
4-year college (Bachelors' level)	Reference					
Vocational/Technical school certificate	0.587	.052	0.761	.447	-0.932	2.107
2-year college (Associate's level)	0.286	.039	0.557	.578	-0.725	1.296
Graduate Nursing Degree	-0.294	035	-0.499	.618	-1.452	0.865
For Opioid Use						
Age (years)	0.004	.014	0.217	.828	-0.029	0.036
Experience in Nursing (years)	-0.023	085	-1.303	.194	-0.057	0.012
Gender						
Female	Reference					
Male	0.909	.103	1.575	.117	-0.228	2.046

Table 6 Demographic/Background Characteristics and Motivation for Alcohol and Opioids (N=234)

Race						
White	Reference					
Non-White	1.270	.090	1.377	.170	-0.547	3.086
Primary Workplace						
Inpatient	Reference					
Multiple	3.262	.292	4.574	<.001	1.857	4.666
Other	0.897	.101	1.577	.116	-0.224	2.017
Specialization						
Behavioral-Health Nurses	Reference					
Non-Behavioral Specialized Nurses	-3.213	465	-7.990	<.001	-4.005	-2.420
Highest Degree Obtained in Nursing						
4-year college (Bachelors' level)	Reference					
Vocational/Technical school certificate	1.164	.096	1.419	.157	-0.452	2.780
2-year college (Associate's level)	0.338	.043	0.620	.536	-0.736	1.413
Graduate Nursing Degree	-0.908	101	-1.451	.148	-2.140	0.325

Note. b = Unstandardized regression coefficient

Neither perceiving opioid use problem as a disease nor attributing the opioid use problems to psychosocial factors were associated with nurses' motivation to provide care to patients with atrisk opioid use.

5.5.3.3 Professional attitudes

As reported in Table 8 for alcohol use, work experience related to substance use was associated with greater motivation to provide care to these patients (p < .001). Receiving continuing education in substance use (p = .001) or other educational resources for substance use (p = .020) were associated with greater nurses' alcohol-related motivation. Results also showed that nurses who perceived themselves as more prepared (role adequacy, p < .001), entitled to ask patients about their drinking (role legitimacy, p < .001), or felt supported in their workplace (role support, p < .001) were more willing to work with patients who have alcohol use problems. In addition, the study showed that nurses who felt confident to perform specific tasks related to alcohol use care (task-specific self-esteem, p < .001), reported greater satisfaction working with these patients (work satisfaction, p < .001), felt responsible to address alcohol-related problems within their workplace (perceived role responsibility, p < .001), or felt overall confident to respond to alcohol-related issues (self-efficacy, p < .001) reported greater motivation.

For opioid use, work experience in substance use was also associated with greater motivation to provide care to these patients (p < .001). Likewise, receiving continuing education in substance use (p < .001) or from other resources (p = .011) was associated with greater opioidrelated motivation. Nurses who perceived themselves as more prepared (p < .001), entitled to inquire about patients' opioid use (p < .001), or felt supported within their workplace (p < .001) had greater motivation to work with patients with opioid use problems. Furthermore, the results suggest that nurses who felt confident to perform specific tasks related to opioid use care (p < .001), reported greater satisfaction caring for those patients (p < .001), felt a professional responsibility to address opioid use problems within their workplace (p < .001), and felt overall confident to respond to opioid related issues (p < .001) had greater motivation related to opioid care.

Predictor Variable	b	Standardized	t-test	p-value	95%Confidnece	e Interval for b
For Alcohol Use		Regression Coefficient			Lower Limit	Upper Limit
Personal Experience with Substance Use						
No-Experience	Reference					
Self	1.437	.161	2.383	.018	0.249	2.626
Friend	-0.379	058	-0.807	.421	-1.305	0.547
Family-Member	0.264	.040	0.583	.561	-0.629	1.157
Co-Worker	1.453	.170	2.408	.017	0.264	2.642
Other	-1.250	075	-1.156	.249	-3.382	0.881
Familiarity	0.440	.200	3.112	.002	0.162	0.719
Perceived Dangerousness	-0.246	460	-7.885	<.001	-0.307	-0.184
Fear	-0.540	481	-8.358	<.001	-0.667	-0.412
Social Distance	-0.256	318	-5.115	<.001	-0.354	-0.157
Personal Beliefs Responsibility	-0.147	250	-3.926	<.001	-0.221	-0.073
Disease Model	-0.093	140	-2.150	.033	-0.178	-0.008
Psychosocial Model	-0.064	052	-0.787	.432	-0.224	0.096
For Opioid Use						
Personal Experience with Substance Use						
No-Experience	Reference					
Self	1.048	.110	1.607	.110	-0.237	2.334
Friend	-0.575	082	-1.130	.260	-1.576	0.427
Family-Member	1.063	.152	2.168	.031	0.097	2.029
Co-Worker	0.856	.093	1.311	.191	-0.430	2.142
Other	-0.559	031	-0.478	.633	-2.865	1.746
Familiarity	0.622	.284	4.518	<.001	0.351	0.894
Perceived Dangerousness	-0.184	376	-6.182	<.001	-0.243	-0.126
Fear	-0.316	422	-7.098	<.001	-0.404	-0.228
Social Distance	-0.293	338	-5.470	<.001	-0.399	-0.188
Personal Beliefs Responsibility	-0.202	347	-5.637	<.001	-0.273	-0.131
Disease Model	-0.055	081	-1.242	.215	0.142	0.032
Psychosocial Model	0.001	.001	0.008	.994	-0.147	0.148

Table 7 Personal Attitudes and Motivation for Alcohol and Opioids (N=234)

Note. b= Unstandardized regression coefficient; AOD= alcohol and other drug

Predictor Variable	b	Standardized	t-test		95%Confidence	e interval for b
For Alcohol Use		Regression		p-value	Lower Limit	Upper Limit
		Coefficient			• • • •	•
Work Experience with Substance Use	2.873	.411	6.861	<.001	2.048	3.698
Substance Use Education						
No-Education	Reference					
School of Nursing	0.746	.114	1.798	.073	-0.072	1.563
Continuing Education	1.624	.223	3.426	.001	0.690	2.557
In-Service Education	0.834	.123	1.898	.059	-0.032	1.700
Other	1.937	.148	2.350	.020	0.313	3.561
Role Adequacy	0.328	.501	8.815	<.001	0.254	0.401
Role Legitimacy	0.559	.401	6.664	<.001	0.394	0.724
Role Support	0.476	.305	4.870	<.001	0.283	0.669
Task-Specific Self-Esteem	0.525	.634	12.472	<.001	0.442	0.608
Work Satisfaction	0.755	.755	17.546	<.001	0.670	0.840
Perceived Role-Responsibility	1.266	.452	7.709	<.001	0.943	1.590
Perceived Self-Efficacy	1.561	.536	9.679	<.001	1.243	1.879
For Opioid Use						
Work Experience with Substance Use	3.375	.449	7.660	<.001	2.507	4.243
Substance Use Education						
No-Education	Reference					
School of Nursing	0.641	.091	1.472	.142	-0.217	1.499
Continuing Education	2.238	.286	4.498	<.001	1.258	3.218
In-Service Education	0.886	.122	1.919	.056	-0.024	1.795
Other	2.232	.158	2.579	.011	0.527	3.937
Role Adequacy	0.325	.557	10.226	<.001	0.263	0.388
Role Legitimacy	0.724	.446	7.583	<.001	0.536	0.913
Role Support	0.684	.444	7.541	<.001	0.505	0.863
Task-Specific Self-Esteem	0.555	.685	14.324	<.001	0.478	0.631
Work Satisfaction	0.724	.792	19.761	<.001	0.651	0.796
Perceived Role-Responsibility	1.363	.473	8.180	<.001	1.035	1.692
Perceived Self-Efficacy	1.671	.551	10.067	<.001	1.344	1.998

 Table 8 Professional Attitudes and Motivation for Alcohol and Opioids (N=234)

Note. b= unstandardized regression coefficient

5.5.4 Correlation among Study's Variables for Alcohol Use

Table 9 presents correlations related to alcohol use among study's predictor variables. Given the large number of study variables, only significant moderate and strong correlations were reported ($|\mathbf{r}| > .3$).

In relation to demographic/background characteristics, only age had a positive strong correlation with years of experience in nursing (r = .83). Specialty had a positive moderate correlation with perceived dangerousness (r = .31), fear (r = .36), work experience with SU (r = .40), continuing education in SU (r = .31), and in-service education in SU (r = .30). On the other hand, specialty had a negative moderate correlation with role adequacy (r = .31), role legitimacy (r = .36), work satisfaction (r = .36), perceived role responsibility (r = .44), and self-efficacy (r = .48) scores.

Substance use personal experience with friend had a moderate positive correlation with substance use personal experience with a family member (r = .30), and co-worker (r = .35). Substance use personal experience with family-member was positively associated with alcohol-related familiarity score (r = .41). Familiarity with alcohol use problems also had a positive moderate relationship with role adequacy score (r = .31). Perceived dangerousness with alcohol use had a positive strong correlation with fear (r = .53), and social distance (r = .64) scores, while alcohol perceived dangerousness had a negative moderate correlation with work satisfaction (r = .42) and perceived self-efficacy (r = ..31) scores. Fear had a positive moderate correlation with social distance (r = .43) and personal responsibility beliefs scores (r = .35). Fear was also negatively correlated with role adequacy (r = ..35), role support (r = ..34), task-specific self-esteem (r = ..53), work satisfaction (r = ..51), role responsibility (r = ..34), and self-efficacy (r = ..42)

scores. Social distance had a positive correlation with the disease model score (r = .30) and a negative moderate relationship with work satisfaction score (r = -.35). Work experience with SU had a positive moderate correlation with continuing education in SU (r = .34), in-service education in SU (r = .31), role adequacy (r = .48), task-specific self-esteem (r = .32), work satisfaction (r = .37), role responsibility (r = .48), and self-efficacy scores (r = .47).

Continuing education in substance use had a positive moderate correlation with role adequacy (r = .37), role responsibility (r = .36), and self-efficacy (r = .38) scores. Likewise, inservice education in substance use had a positive correlation with role-responsibility (r = .31) and self-efficacy (r = .35) scores. Role adequacy had a positive correlation with role legitimacy (r = .64), task-specific self-esteem (r = .53), work satisfaction (r = .50), role responsibility (r = .49), and self-efficacy (r = .66) scores. Role legitimacy had a positive correlation with role support (r = .40), task-specific self-esteem (r = .48), work satisfaction (r = .38), role responsibility (r = .34), and self-efficacy (r = .54) scores. Role support had a positive correlation with task-specific self-esteem (r = .36) and self-efficacy (r = .34) scores. Task-specific self-esteem had a positive correlation with work satisfaction (r = .63), role responsibility (r = .39), and self-efficacy (r = .54) scores. Role support had a positive correlation with task-specific self-esteem (r = .63), role responsibility (r = .39), and self-efficacy (r = .51) scores. Finally, work satisfaction (r = .63), role responsibility (r = .39), and self-efficacy (r = .51) scores. Finally, work satisfaction had a positive correlation with role responsibility (r = .44) and self-efficacy (r = .49).

5.5.5 Correlation among Study's Variables for Opioid Use

Table 10 presents correlations related to opioid use among study's variables. Given the large number of study variables, only significant moderate and strong correlations were reported ($|\mathbf{r}| > .3$). In relation to demographic/background characteristics, primary work setting had a positive correlation with opioid-self-efficacy score ($\mathbf{r} = .31$). Specialization had positive

correlation with perceived dangerousness (r = .33) and fear (r = .33) scores. On the other hand, specialization had a negative correlation with role adequacy (r = -.36), role legitimacy (r = -.30), role support (r = -.30), task-specific self-esteem (r = -.40), work satisfaction (r = -.46), role responsibility (r = -.44) and self-efficacy (r = -.45) scores.

Familiarity with opioid use had a positive correlation with continuing education in SU (r = .33), role adequacy (r = .41), and work satisfaction (r = .32) scores. In addition, perceived dangerousness had a positive correlation with fear (r = .52), social distance (r = .65), personal responsibility beliefs (r = .31), and disease model (r = .39) scores, whereas perceived dangerousness had a negative correlation with task-specific self-esteem (r = -.34) and work satisfaction (r = -.38) scores. Likewise, fear had a positive correlation with social distance (r = .49) and personal responsibility (r = -.37) scores and a negative correlation with work experience with SU (r = -.39). Moreover, fear score was negatively associated with role adequacy (r = -.42), role support (r = -.30), task-specific self-esteem (r = -.47), work satisfaction (r = -.44) and self-efficacy (r = -.43) scores.

Social distance was positively correlated with personal responsibility beliefs (r = .43) and the disease model (r = .33) scores. Social distance score was also negatively associated with work satisfaction score (r = -.40). Personal responsibility beliefs had a negative correlation with work satisfaction score (r = -.42).

Correlation among professional attitudes variables for opioid use problems revealed that work experience with SU had a positive correlation with role adequacy (r = .49), task-specific selfesteem (r = .38), work satisfaction (r = .38), role responsibility (r = .46), and self-efficacy (r = .48) scores. Likewise, continuing education in substance use had a positive correlation with role adequacy (r = .39), work satisfaction (r = .32), role responsibility (r = .35) and self-efficacy (r = .48) .40) scores. In-service education in substance use also had a positive correlation with role responsibility (r = .32) and self-efficacy (r = .32) scores. Role adequacy score was positively linked with role legitimacy (r = .63), role support (r = .42), task-specific self-esteem (r = .67), work satisfaction (r = .62), role responsibility (r = .56) and self-efficacy (r = .77) scores. Role legitimacy also had a positive correlation with role support (r = .44), task-specific self-esteem (r = .46), work satisfaction (r = .47), role responsibility (r = .40) and self-efficacy (r = .57) scores.

In addition, the findings indicated that role support was positively correlated with taskspecific self-esteem (r = .41), work satisfaction (r = .44), role responsibility (r = .30) and selfefficacy (r = .39) scores. Task-specific self-esteem was positively associated with work satisfaction (r = .74), role responsibility (r = .47) and self-efficacy (r = .61) scores. Meanwhile, work satisfaction score was positively linked to role responsibility (r = .54) and self-efficacy (r = .62) scores. Lastly, role responsibility had a positive correlation also with self-efficacy (r = .75)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1. Age	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Years of Experience in Nursing	.82 9* *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Gender	.01 0	- .13 6*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Race	- .07 5	- .09 4	.03 7 Φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Primary Workplace			.09 6 Φ	.13 5 Φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Specialty			.09 4	.09 6 Φ	.30 9* * Ф	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Highest Degree Obtained in Nursing	- .06 5	.15 0*	.14 6 Ф	.17 3 Ф	.20 9 Ф		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Personal Experience with SU: Self	.10 8	- .22 7* *	.18 6* * Φ	.03 3 Φ	.04 6 Ф		.05 2 Φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Friend	.13 7*	.16 7*	.14 0* Φ	.10 5 Φ	.03 6 Φ		.10 5 Φ	.22 5* * Ф	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Family- member	.01 0	.07 3	.00 5 Φ	.00 8 Φ	.12 2 Ф		.17 3 Ф	.25 4* * Ф	.30 3* * Ф	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11. Co-worker	.14 5*	.13 4*	.21 2* * Ф	.07 2 Φ	.07 2 Φ		.11 0 Φ	.21 1* * Ф	.34 6* * Φ	.23 7* * Φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Other	.07 8	- .02 4	.01 7 Φ	.05 2 Φ	.02 1 Ф		.13 4 Φ	.03 8 Ф	.06 3 Ф	.03 3 Φ	.14 4* Ф	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13. Familiarity	- .00 4	- .00 4	.04 7	.02 4			- .02 8	.14 7*	.26 1* *φ	.41 2* *	.14 7*	- .00 8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14. Perceived Dangerousne ss	- .07 8	.02 6	- .14 6* ф	.10 8φ			- .00 6	- .12 2ф	- .06 9ф	- .08 9	- .17 4* *ф	.07 1	- .18 6* *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15. Fear	.18 6* *	.05 4	- .21 9* *	.00 8			.02 0	.13 1*	- .11 8	.10 6	- .17 9* *	.12 9*	- .26 5* *	.52 6* *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16. Social Distance	- .06 2	- .03 3	- .15 8*	.09 6ф			.04 2	- .05 9ф	- .15 7*	- .05 Зф	- .09 Оф	.01 Оф	- .12 9ф	.63 8* *ф	.42 5* *φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 9 Correlations Among Predictor Variables Related to Alcohol Use

17. Personal Responsibilit y Beliefs	- .08 7	- .07 6	- .04 1	.02 6		- .09 8	.03 5	- .00 6	- .05 9	- .09 5	.04 7	- .11 9	.27 5* *φ	.34 9* *	.28 6* *φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18. Disease Model	.22 3* *	.20 1* *	.19 6* *	.00 2		.03 9	.01 1	- .10 4ф	.09 2	.10 6	.06 9	- .04 9	.29 3* *ф	.13 3*	.29 6* *	.03 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19. Psychosocial Model	- .19 1* *	- .22 4* *	.04 4φ	.08 3		.12 3	.05 0φ	.16 5* ф	.09 4	.04 0ф	.03 0φ	.08 5	.19 3* *φ	.18 6* *	.17 7* *φ	.17 0* *φ	.09 1φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20. Work Experience with SU	.05 9	.04 3	.13 3* Ф	.16 6 Φ *		.19 0* Ф	.13 0* Ф	.06 6 Ф	.08 3 Ф	.09 5 Φ	.03 5 Φ	.27 8* * Ф	- .18 2* *	- .27 6* *	- .08 9ф	.05 2	.03 4	.01 1φ	-	-	-	-	-	-	-	-	-	-	-	-	-
21. SU education in Nursing School	.22 0* *	.20 2* *	.06 4 Ф	.00 3 Φ	.08 9 Ф	.12 6 Φ	.11 1 Ф	.14 3* Ф	.02 9 Φ	.12 0 Φ	.11 9v	.11 9 Ф	.22 0* *	.14 6*	.13 4*	.03 2	.13 8*	.05 5φ	.11 0	-	-	-	-	-	-	-	-	-	-	-	-
22. Continuing Education in SU	.14 6*	.17 5* *	.05 8 Φ	.00 1 Φ	.17 1* Φ	.08 8 Φ	.17 1* * Φ	.02 2 Φ	.13 1* Φ	.03 6 Φ	.03 1 Φ	.21 6* * Φ	- .19 4* *	.18 5* *	.12 7	- .04 5	.04 4	.02 6ф	.34 0* *	.12 1	-	-	-	-	-	-	-	-	-	-	-
23. In-service in SU	.21 8* *	.17 8* *	.06 4 Ф	.06 6 Φ	.23 7* * Φ	.07 8 Φ	.03 8 Ф	.06 3 Ф	.04 7 Φ	.19 1* * Φ	.04 1 Φ	.23 6* * Φ	.18 2* *	.21 4* *	.11 4	.05 5	- .08 0	- .14 6* ф	.30 6* *	.22 9* *	.24 7* *	-	-	-	-	-	-	-	-	-	-
24. Other SU education	.10 6	.05 0	.00 8 Φ	.00 3 Φ	.19 4* Ф	.13 5 Φ	.08 2 Φ	.10 7 Φ	.04 3 Ф	.07 2 Φ	.03 8 Φ	.12 6 Φ	- .08 1	- .08 4	- .02 6	- .06 3	- .03 3	- .05 1¢	.20 3* *	.03 2	.19 5* *	.00 7	-	-	-	-	-	-	-	-	-
25. Role Adequacy	.01 2	.05 5	.12 8	.03 0		.01 7	.18 2* *	.14 6* ф	.18 0* *	.08 4	.08 4	.30 6* *	.16 0*	- .35 2* *ф	.10 0	- .08 8	.06 3	.01 7	.47 6* *	.16 9* *	.36 5* *φ	.21 5* *φ	.12 9* ф	-	-	-	-	-	-	-	-
26. Role Legitimacy	.08 0	.04 8	.16 5* φ	.06 1φ		.01 5	.06 1φ	.03 1¢	.11 1	.08 6	- .06 5ф	.18 0* *φ	- .07 6	.26 3* *	- .06 8	- .01 8ф	.06 5	- .01 6	.28 0* *φ	.07 3φ	.27 9* *	.25 1* *	.09 7	.63 6* *	-	-	-	-	-	-	-
27. Role Support	.12 5	.07 8	.17 4* *	.01 1		.06 2	.08 6	.04 2	.18 2* *	.11 2	.02 0	.15 2*	- .22 2* *	- .33 7* *	.12 6	- .22 4* *	.00 5	- .03 9	.22 0* *	.12 7	.12 6	.10 6	.09 4	.27 8* *	.39 8* *	-	-	-	-	-	-
28. Task- Specific Self-Esteem	.07 9	.01 5	.16 8* *	.00 3φ		.00 3	.03 1	.04 4φ	.09 4	.10 9ф	- .09 0	.12 2	- .29 1* *	.52 8* *	- .20 9* *6	- .23 9* *	- .00 7	.07 3	.31 5* *	.08 6	.23 9* *	.22 8* *	.12 9* ф	.52 7* *	.47 9* *φ	.36 4* *ф	-	-	-	-	-
29. Work Satisfaction	.09 7	- .01 8	.17 1* *	.03 9ф		.02 4	.19 8* *	.09 4φ	.16 0*	.17 3* *	.02 1	.20 5* *	- .41 9* *	- .50 9* *ø	- .35 3* *6	- .25 8* *ø	- .13 0* ¢	.02 0	.36 8* *ф	.15 8*	.26 9* *φ	.23 7* *	.17 3* *	.49 8* *	.38 0* *	.28 8* *	.63 4* *	-	-	-	-
30. Perceived Role Responsibilit y	.03 7	.08 0	.08 6	.13 1*		.11 9	.09 1	.11 4	.10 2	.03 1	.02 0	.24 2* *	.28 2* *	.34 0* *	.16 1*	.11 0	.04 2	.06 7	.47 9* *	.16 1*	.35 6* *	.31 2* *	.20 9* *	.48 7* *	.33 5* *	.26 2* *	.38 7* *	.43 8* *	-	-	-
31. Perceived Self-Efficacy	.04 7	.04 5	.22 0* *	.10 3		.02 5	.13 1*	.13 7*	.17 1* *	.06 9	- .02 9	.22 8* *	.30 7* *	.41 5* *	.23 0* *\$.12 0	- .04 7	- .08 9	.46 8* *	.23 7¢	37 5* *φ	.35 0* *	.25 1* *	.66 0* *	.54 3* *	.33 6* *	.51 1* *φ	.49 3* *φ	.68 9* *	-	-
32. Social Desirability	.04 4	.04 4	- .00 6	- .06 0		.20 9* *	- .08 0	- .17 8* *	- .07 8	.11 3	.11 5	.03 5	- .02 9	- .09 6	- .04 5	.05 3	.07 2	.10 2	.09 2	.05 4	.01 6	.19 3* *	.09 0	.21 4* *	.27 0* *	.18 1* *	.23 8* *	.07 0	.20 1* *	.24 2* *	-

Note. ^a p < .05, ^b p < .01; ϕ = linear regression; Φ = contingency coefficient; SU= substance use

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1. Age	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Years of Experience in Nursing	.82 9* *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Gender	.01 0	- .13 6*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Race	- .07 5	- .09 4	.03 7Φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Primary Workplace	-		.09 6Φ	.13 5Ф	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Specialty			.09 4Φ	.09 6Φ	.30 9* *Ф	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Highest Degree Obtained in Nursing	.06 5	.15 0*	.14 6Φ	.17 3Φ	.20 9Ф		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Personal Experience with SU: Self	.10 8	- .22 7* *	.18 6* *Φ	.03 3Φ	.04 6Φ		.05 2Φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Friend	.13 7*	- .16 7*	.14 0* Φ	.10 5Φ	.03 6Ф		.10 5Φ	.22 5* *Φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Family- member	.01 0	.07 3	.00 5Φ	.00 8Φ	.12 2Ф		.17 3Φ	.25 4* *Φ	.30 3* *Φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11. Co-worker	.14 5*	.13 4*	.21 2* *Φ	.07 2Φ	.07 2Ф		.11 0Ф	.21 1* *Φ	.34 6* *Φ	.23 7* *Φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Other	.07 8	- .02 4	.01 7Φ	.05 2Φ	.02 1Φ		.13 4Φ	.03 8Φ	.06 3Φ	.03 3Φ	.14 4* Φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13. Familiarity	- .11 4	- .11 8	.02 9ф	.01 7φ			.04 3	.09 9ф	.21 9* *φ	.27 4* *	.14 9* *φ	- .05 2 φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14. Perceived Dangerousness	- .08 4	.03 7	- .06 2ф	.08 9ф			.05 1	- .06 4φ	.01 2ф	- .05 2ф	- .17 7* *φ	.01 3φ	- .08 7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15. Fear	.07 2	.01 9	- .18 2* *	- .06 9			.09 0	.10 4	- .04 8	.11 8	- .17 1* *φ	.06 7	- .24 6* *	.52 0* *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16. Social Distance	.11 5	- .08 1	- .10 4	.04 6			.06 9	.11 5	.00 9	.10 2	- .16 9* *ф	.03 7	- .16 2*	.65 3* *	.48 5* *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17. Personal Responsibility Beliefs	.10 3	.07 4	- .00 9	.02 4			.06 6	.05 6	.01 9	- .09 9	.07 1	.11 8	.01 2	.31 2* *φ	.36 7* *	.42 6* *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18. Disease Model	.10 0	.05 6	- .08 8¢	.02 0			- .06 8	- .03 2¢	.02 9ф	- .01 3¢	- .12 8¢	.11 3φ	.05 0ф	.38 8* *¢	.14 6* φ	.32 6* *φ	.14 2* φ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 10 Correlations Among Predictor Variables Related to Opioid Use

19. Psychosocia l Model	- .18 3* *	- .17 9* *	.04 5	.18 9* *φ		- .04 5	.00 4φ	.10 9ф	.01 5	.02 2	.03 0	.03 8	.23 6* *	.15 9*	.22 0* *	.11 2	.16 5*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20. Work Experience with SU	.05 9	.04 3	.13 3* Ф	.16 6* Ф		.19 0* Φ	.13 0* Φ	.06 6Φ	.08 3Ф	.09 5Ф	.03 5Ф	.28 3* *φ	.14 6*	- .38 7* *	.12 3	.05 6	.01 5	.05 3	-	-	-	-	-	-	-	-	-	-	-	-	-
21. SU education in Nursing School	.22 0* *	- .20 2* *	.06 4Φ	.00 3Φ	.08 9Ф	.12 6Φ	.11 1Φ	.14 3* Ф	.02 9Ф	.12 0Ф	.11 9Ф	.21 0* *φ	- .15 5* ф	- .14 0*	.07 4	.07 9	- .08 9	.08 3	.11 0	-	-	-	-	-	-	-	-	-	-	-	-
22. Continuing Education in SU	.14 6*	.17 5* *	.05 8Ф	.00 1Φ	.17 1* Φ	.08 8Φ	.17 1* *Φ	.02 2Φ	.13 1* Φ	.03 6Φ	.03 1Φ	.33 0* *φ	- .14 0* ф	- .19 7* *	- .17 6* *	- .14 2*	.03 7	.02 6	.34 0* *	.12 1	-	-	-	-	-	-	-	-	-	-	-
23. In-service in SU	.21 8* *	.17 8* *	.06 4Ф	.06 6Ф	.23 7* *Ф	.07 8Φ	.03 8Φ	.06 3Ф	.04 7Ф	.19 1* *Ф	.04 1Φ	.11 8ф	- .18 3* *ф	- .22 7* *	.12 1	.08 3	.16 2*	- .09 5	.30 6* *	.22 9* *	.24 7* *	-	-	-	-	-	-	-	-	-	-
24. Other SU education	.10 6	.05 0	.00 8Φ	.00 3Ф	.19 4* Ф	.13 5Ф	.08 2Ф	.10 7Φ	.04 3Ф	.07 2Φ	.03 8Ф	.01 7φ	- .16 6* ¢	- .13 9*	- .11 3	- .13 6*	- .07 2	- .12 2	.20 3* *	.03 2	.19 5* *	.00 7	-	-	-	-	-	-	-	-	-
25. Role Adequacy	- .07 5	.12 2	.10 6	.06 2		- .06 2	.09 2	.10 0ф	.13 2*	.06 7	.10 3	.41 2* *	- .17 2* *	- .41 9* *	- .17 0* *	- .18 0* *	.05 6	- .03 5	.49 2* *	.16 3*	.39 3* *	.25 6* *	.20 8* *	-	-	-	-	-	-	-	-
26. Role Legitimacy	.07 6	- .00 1	.15 6*	.08 8		.10 2	- .00 9	.01 3	.10 6	.05 4	- .01 6	.19 2* *	.02 2	- .27 7* *	- .05 6	- .12 1	.08 1	.02 3	.27 7* *	.11 1	.18 8* *	.27 2* *φ	.07 5	.62 6* *	-	-	-	-	-	-	-
27. Role Support	.13 5*	.07 3	.15 8*	.00 1		.00 0	.07 5	.07 8	.22 7* *	.10 5	.01 4	.14 4*	.20 6* *	- .29 8* *	.18 3* *	- .27 5* *	.03 3	.02 9	.20 8* *	.13 7*	.17 4* *	.17 6* *	.06 8	.41 9* *	.43 5* *	-	-	-	-	-	-
28. Task- Specific Self-Esteem	.03 5	.02 3	.11 8	.08 0		.05 3	.03 7	.03 1¢	.12 5	.09 7	- .07 Зф	.25 6* *	- .33 5* *	- .46 8* *	- .25 4* *φ	- .28 8* *ф	.04 2ø	- .09 9ф	.37 5* *	.12 1φ	.25 6* *φ	.28 2* *φ	.19 7* *	.66 6* *	.45 6* *φ	.41 3* *φ	-	-	-	-	-
29. Work Satisfaction	.05 5	.04 2	.13 3*	.05 9		- .06 6	.18 2* *	.02 4¢	.18 4* *	.15 2*	.07 3	.32 3* *	- .38 0* *ф	- .43 6* *ф	- .40 0* *	- .41 7* *ф	.07 3φ	.09 7ф	.38 0* *φ	.08 3φ	.32 2* *φ	.26 2* *	.18 2* *	.62 4* *	.46 7* *	.44 4* *	.73 6* *	-	-	-	-
30. Perceived Role Responsibili ty	.03 0	- .06 7	.08 8	.11 5		- .09 2	.09 8	.13 9*	.11 2	.03 9	- .00 5	.28 4* *	- .17 1* *	- .27 9* *	.16 3*	.18 2* *	.00 4	- .04 1	.45 7* *	.11 9	.35 1* *	.32 1* *	.20 2* *	.56 2* *	.39 5* *	.30 1* *	.46 5* *φ	.54 3* *φ	-	-	-
31. Perceived Self-Efficacy	.03 6	.05 1	.17 6* *	.10 5		- .07 7	.14 6*	.13 7*	.12 1	.07 6	.02 7	.28 2* *	- .23 2* *	.43 1* *	- .24 5* *φ	- .21 0* *¢	.00 2¢	- .07 9	.47 7* *	.11 2	.40 0* *	.32 0* *	.24 0* *	.77 4* *	.57 0* *	.38 5* *	.61 4* *	.62 2* *	.74 8* *	-	-
32. Social Desirability	.04 4	.04 4	- .00 6	.06 0		.20 9* *	- .08 0	- .17 8* *	- .07 8	.11 3	- .11 5	.01 3	- .00 4	- .18 2* *	.01 3	- .06 0	.03 3	.08 3	.09 2	.05 4	.01 6	.19 3* *	.09 0	.24 1* *	.23 5* *	.12 5	.29 1* *	.14 6*	.14 5*	.22 6* *	-

Note. ^a p < .05, ^b p < .01; ϕ = linear regression; Φ = contingency coefficient; SU= substance use

5.6 DISCUSSION

The purpose of this study was to examine the difference among the study variables (i.e., nurses' demographic/background characteristics, personal attitudes, professional attitudes, and their motivation to provide care to patients who use AOs) between behavioral and non-behavioral health nurses. In addition, this study aimed to examine the bivariate relationship between nurses' demographic/background characteristics, personal attitudes, professional attitudes and their motivation to provide care to patients who use AOs)

There were differences between the two types of nurses on their demographic/background characteristics. Behavioral health and non-behavioral health nurses differed significantly in age, years of nursing experience, and primary workplace. Behavioral health nurses tended to be older and have more years of experience in nursing. Although previous studies have implied that younger healthcare providers reported greater motivation to work with patients with substance use problems (Crothers & Dorrian, 2011; Kuthy et al., 2005; Lightfoot & Orford, 1986; Silins et al., 2007), other studies showed that older clinicians expressed greater confidence and perceived substance use treatment as more effective (Jacka et al., 1999; Lev-Ran et al., 2013). This finding may explain why behavioral health nurses in the current study were more likely to be older and have more years of experience in nursing compared to non-behavioral specialized nurses. Nurses specialized in behavioral health also tended to report working in multiple settings including non-inpatient settings compared to non-behavioral nurses who worked mainly in inpatient settings. The shift from institutional treatment to the community and primary care setting may explain why behavioral health nurses in multiple settings. In addition, as the behavioral

health nurses had more experience than their counterparts, they may have had more time and opportunities to work in multiple settings.

The two nursing groups differed on personal attitudes. Behavioral health nurses tended to be more familiar with patients with alcohol use problems. This may be because these nurses have greater exposure to this population within substance use and mental health settings where alcohol use is the presenting problem, whereas a primary medical or surgical problem is the focus for their non-behavioral health nurse counterparts. Behavioral-health nurses were less likely to perceive patients with alcohol or opioid use as dangerous and were less likely to be afraid to work with them, perhaps because of their familiarity and actual experiences with this patient population. Non-behavioral nurses were more willing to maintain a safe distance from patients with alcohol or opioid use problems and were more likely to blame patients for their alcohol or opioid use condition and its control. These findings may be similar to previous studies that indicated that healthcare providers who were less familiar with substance use were more likely to perceive patients with these conditions as dangerous, expressed being afraid to work with them, and thus, were more willing to maintain a safe distance from these patients (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; Natan et al., 2009; Neville & Roan, 2014). Moreover, non-behavioral nurses were more likely to attribute the cause of the alcohol use problem to psychosocial factors than view alcohol use problems as a disease. These findings may align with other studies conducted on healthcare providers, which indicated that healthcare providers who were more likely to attribute the cause of patient's substance use to their "weak will" and view their inability to control their condition as a "failure" were less motivated to provide care to patients with at-risk use (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; van Boekel, Brouwers, van Weeghel, & Garretsen, 2013; Wechsler and Rohman, 1982).

In relation to professional attitudes, behavioral health nurses had more work experience with substance use problems. Compared to non-behavioral nurses, nurses trained in behavioral health reported receiving more continuing education and in-service work-related education related to substance use. Furthermore, these nurses reported being more prepared to address alcohol and opioid use problems, felt more entitled to ask their patients about their alcohol or opioid use, and reported feeling more supported within their workplace to address alcohol or opioid use issues. They also felt more confident to provide specific care related to alcohol and opioid use, were more satisfied, felt more responsible to address alcohol and opioid issues within their workplace, and expressed greater overall confidence to respond to alcohol and opioid use problems. These findings are expected since those who work in behavioral health settings are more likely to be frequently exposed to this patient population, are expected to inquire about patients' alcohol and drug use, and receive support and training related to substance use (Albery et al., 2003; Crothers & Dorrian, 2011; Ford et al., 2008; Ford et al., 2009; Kuthy et al., 2005; Mundon et al., 2015; Silins et al., 2007; Vadlamudi et al., 2008; van Boekel et al., 2013). As a result, behavioral health nurses may feel more satisfied working with these patients and more confident and responsible to address these conditions in their workplace. Behavioral health nurses also reported greater motivation to work with patients with at-risk alcohol and opioid use. This finding is consistent with previous studies that demonstrated that healthcare providers who worked in behavioral health settings expressed greater willingness to work with patients who have substance use problems, compared to general clinicians or clinicians who work in other specialization (Lev-Ran et al., 2013; van Boekel et al., 2013).

This study also aimed to examine the relationship between nurses' demographic/background characteristics, personal attitudes, professional attitudes and their

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motivation to provide care to patients who use AOs. The findings related to alcohol use revealed that certain demographic/background characteristics such as gender, primary workplace, and specialization were associated with nurses' motivation to provide care to patients with alcohol use problems. The study indicated that being a male, working in multiple settings, or specializing in behavioral health were associated with greater motivation to provide care for patients with at-risk alcohol use. This finding is consistent with previous studies, which found that male healthcare providers were more comfortable and expressed greater confidence related to working with patients who have substance use problems (Jacka et al., 1999; Kuthy et al., 2005; Mundon et al., 2015; Silins et al., 2007). However, this finding is contrary to studies finding that male providers were less likely to specialize in the substance use field (Jacka et al., 1999; Kuthy et al., 2005; Mundon et al., 2005; Mundon et al., 2007).

Nurses' motivation to provide care for patients with at-risk opioid use was significantly greater among nurses who worked in multiple settings or were specialized in behavioral health. This greater motivation may be attributed to the fact that working in multiple work settings may increase nurses' familiarity with patients with at-risk AO use, which in turn can increase their willingness to provide care to these patients. Nurses who specialized in behavioral health also reported greater motivation to provide AO-related care, consistent with previous studies that found that nurses specialized in AOD reported greater drug-related motivation compared to other nursing practice groups (Ford et al., 2008; Ford et al., 2009). Studies by Lev-Ran and colleagues (2013) and van Boekel and colleagues (2013) also indicated that behavioral healthcare providers reported greater willingness to work with patients with substance use problems, compared to other specializations.

Several personal attitudes were associated with nurses' motivation to provide AO-care. The study revealed that nurses who had previously experienced themselves or had a personal experience with a co-worker who had a substance use problem reported greater motivation to provide care to patients with at-risk alcohol use. This finding is inconsistent with the findings of Lock and colleagues (2002) study, in which participants expressed being reluctant to work with patients who have alcohol use problems due to their own alcohol use. Previous studies also showed that healthcare providers' own substance use was not associated with their therapeutic commitment and motivation toward drug use or their preparedness to implement substance use-related care (Amaral-Sabadini et al., 2010; Ford et al., 2008; Ford et al., 2009). On the other hand, nurses who had a previous experience with a family member who had a substance use problem reported greater willingness to provide opioid-related care to their patients.

Nurses who were more familiar with patients who had alcohol or opioid use problems also reported greater willingness to provide care to this patient population. Yet, nurses who perceived patients with at-risk AO use as dangerous, expressed being afraid of them, or preferred to maintain a safe distance from these patients had lower motivation to care for them. These findings were similar to previous studies, which indicated that healthcare providers who felt afraid to work with AOD use problems and perceived greater dangerousness related to their care reported less motivation to work with those patients (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; Natan et al., 2009; Neville & Roan, 2014). Nurses who held patients responsible for their alcohol or opioid-related condition and its control were also less motivated to provide AO-related care. In addition, nurses who viewed alcohol use problems as a disease were less motivated to provide care to these patients. This finding is like other studies that indicated that providers who blamed their
patients for their AOD condition and its control were less willing to provide care to patients with at-risk use (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; van Boekel et al., 2013).

In relation to professional attitudes, the study revealed that pervious substance use work experience was associated with greater motivation to provide care to patients with at-risk AO use. Receiving continuing education in substance use or other educational resources were also positively associated with nurses' AO-related motivation. These findings align with other studies, which revealed that work experience with SU was positively associated with greater motivation among clinicians (Albery et al., 2003; Cartwright, 1980; Kuthy et al., 2005; Lightfoot & Orford, 1986; Mundon et al., 2015; Silins et al., 2007; Vadlamudi et al., 2008; van Boekel et al., 2013). Likewise, SU-education was positively associated with greater willingness to work with this population among healthcare providers (Albery et al., 2003; Ford et al., 2008; Lightfoot & Orford, 1986; Skinner et al., 2005; Wakeman et al., 2013; Wechsler & Rohman, 1982). However, it is important to note that the effect of substance use education on motivation may vary. For example, Cartwright (1980) study indicated that the impact substance use education had on providers' attitudes and motivation depends on their level of experience and perceived role support. Moreover, a study by Ford and colleagues (2009) demonstrated that the effect AOD-education had on provider' motivation was negated when perceived role support within workplace was low.

The results also showed that nurses who perceived themselves as more prepared, entitled to inquire about patients' alcohol or opioid use, or felt supported within their workplace were more willing to provide care related to AO use. These findings are supported by previous studies, which found a positive association between healthcare providers' role adequacy, role legitimacy and role support scores and their motivation to provide substance use care (Albery et al., 2003; Ford et al., 2008; Ford et al., 2009; Jacka et al., 1999; Lightfoot & Orford, 1986; Nash et al., 2017; Skinner et

al., 2005). However, in one study by Natan and colleagues (2009), the authors reported that although participants reported having the necessary knowledge and skills to provide care patients with at-risk use, they still felt uncomfortable to screen for and provide brief care to these patients.

Nurses who expressed confidence in performing specific tasks related to alcohol use care, expressed greater satisfaction working with these patients, felt responsible to address AO userelated problems within their workplace, and felt overall confident to respond to AO use-related issues reported greater motivation. These findings are expected and align with previous studies that showed that task-specific self-esteem, work satisfaction, role responsibility, and self-efficacy were associated with greater motivation (Albery et al., 2003; Amaral-Sabadini et al., 2010; Ford et al., 2008; Ford et al., 2009; Hettema et al., 2009; Jacka et al., 1999; Johansson et al., 2002; Nash et al., 2017; Natan et al., 2009; Neville & Roan, 2014; Nordqvist et al., 2006; Shepherd et al., 2010; Silins et al., 2007; Skinner et al., 2005; Vadlamudi et al., 2008). However, it is important to note that significant improvements in either role adequacy, role legitimacy, role support, taskspecific self-esteem, or work satisfaction scores do not always result in similar improvement in motivation scores. This was evident in several studies, which attempted to educate nurses to screen for, provide brief interventions to, and refer patients who used alcohol and drug use problems (Mahmoud et al., 2019; Mitchell et al., 2017; Nash et al., 2017; Puskar et al., 2016a; Puskar et al., 2016b).

The study also examined the bivariate relationship among the study's variables of interest. The results showed that there were significant associations among all study variables. Age was the only demographic/background characteristic that exhibited a strong association. Age had a strong positive correlation with years of experience in nursing. This association is expected as older nurses often have more years of experience in nursing than younger ones. For alcohol use, strong positive significant association was found between perceived dangerousness and fear. The correlation between fear and perceived dangerousness is expected given that both affect nurses' motivation related to alcohol use in a similar way. In fact, fear and perceived dangerousness are often mentioned together in the literature when examining their relationship with motivation (Amaral-Sabadini et al., 2010; Lev-Ran et al., 2013; Natan et al., 2009; Neville and Roan, 2014). On the other hand, fear had a negative strong association with task-specific self-esteem and work satisfaction. Fear of working with patients with alcohol use is expected to be associated with lower confidence and satisfaction to provide care.

Perceived dangerousness related to opioid use had a strong positive relationship with fear and social distance. These findings are aligned with our perceptions related to opioid use, in which increased levels of fear are often associated with higher level of perceived dangerousness and social distance.

Correlations among professional attitudes revealed that self-efficacy had a positive strong association with role adequacy, role legitimacy, task-specific self-esteem and role responsibility. Likewise, task-specific self-esteem had a strong correlation with role adequacy and work satisfaction. Role adequacy was also positively associated with role legitimacy. These findings align with our expectations as role adequacy, role legitimacy, task-specific self-esteem and work satisfaction are all a part of the overall therapeutic attitudes described by Cartwright (1980). Meanwhile, overall confidence in providing AO-related care can definitely increase nurses' preparedness to care for alcohol and opioid use, their feeling of entitlement to inquire about patient's drinking or opioid use, their confidence in providing specific tasks related to AO-use care, their feelings of satisfaction and professional responsibility to address AO-related issues within the context of their workplace. Feeling satisfied to work with at-risk AO use was also

associated with greater confidence in providing specific opioid care and higher levels of responsibility to address opioid use problems within work context.

5.6.1 Social Desirability Outcomes

For both alcohol and opioid use, social desirability scores had only small significant associations with experience with a friend with substance use problems, in-service education in substance use, role adequacy, role legitimacy, role support, task-specific self-esteem, role responsibility, and self-efficacy scores. For opioid use only, social desirability had small significant associations with fear and work satisfaction scores. Since all these associations were small (r < .3), it may be concluded that social desirability may have little influence on nurses' responses to the self-report surveys.

5.6.2 Limitations

The cross-sectional design is able to assess the association between and not causal relationships among the study's variables. Because the adapted familiarity subscale showed poor reliability for both alcohol (Cronbach's $\alpha = .516$) and opioid (Cronbach's $\alpha = .596$) use, the familiarity results should be interpreted with caution. As the sample was predominantly female and white, the results may not be generalizable to all nurses.

5.7 CONCLUSIONS

This study is among the first to examine the bivariate relationship between nurses' demographic/background characteristics, personal attitudes, professional attitudes, and their AO-motivation. This study also examined the difference in the study variables among behavioral and non-behavioral nurses. While the study provided valuable information regarding the bivariate relationship among demographic/background, personal attitudes, professional factors, and AO-motivation, these factors should be examined in combination. In addition, future studies should consider examining possible interactions among these variables and their influence on nurses' AO-motivation, which can further inform substance use education for future and current nurses across all settings in which care is provided for patients with AO use.

6.0 MANUSCRIPT 3: DEMOGRAPHIC/BACKGROUND, PERSONAL, AND PROFESSIONAL PREDICTORS OF NURSES' MOTIVATION TO PROVIDE ALCOHOL AND OPIOID RELATED CARE: A NATIONWIDE STUDY

6.1 ABSTRACT

Background: Alcohol and opioid (AO) use problems present a global public health issue that contributes to deaths as well as economic and social burden. **Objectives**: To identify demographics/background, personal and professional predictors of nurses' AO-motivation. **Methods**: A descriptive, correlational design was used to conduct this online nationwide study. Nurses were recruited from four national nursing organization using an online survey. Nurses' demographic/background characteristics, personal attitudes, professional attitudes, and motivation were examined using an investigator-developed questionnaire as well as personal and professional subscales that targeted their perceptions related to alcohol and opioid use problems. Results: A sample of 460 nurses were included in the analyses. The study indicated that there were a number of significant independent demographic/backgrounds, personal and professional predictors of nurses' AO-motivation. For example, working in community-based setting, perceived dangerousness, perceptions related to the disease model, work experience with substance use and work satisfaction were significant independent predictors of nurses' motivation to provide AOrelated care. In addition, the study revealed that a number of two-way interactions were significant predictors of nurses' AO-motivation. Conclusions: The findings of this study can facilitate the development of interventions designed to target nurses' motivation in order to promote the transfer of AO-acquired knowledge and skills into clinical practice, and to foster the implementation of AO-preventive measures.

Keywords: predictors, motivation, nurses, alcohol and opioid

6.2 INTRODUCTION

Alcohol and opioid (AO) use problems present a global public health issue that contributes to deaths as well as economic and social burden. In 2016, more than 34,000 Americans died as a result of alcohol poisoning (Xu, Murphy, Kochanek, Bastian, & Arias, 2018). In addition, the 2013 National Survey on Drug Use and Health stated that more than 136 million Americans aged 12 and older reported using alcohol, of those more than 65 million reported binge drinking within the past month (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014; SAMHSA, 2017). Alcohol use problems also contribute to the economic burden, each year \$249 billion are spent on alcohol-related management and contribute to more than 5.0 % of the global burden of disease (SAMSHA, 2016; WHO, 2018a). In relation to opioid use, every day more than 130 Americans die of an opioid overdose (Centers for Disease Control and Prevention [CDC], 2019b). Within 45 states, the percentage of opioid overdose increased by 30% between July 2016 and September 2017 (Vivolo-Kantor et al., 2018). In addition, around 12 million individuals reported opioids use problems in 2016 (SAMHSA, 2017). Economically, it is estimated that prescription opioid use problems alone cost the United States annually 78.5 billion in expenses related to loss of productivity, healthcare costs and criminal justice fees (Florence, Luo, Xu & Zhou, 2016).

One of the most effective ways to reduce the negative consequences associated with AO use is early identification. Screening, brief intervention and referral to treatment (SBIRT) have demonstrated positive outcomes related to at-risk alcohol use. An evaluation of a project conducted by SAMSHA revealed that of the 1 million participants that were screened using SBIRT, 35% reported decrease in their alcohol use and around 43% reported decrease in their heavy drinking six months after being screened (Aldridge, Linford & Bray, 2017). In addition, a met-analysis

conducted by Tanner-Smith and Lipsey (2016) on alcohol screening and brief interventions for adolescents and young adults found a significant reduction in their alcohol use and reported alcohol use problems that was sustained up to one year after the intervention.

Despite growing evidence and increased training of healthcare professionals, including nurses, the implementation of substance use preventive measures and interventions has remained limited. Nurses' low motivation and willingness to provide AO-related care has been associated with delays in identification and treatment of patients with substance use problems. Thus, identifying factors that predict nurse' AO-related motivation is essential to enhance outcomes of patients with these problems.

6.2.1 Purpose

The purpose of this online nationwide study was to examine the difference in demographics/background characteristics, personal attitudes, professional attitudes and motivation among medical-surgical nurses, psychiatric mental-health nurses and addiction-trained nurses. The study also aimed to identify independent demographics/background, personal and professional predictors of nurses' motivation to provide care to patients who have AO use problems. To date, there has been no work that examined demographics/background, personal and professional predictors of nurses' motivation to provide care to patients with at risk AO use.

6.3 METHODS

6.3.1 Design

This nationwide study is a descriptive, correlational design appropriate for examining the difference in the study's variables among addiction-trained nurses, psychiatric mental-health nurses, and general medical-surgical nurses. This design is also appropriate for identifying potential demographic/ background, personal and professional predictors of nurses' motivation to provide care to patients with at-risk AO use.

6.3.2 Sample and Setting

A total sample of 493 participated in this online nationwide study. Participants were recruited from four national nursing organizations (the International Nurses Society on Addictions (IntNSA), The American Psychiatric Nurses Association (APNA), the National Association of Nurse Practitioners in Women's Health (NPWH), and the Academy of Medical-Surgical Nurses (AMSN)) that represented the largest groups of addiction-trained nurses, psychiatric mental-health nurses (PMHN), and medical-surgical nurses in the United States. The University of Pittsburgh Institutional Review Board approved this study. The study's inclusion criteria were: (1) currently a member of one of the four targeted professional national nursing organizations listed above; and (2) being 18 years of age and older. The data collection was conducted over a period of six months and occurred between November 2018 and May 2019.

6.3.3 Measures

Table 11 presents the measures used to assess nurses' demographic/ background characteristics. For more information about personal attitudes, professional attitudes and motivation to provide AO-related care measures please see Table 3 in the feasibility study.

Nurses' demographic/ background characteristics (age, years of experience in nursing, gender, race, primary work setting, specialization and highest degree obtained in nursing) were measured using an investigator-developed questionnaire. The investigator-developed questionnaire also included questions relate to participants' personal experience with alcohol or drugs (AOD), work experience with substance use (SU) and SU-education.

The survey also included subscales that were adapted to examine nurses' personal and professional attitudes towards AO use, in which the survey included the same subset of questions tailored to measure alcohol and opioid use problems separately. In addition, social desirability scale was included to control for socially desirable responses. For this study, the Person-Centered Alcohol and Alcohol Perception Problems Questionnaire (PC-AAPPQ) was adapted to examine specific professional attitudes related to opioid use (role adequacy, role legitimacy, role support, task-specific self-esteem and work satisfaction), as well as participants' opioid use-related motivation (Johnson et al., 2019).

Variable	Measures	No. Items
Age	Years	1
Years of Experience in Nursing	Years	1
Gender	Female or Male	1
Race	White or Non-White	3
Primary Work Setting	Hospital-based setting, community-based setting, or	1
	administrative/ other setting	
Specialization	Medical-surgical nurses, psychiatric mental-health	
	nurse, or addiction-specialized nurses	
Highest degree obtained in Nursing	2-year college or less, 4-year college, graduate level,	1
	or doctoral level	

Table 11 Demographic/Background Characteristics Variables

6.4 STATISTICAL ANALYSES

Analyses were performed using IBM® SPSS® Statistics version 26 (IBM Corp., Armonk, NY). Descriptive statistics (frequencies, percentages, mean, standard deviation (SD), medians or interquartile ranges (IQR)) were calculated for the all variables based on their level of measurement as appropriate. Appropriate descriptive statistics were also calculated for each of the three study groups.

To examine the difference in participants' demographic/background characteristics, personal attitudes, professional attitudes and motivation among medical-surgical nurses, psychiatric mental-health nurses and addiction-trained nurses, One-way Analysis of Variance (ANOVA), Kruskal–Wallis test, Chi-square tests of independence, or Fisher exact tests were performed as appropriate. Stepwise multiple linear regression was utilized to identify potential independent demographic/background characteristics, personal and professional (including the study's interactions) predictors of nurses' motivation to provide AO-related care. For each of the predictor variables (demographic/ background characteristics, personal perceptions and professional attitudes), the test statistics, unadjusted regression coefficients (b), adjusted

regression coefficients for full multivariate model with only main effects, and adjusted coefficients for the parsimonious model (including only significant interactions) and their corresponding standard errors (SE) and p-values were reported. Significant two-way interactions were only included in the parsimonious model, in which their adjusted regression coefficient and corresponding standard error (SE) and p-values were reported.

Mean imputation was used for missing item data from personal attitudes or professional attitudes subscales, which had less than 20% missing. The percentage of patients with missing data (n = 33) was less than 7% of the total sample (N=493). An indictor variable was created (0 "non-missing" vs 1 "missing") and logistic regression was performed to compare between participants with completed data and those with missing data in relation to their age, years of experience in nursing and specialization. The findings indicated that both groups were similar in age, years of experience in nursing and specialization. Therefore, listwise deletion was performed and the sample size dropped from 493 to 460. This sample size was used in subsequent analyses.

Certain variables such as race, highest nursing degree obtained, primary work setting, and specialization had relatively small number of cases in certain categories. Therefore, non-white race categories, which include "Black or African American", "Alaska Native", "Asian", or "other" were grouped together as "Non-White". Primary work setting's categories of "inpatient facility" and "emergency department" were grouped together as "hospital-based setting". On the other hand, "outpatient facility", "residential facility", "community mental health center", "substance use treatment center", were grouped together as "community-based setting". Whereas, "educational institution", "administration" and "other" were collapsed into "administrative/other". Specialty's categories of "primary care", "education", "administration", "emergency", "medical-surgical" and "other" were collapsed into "medical-surgical". Meanwhile, highest nursing degree

obtained categories of "vocational/ technical degree" and "2-year college/ associate degree" were grouped together as "2-years college or less".

Two prediction models were created, one for alcohol use problems and the other for opioid use problems. Linear regression was performed to assess each main predictor separately. Winsorization technique, in which extreme values below the 5th percentile or above the 95th percentiles were set to their respective 5th and 95th percentiles, was applied to any main continuous predictor with extreme values. All potential main predictors were then included in a four-block hierarchical regression, in which socially desirable scores were included in the first block, demographic/ background characteristics variables were included in the second block, personal attitudes variables were included in the third block and finally professional attitudes variables were included in the fourth block.

Afterwards, two-way interactions between the predictors were examined individually using a five-block hierarchical linear regression. The five-block hierarchical linear regression included the same four blocks of the four-block hierarchical linear regression mentioned earlier.

In the fifth block of the hierarchical linear regression, a stepwise multivariate linear regression was used. All main predictors regardless of their p-value were kept in the model to assess for potential significant two-way interaction predictors (p < .05). Once significant interaction predictors were identified, main predictors that did not meet the significant threshold and had no significant interactions were removed one at a time. Each time a main predictor was removed the model was reassessed. This process was conducted until only significant main predictors or insignificant main predictors with significant interactions remained, thus the most parsimonious model for each substance (one for alcohol use and the other for opioid use) was created. In the alcohol motivation prediction parsimonious model, years of experience in nursing,

familiarity, disease model, psychosocial model, role legitimacy, role support, task-specific selfesteem, and perceived role responsibility scores were all centered due to their high multicollinearity with their corresponding interactions. Age, fear, disease model, role adequacy, task-specific self-esteem, work satisfaction, and perceived role responsibility scores were also centered in the opioid motivation prediction parsimonious model due to their high multicollinearity with their interaction variables.

6.5 RESULTS

6.5.1 Nationwide Response (N=460)

The U.S. Department of Health and Humans Services regions (2014) were used to report nurses' states. Of the 450 nurses who reported their state, 57 participants were from Region 1 (12.7%), 33 were from Region 2 (7.3%), 77 from Region 3 (17.1%), 78 from Region 4 (17.4%), 68 from Region 5 (15.1%), 24 from Region 6 (5.3%), 5 from Region 7 (1.1%), 35 from Region 8 (7.8%), 44 from Region 9 (9.8%), and 29 from Region 10 (6.4%).

Regions	States Included
Region I: Boston	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont
Region 2: New York	New Jersey, New York, Puerto Rico, and the Virgin Islands
Region 3: Philadelphia	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia
Region 4: Atlanta	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina,
	and Tennessee
Region 5: Chicago	Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin
Region 6: Dallas	Arkansas, Louisiana, New Mexico, Oklahoma, and Texas
Region 7: Kansas City	Iowa, Kansas, Missouri, and Nebraska
Region 8: Denver	Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming
Region 9: San Francisco	Arizona, California, Hawaii, Nevada, American Samoa, Commonwealth of the
	Northern Mariana Islands, Federated States of Micronesia, Guam, Marshall Islands,
	and Republic of Palau
Region 10: Seattle	Alaska, Idaho, Oregon, and Washington

Table 12 United States Department of Health and Humans Services Regions

Note. U.S. Department of Health and Humans Services (2014). Regional Offices. Retrieved [July 21, 2019] from <u>https://www.hhs.gov/about/agencies/iea/regional-offices/index.html</u>.

6.5.2 Study Variables and Nurses' Specialization

6.5.2.1 Demographic/background characteristics

The sample (N = 460) was primary female (n = 440, 95.7%) and White (n = 389, 84.6%). The participants reported a mean age of 48.36 (SD = 12.90) and a median of 17.00 (IQR = 22.75) for years of experience in nursing. Approximately one-third of the participants reported working in hospital-based settings (n = 168, 36.52%). More than 85% of nurses had at-least a 4-year college degree in nursing (n = 402, 87.4%). One-hundred and twenty-six nurses were specialized in psychiatric mental-health nursing (27.4%), eighty-six nurses were specialized in addiction (18.7%), and the rest were specialized in general medical-surgical and other specialties (n = 248, 53.9%).

Nurses' demographic/background characteristics differed significantly based on specialization for the following variables: age, years of experience in nursing, primary workplace, and highest degree obtained in nursing (p < .001). Pairwise comparisons reveled that medical-

surgical nurses were younger than psychiatric mental-health nurses or addiction-trained nurses (p < .001). Likewise, pairwise comparisons also showed that medical-surgical nurses also had less years of experience in nursing compared to psychiatric mental-health nurses (p = .001) or addiction-trained nurses (p < .001). Primary workplace was significantly different among the three nursing groups (p < .01), and the highest degree obtained in nursing also differed among the three specialization groups (p < .05). Half of the medical-surgical nurses worked in hospital-based settings, while only 28.6% of PMHNs and 9.3% of addiction-trained nurses worked in in-hospital setting. The highest percentage of graduate degrees were observed among PMHNs, followed by medical-surgical nurses.

6.5.2.2 Personal attitudes

Compared to medical-surgical nurses, addiction-trained nurses had more personal experiences with alcohol use problems in general, $\chi^2(1) = 4.808$, p = .028. Likewise, the percentage of addiction-trained nurses who had a personal experience with a friend who had an alcohol use problem were higher than medical-surgical nurse, $\chi^2(1) = 13.285$, p < .001. Higher percentage of addiction trained nurses also reported a personal alcohol use-related experience with a co-worker compared to medical-surgical nurses, $\chi^2(1) = 13.655$, p < .001.

In addition, addiction-trained nurses were more familiar with alcohol use problems than medical-surgical nurses (p < .001). Similarly, psychiatric mental-health nurses reported being more familiar with alcohol use problems than medical-surgical nurses (p < .001). On the other hand, medical-surgical nurses were more likely to perceive patients with alcohol use problems as dangerous and express being afraid to work with them compared to the other two nursing groups (p < .001). Those nurses were also more willing to maintain a safe distance from patients with alcohol use problems compared to either nurses specialized in addiction (p = .040) or psychiatric mental health (p = .015). They were also more likely to attribute the responsibility of patients' alcohol use condition and its control to patients themselves (p < .001). On the other hand, addiction-trained nurses were more likely to perceive alcohol use problems as a disease when compared to psychiatric-mental health nurses (p = .028).

For opioid use, the percentage of nurses who had more personal experience with drug use problems in general were significantly higher among those specialized in addiction-trained when compared to medical-surgical nurses, $\chi^2(1) = 8.254$, p = .004. In addition, post hoc pairwise comparisons revealed that there were significant differences among the three nursing groups related to a personal experience (self) with drug use (p < .05), with addiction-trained nurses reporting the highest percentage of personal experience among the three-nursing groups. The percentage of medical-surgical nurses who reported a personal experience with a friend who had a drug use problem was lower than those reported by either addiction-trained nurses, $\chi^2(l) =$ 15.818, p < .001, or PMHN, $\chi^2(1) = 4.036$, p = .045. On the other hand, 32.6 % of addictiontrained nurses reported a personal experience with a co-worker who had a drug use problem compared to only 14.9% of medical-surgical nurses, $\chi^2(l) = 12.676$, p < .001, and 18.3% of PMHNs, $\chi^2(l) = 5.724$, p = .017. In relation to familiarity, medical-surgical nurses were less familiar with at-risk opioid use compared to addiction-trained nurses (p < .001) or PMHNs (p =.031). Medical-surgical nurses were also more likely to perceive patients with at-risk opioid use as dangerous and were more likely to express being afraid to work with them when compared to other two nursing groups (p < .001). They were also more likely to maintain a safe distance from patients with opioid use problems when compared to PMHNs (p = .045). Furthermore, those nurses were more likely to attribute the responsibility of patients' opioid use condition and its control to the

patients themselves (p < .001). Meanwhile, PMHNs were less likely to view opioid use problems as a disease when compared to either medical-surgical nurses (p = .040) or addiction-trained nurses (p = .003).

6.5.2.3 Professional attitudes

Professional attitudes that differed significantly among the three-nursing specialization were: work experience with SU, SU-education, continuing education in substance use, in-service education in substance use, and other sources of education in substance use (p < .001). The findings revealed that there were a significant pairwise differences in work experience with SU among the three groups (p < .001), with the highest percentage of nurses reporting work experience with SU found among addiction-trained nurses (98.8%). Likewise, the findings demonstrated that there were a significant pairwise difference among all three-nursing groups related to substance use education (p < .05), with the highest percentage of nurses reporting substance use education found in the addiction-trained nurses' group (94.2%).

On the other hand, medical-surgical nurses were less likely to report receiving continuing education in substance use when compared to either addiction-trained nurses, $\chi^2(1) = 53.609$, p < .001, or PMHNs, $\chi^2(1) = 44.542$, p < .001. Those nurses were also less likely to report receiving an in-service education in SU when compared to either nurses specialized in addiction, $\chi^2(1) = 28.426$, p < .001, or PMHNs ($\chi^2(1) = 12.512$, p < .001. Post hoc pairwise comparisons also indicated that there were significant differences among all three-nursing specialization (p < .05) related to other sources of education in substance use, with addiction-trained nurses reporting the highest percentage (30.2%).

For alcohol use problems, professional attitudes also differed among the three groups in relation to role adequacy, role legitimacy, role support, motivation, task-specific self-esteem, work

satisfaction, perceived role responsibility and self-efficacy scores (p < .001). Medical-surgical nurses felt less prepared, less entitled to ask patients about their drinking and less supported within their workplace to provide alcohol-related care compared to behavioral health nurses (p < .001). Pairwise comparisons also revealed that there were significant differences in alcohol-related motivation among all three groups (p < .05), with the highest levels of motivation observed among addiction nurses. Likewise, there were significant pairwise differences among the three-nursing specialty related to task-specific self-esteem (p < .05). Among the three groups, addiction-trained nurses reported feeling the most confident to perform specific tasks related to alcohol use care. Meanwhile, medical-surgical nurses were less satisfied, felt less responsible to address alcohol-related problems within their workplace, and expressed overall less confidence in their ability to respond to alcohol-related issues when compared to the other two nursing groups (p < .001).

In relation to opioid use professional attitudes variables, there were a significant difference among the three nursing groups related to role adequacy, role legitimacy, role support, motivation, task-specific self-esteem, work satisfaction, perceived role responsibility and self-efficacy scores (p < .001). Among the three groups, medical-surgical nurses felt the least prepared to address opioid use problems (p < .001) and felt the least supported within their workplace to provide opioid-related care (p < .05). In addition, medical-surgical nurses were less likely to inquire about patients' opioid use compared to the other two-nursing groups (p < .001).

When compared to the other two-nursing groups, addiction-trained nurses also reported the highest levels of motivation, felt the most confident and reported the most satisfaction when providing opioid-related care (p < .001). Meanwhile, medical-surgical nurses felt less responsible to address opioid-related problems within their workplace (p < .001) and felt the least overall

confident to respond to opioid-related issues within the context of their work (p < .01) compared to behavioral health nurses.

Variable	Total	Medical-	PMHN	Addiction-	Statistics, p-value
		Surgical	(n=126)	Trained	
		(n=248)		(n=86)	
Demographic/Background Characterist	ics			1	
Age, Mean (SD)	48.36 (12.90)	45.34 (12.43)	51.56 (12.66)	52.38 (12.48)	F(2, 457) = 15.831, p < .001
Years of Experience in Nursing, Median	17.00 (22.75)	14.00 (20.50)	20.50 (24.00)	24.00 (25.25)	<i>H</i> (2) = 17.717, <i>p</i> <.001
(IQR)					
Gender					<i>Fisher Exact Test (2)</i> = $.556$, $p=.765$
Female, n (%)	440 (95.65)	234 (94.35)	120 (95.24)	80 (93.02)	
Race					$X^{2}(2) = 3.059, p = .217$
White, n (%)	389 (84.57)	203 (81.85)	111 (88.10)	75 (87.21)	
Primary Workplace					$X^{2}(6) = 64.228, p < .001$
Hospital-based setting, n (%)	168 (36.52)	124 (50.00)	36 (28.57)	8 (9.30)	
Community-based setting, n (%)	113 (24.57)	41 (16.53)	38 (30.16)	34 (39.54)	
Administrative/other setting, n	78 (16.95)	46 (18.55)	20 (15.87)	12 (13.95)	
(%)					
Multiple Setting, n (%)	101 (21.96)	37 (14.92)	32 (25.40)	32 (37.21)	
Highest Degree Obtained in Nursing					$X^{2}(6) = 33.603, p < .001$
Vocational/2-year College, n (%)	58 (12.61)	27 (10.89)	11 (8.73)	20 (23.26)	
4-year College (Bachelors'	185 (40.22)	115 (46.37)	33 (26.19)	37 (43.02)	
Level), n (%)					
Graduate/Master's Degree, n (%)	152 (33.04)	77 (31.05)	53 (42.06)	22 (25.58)	
Doctoral Degree, n (%)	65 (14.13)	29 (11.69)	29 (23.02)	7 (8.14)	

Table 13 Demographic/Background Characteristics, Personal Attitudes and Professional Attitudes Based on Specialization (N=460)

Personal Attitudes					
Personal Experience with Alcohol, n (%)	364 (79.13)	185 (74.60)	105(83.3)	74 (86.05)	$\chi^2(2) = 6.925, p=.031$
Self, n (%)	86 (18.70)	42 (16.94)	22 (17.46)	22 (25.58)	$\chi^2(2) = 3.315, p = .191$
Friend, n (%)	175 (38.04)	78 (31.45)	51 (40.48)	46 (53.49)	$\chi^2(2) = 13.592, p=.001$
Family Member, n (%)	312 (67.83)	158 (34.35)	93 (73.81)	61 (70.93)	$\chi^2(2) = 4.373, p=.112$
Co-Worker, n (%)	103 (22.39)	42 (16.94)	30 (23.81)	31 (36.05)	$\chi^2(2) = 13.622, p=.001$
Other, n (%)	20 (4.35)	10 (4.03)	5 (3.97)	5 (5.81)	<i>Fisher Exact Test</i> (2) = .700, p =.747
Personal Experience with drugs, n (%)	310 (67.39)	154 (62.10)	88 (69.84)	68 (79.07)	$\chi^2(2) = 8.845, p = .012$
Self, n (%)	60 (13.04)	18 (7.26)	19 (15.08)	23 (26.74)	$\chi^2(2) = 22.012, p < .001$
Friend, n (%)	165 (35.87)	71 (28.63)	49 (38.89)	45 (52.33)	$\chi^2(2) = 16.275, p < .001$
Family Member, n (%)	244 (53.04)	122 (49.19)	70 (55.56)	52 (60.47)	$\chi^2(2) = 3.697, p = .157$
Co-Worker, n (%)	88 (19.13)	37 (14.92)	23 (18.25)	28 (32.56)	$\chi^2(2) = 12.928, p=.002$
Other, n (%)	14 (3.04)	6 (2.42)	6 (4.76)	2 (2.33)	<i>Fisher Exact Test (2) =1.666, p=.407</i>
For Alcohol		1			
Familiarity, Median (IQR)	12.00 (2.00)	12.00 (3.00)	12.00 (2.00)	13.00 (1.00)	H(2) = 31.439, p < .001
Perceived Dangerousness,	11.00 (8.00)	13.00 (8.00)	10.00 (7.00)	8.00 (6.25)	H(2) = 45.238, p < .001
Median (IQR)					
Fear, Median (IQR)	3.00 (3.00)	5.00 (6.00)	3.00 (1.00)	3.00 (0.25)	H(2) = 54.575, p < .001
Social Distance, Mean (SD)	12.00 (4.00)	12.57 (4.01)	11.35 (3.87)	11.34 (3.97)	F(2, 457) = 5.451, p = .005
Personal Responsibility Beliefs,	11.00 (7.00)	13.00 (7.00)	9.00(6.25)	8.500 (6.00)	H(2) = 43.133, p < .001
Median (IQR)					
Disease Model, Mean (SD)	12.38 (5.20)	12.40 (5.20)	11.60 (5.15)	13.49 (5.13)	F(2, 457) = 3.400, p = .034
Psychosocial Model, Mean (SD)	13.26 (2.66)	13.47 (2.62)	13.12 (2.72)	12.86 (2.68)	F(2, 457) = 1.908, p = .150

For Opioid					
Familiarity, MD (IQR)	11.00 (2.00)	11.00 (2.00)	11.00 (2.00)	12.00 (2.00)	H(2) = 23.574, p < .001
Perceived Dangerousness,	14.00 (9.00)	16.00(10.00)	12.50 (7.25)	11.00 (7.00)	H(2) = 53.882, p < .001
Median (IQR)					
Fear, Median (IQR)	3.00 (4.75)	6.00 (6.75)	3.00 (3.00)	3.00 (0.00)	H(2) = 70.097, p < .001
Social Distance, Mean (SD)	14.31 (4.44)	14.85 (4.38)	13.67 (4.56)	13.66 (4.27)	F(2, 457) = 4.101, p = .017
Personal Responsibility Beliefs,	11.00 (9.00)	13.00 (8.00)	9.00 (7.00)	7.00 (7.25)	H(2) = 49.476, p < .001
Median (IQR)					
Disease Model, Mean (SD)	13.32 (5.49)	13.52 (5.40)	12.05 (5.44)	14.58 (5.52)	F(2, 457) = 5.949, p = .003
Psychosocial Model, Mean (SD)	12.66 (3.06)	12.95 (2.83)	12.21 (3.24)	12.48 (3.35)	F(2, 457) = 2.612, p = .075
Professional Attitudes		1			
Work Experience with SU, n (%)	234 (50.87)	66 (26.61)	83 (65.87)	85 (98.84)	$\chi^2(2) = 148.909, p < .001$
SU-Education, n (%)	302 (65.65)	117 (47.18)	104 (82.54)	81 (94.19)	$\chi^2(2) = 84.523, p < .001$
School of Nursing, n (%)	130 (28.26)	61 (24.60)	55 (43.65)	24 (27.91)	$\chi^2(2) = 5.100, p = .078$
Continuing Education, n (%)	239 (51.96)	83 (33.47)	88 (69.84)	68 (79.07)	$\chi^2(2) = 75.435, p < .001$
In-Service Education, n (%)	144 (31.30)	52 (20.97)	48 (38.10)	44 (51.16)	$\chi^2(2) = 30.795, p < .001$
Other, n (%)	65 (14.13)	17 (6.85)	22 (17.46)	26 (30.23)	$\chi^2(2) = 30.347, p < .001$
For Alcohol		1			
Role Adequacy, Median (IQR)	28.00 (6.00)	24.00 (8.00)	28.00 (4.50)	31.00 (7.00)	H(2) = 155.612, p < .001
Role Legitimacy, Median (IQR)	16.00 (3.00)	15.00 (2.00)	16.00 (3.00)	16.00 (3.00)	H(2) = 60.279, p < .001
Role Support, Mean (SD)	11.90 (2.15)	11.21 (2.15)	12.56 (1.95)	12.95 (1.67)	F(2, 457) = 33.456, p < .001
Motivation, Mean (SD)	19.55 (3.51)	17.93 (3.22)	21.01 (2.69)	22.07 (2.94)	<i>F</i> (2, 457) =79.775, <i>p</i> <.001

Task-Specific Self-Esteem,	23.88 (3.77)	22.40 (3.62)	25.08 (3.18)	26.40 (2.99)	F(2, 457) = 55.205, p < .001
Mean (SD)					
Work Satisfaction, Mean (SD)	19.25 (3.50)	17.70 (3.34)	20.69 (2.77)	21.63 (2.58)	<i>F</i> (2, 457) = 71.907, <i>p</i> <.001
Perceived Role-Responsibility,	3.75 (1.75)	3.25 (1.50)	4.38 (1.50)	4.50 (1.50)	H(2) = 81.834, p < .001
Median (IQR)					
Perceived Self-Efficacy, Median	4.00 (1.71)	3. 29 (1.57)	4.43 (1.14)	4.57 (0.75)	H(2) = 129.435, p < .001
(IQR)					
For Opioid					
Role Adequacy, Median (IQR)	28.00 (7.00)	25.00 (7.00)	28.00 (7.00)	33.00(7.00)	H(2) = 127.251, p < .001
Role Legitimacy, Median (SD)	16.18 (2.42)	15.35 (2.28)	16.86 (2.19)	17.57 (2.23)	<i>F</i> (2, 457) = 39.233, <i>p</i> <.001
Role Support, Mean (SD)	12.20 (2.18)	11.61 (2.19)	12.58 (2.05)	13.33 (1.77)	F(2, 457) = 24.601, p < .001
Motivation, Mean (SD)	19.10 (3.65)	17.53 (3.30)	20.13 (3.27)	22.14 (2.58)	F (2, 457) =76.646, p<.001
Task-Specific Self-Esteem,	23.16 (4.05)	21.42 (3.68)	24.36 (3.55)	26.42 (3.01)	<i>F</i> (2, 457) = 74.043, <i>p</i> <.001
Mean (SD)					
Work Satisfaction, Median	19.00 (5.00)	17.00 (4.00)	20.00 (4.00)	22.50 (5.00)	H(2) = 126.875, p < .001
(IQR)					
Perceived Role-Responsibility,	4.00 (1.75)	3.25 (1.75)	4.25 (1.25)	4.50 (1.00)	H(2) = 95.255, p < .001
Median (IQR)					
Perceived Self-Efficacy, Median	3.71 (2.00)	3.00 (1.54)	4.29 (1.29)	4.57 (0.86)	H(2) = 124.964, p < .001
(IQR)					

Note. PMHN= psychiatric mental-health nurses; SD= standard deviation; IQR= interquartile range; SU= substance use

6.5.3 Predictors of Nurses' Motivation to Provide Alcohol-Related Care

6.5.3.1 Main-effects only predictive model

As reported in Table 14, in the main prediction regression model without interactions, nurses who reported working in multiple setting reported greater alcohol-related motivation (b = 0.646, p = .025). Meanwhile, nurses who perceived patients with alcohol use problems as dangerous were less likely to be willing to provide care for them (b = -0.053, p = .028).

These findings also suggest that nurses who had more work experience with SU (b = 0.596, p = .023) and received any education in substance use (b = 0.949, p = .013) were more motivated to provide alcohol use-related care. On the other hand, nurses who received SU-education in nursing school (b = -0.648, p = .015) or as a part of their in-service education (b = -0.755, p = .003) were less motivated to provide care to patients with alcohol use problems. While, nurses who were adequately prepared to provide alcohol-related care (role adequacy, b = 0.089, p = .004), were confident in their ability to provide specific tasks related to alcohol use care (b = 0.145, p < .001), experienced satisfaction (b = .429, p = <.001) when working with these patients and felt responsible to address alcohol use problems (b = .305, p = .014) within their workplace reported higher levels of motivation.

6.5.3.2 Prediction model with two-way interactions

The study also explored two-way interactions between the predictors. The alcohol-related motivation prediction parsimonious multivariate model, which included significant two-way interactions, demonstrated that the years of experience in nursing predicted higher nurses' motivation only when it was moderated by their perceptions related to viewing alcohol use disorder as a disease (b = 0.004, p = .006). Years of experience in nursing was still associated with lower

motivation levels among nurses when moderated by their perceptions related to attributing alcohol use disorder to psychosocial factors (b = -0.007, p = .005). The findings also indicated that nurses who worked in any setting other than the hospital-based setting (community-based setting (b = 1.246, p = .014), administrative/other setting (b = 0.634, p = .025)), or reported that they have worked in multiple settings (b = 0.952, p < .001) had greater motivation to provide care to patients with alcohol use problems.

In regard to nurses' personal attitudes, the model indicated that nurses who were familiar with alcohol use problems reported greater motivation (b = 0.181, p = .015). However, the association between familiarity and nurses' alcohol-related motivation varied and in fact was significantly lower among nurses who received in-service SU-education (b = -0.313, p = .039). On the other hand, nurses who perceived patients with alcohol use problems as more dangerous (b =-0.052, p = .010) had poorer motivation scores. The association between nurses' perceived dangerousness scores and their alcohol-related motivation also differed significantly based on working in community-based setting and was associated with even lower motivation levels among nurses who worked in community-based setting (b = -0.090, p = .024). Although nurses who viewed alcohol use disorder as a disease had lower motivation levels among nurses (b = -0.129, p = .004), their alcohol-related disease perceptions were associated with higher motivation levels when moderated by their personal responsibility beliefs related to alcohol use problems (b = 0.008, p = .013). Nurses' alcohol-related disease perceptions were also associated with greater motivation levels among nurses who had themselves experienced problems with alcohol use (b = 0.138, p < 0.138) .001).

In relation to professional attitudes, nurses who had work experience with SU (b = 0.486, p = .028), any education in substance use (b = 0.681, p = .013), felt prepared to provide alcohol-

related care (role adequacy) (b = 0.096, p < .001), or expressed satisfaction towards working with patients who have alcohol use problems (b = 0.384, p < .001) reported higher levels of motivation to provide alcohol-related care. On the other hand, nurses who received SU education in nursing school (b = -0.537, p = .024) or as a part of their in-service education (b = -0.615, p = .008) had lower alcohol-related motivation.

Nurses who felt responsible to address alcohol use issues within their workplace (perceived role responsibility) reported greater motivation (b = 0.610, p < .001). However, the association between nurses' role responsibility's scores and their alcohol-related motivation was contingent on the presence of SU-work experience and resulted in lower motivation scores among those who reported SU-work experience (b = -0.721, p < .001). The association between nurses' role support scores and their alcohol-related motivation was moderated by community-based setting and resulted in greater motivation among those working in community-based setting (b = 0.266, p =.014). Nurses' role legitimacy scores association with their motivation depended on their SUeducation in nursing school and contributed to lower motivation levels among nurses' who received SU-education in nursing school (b = -0.246, p = .005). Task-specific self-esteem scores' association with nurses' motivation to provide alcohol-related care were moderated by SUeducation (b = 0.181, p = .001) and contributed to greater motivation scores among nurses who received any SU-education. Task-specific self-esteem scores' association with nurses' alcoholrelated motivation also depended on administrative/other work setting (b = -0.222, p = .001) and contributed to lower motivation levels among those working in this work setting.

Predictor	Unadjusted		Adjusted (Mai	n Predictors)	Adjusted	
					(Parsimonious Model)	
	b (SE)	p-value	b (SE)	p-value	b (SE)	p-value
1. Socially Desirable Responses						
Social Desirability	-0.055 (.060)	.365	-0.091 (.037)	.015	-	-
2. Demographic/Background Characteristics						
Age	0.057 (.012)	<.001	0.002 (.014)	.872	-	-
Years of Experience in Nursing	0.038 (.012)	.001	-0.002 (.013)	.897	011 (.008)	.153
Gender						
Female	Reference					
Male	0.196 (.710)	.782	0.246 (.436)	.572	-	-
Race						
White	Refere	ence				
Non-White	-1.078 (.451)	.017	-0.394 (.280)	.160	-	-
Primary Workplace						
Hospital-based Setting	Refere	ence				
Community-based Setting	2.785 (.401)	<.001	0.242 (.293)	.409	1.246 (.507)	.014
Administrative/ other Setting	1.755 (.452)	<.001	0.437 (.323)	.178	0.634 (.282)	.025
Multiple Settings	2.677 (.415)	<.001	0.646 (.288)	.025	0.952 (.253)	<.001
Specialization						
Medical-Surgical Nurses	Refere	ence				
Psychiatric Mental-Health Nurses	3.081 (.332)	<.001	0.074 (.271)	.785	-	-
Addiction-Trained Nurses	4.142 (.379)	<.001	0.116 (.352)	.741	-	-

Table 14 Motivation Prediction Model for Alcohol Use

Highest Degree Obtained in Nursing						
4-year College (Bachelors' Level)	Refere	ence				
2-year College or Less	0.625 (.525)	.233	-0.204 (.319)	.524	-	-
Graduate/Master's Degree	0.746 (.382)	.051	-0.241 (.247)	.331	-	-
Doctoral Degree	1.481 (.503)	.003	0.031 (.340)	.927	-	-
3. Personal Perceptions						
Personal Experience with Alcohol						
Any Personal Experience	1.611 (.397)	<.001	-0.209 (.394)	.597	-	-
Self	1.260 (.417)	.003	0.302 (.280)	.281	0.119 (.233)	.611
Friend	1.397 (.331)	<.001	-0.062 (.248)	.802	-	-
Family Member	1.323 (.346)	<.001	0.300 (.326)	.358	-	-
Co-Worker	1.374 (.388)	<.001	-0.420 (.277)	.129	-	-
Other	0.370 (.804)	.645	0.596 (.489)	.223	-	-
Familiarity	0.702 (.106)	<.001	0.057 (.080)	.471	0.181 (.075)	.015
Perceived Dangerousness	-0.276 (.023)	<.001	-0.053 (.024)	.028	-0.052 (.020)	.010
Fear	-0.606(.057)	<.001	-0.038 (.048)	.423	-	-
Social Distance	-0.305 (.038)	<.001	0.035 (.031)	.266	-	-
Personal Responsibility Beliefs	-0.237 (.030)	<.001	-0.025 (.021)	.234	-0.031 (.019)	.103
Disease Model	-0.079 (.031)	.012	-0.014 (.021)	.509	-0.129 (.045)	.004
Psychosocial Model	0.009 (.061)	.878	0.032 (.038)	.394	0.046 (.033)	.169
4. Professional Attitudes						
Work Experience with SU	3.447 (.286)	<.001	0.596 (.260)	.023	0.486 (.220)	.028
SU-Education	3.000 (.316)	<.001	0.949 (.380)	.013	0.681 (.272)	.013
School of Nursing	0.408 (.364)	.262	-0.648 (.265)	.015	-0.537 (.237)	.024

Continuing Education	2.592 (.305)	<.001	-0.101 (.328)	.759	-	-
In-Service Education	1.157 (.350)	.001	-0.755 (.255)	.003	-0.615 (.230)	.008
Other	2.088 (.461)	<.001	-0.383 (.319)	.231	-	-
Role Adequacy	0.418 (.023)	<.001	0.089 (.031)	.004	0.096 (.026)	<.001
Role Legitimacy	0.616 (.064)	<.001	-0.058 (.054)	.288	0.025 (.055)	.641
Role Support	0.722 (.069)	<.001	0.002 (.058)	.973	-0.077 (.058)	.185
Task-Specific Self-Esteem	0.604 (.033)	<.001	0.145 (.041)	<.001	0.084 (.048)	.082
Work Satisfaction	0.760 (.031)	<.001	0.429 (.043)	<.001	0.384 (.039)	<.001
Perceived Role-Responsibility	1.389 (.127)	<.001	0.305 (.123)	.014	0.610 (.123)	<.001
Perceived Self-Efficacy	1.866(.131)	<.001	0.002 (.164)	.990	-	-
5. Two-Way Interactions						
Years of Experience in Nursing X Disease Model	-	-	-	-	0.004 (.001)	.006
Years of Experience in Nursing X Psychosocial	-	-	-	-	-0.007 (.002)	.005
Model						
Community-based Setting X Role Support	-	-	-	-	0.266 (.107)	.014
Community-based Setting X Perceived	-	-	-	-	-0.090 (.040)	.024
Dangerousness						
Administrative/ Other Setting X Task-Specific	-	-	-	-	-0.222 (.065)	.001
Self-Esteem						
Self-Personal Experience X Disease Model	-	-	-	-	0.138 (.039)	<.001
Familiarity X In-Service SU-Education	-	-	-	-	-0.313 (.151)	.039
Personal Responsibility Beliefs X Disease	-	-	-	-	0.008 (.003)	.013
Model						

Work Experience with SU X Perceived Role-	-	-	-	-	-0.721 (.167)	<.001
Responsibility						
SU-Education X Task-Specific Self-Esteem	-	-	-	-	0.181 (.053)	.001
SU-Education in Nursing School X Role	-	-	-	-	-0.246 (.087)	.005
Legitimacy						

Note. b= unstandardized regression coefficient; SE= standard error; SU= substance use

6.5.4 Predictors of Nurses' Motivation to Provide Opioid-Related Care

6.5.4.1 Main-effects only predictive model

As reported in Table 15, in the main prediction regression model without interactions, nurses who had a friend who experienced problems with drug use (b = -0.680, p = .027), who perceived opioid use problems as dangerous (b = -0.050, p = .044), or who viewed opioid use problems as a disease (b = -0.073, p = .001) were less motivated to provide care to patients with opioid use problems.

Likewise, nurses who reported receiving a substance use education in nursing school had poorer motivation scores related to opioid use (b = -0.778, p = .010). On the other hand, nurses who had a work experience with substance use (b = 0.674, p = .024), who felt confident to provide opioid-related specific care (task-specific self-esteem) (b = 0.221, p < .001), or who were satisfied to work with these patients (b = 0.330, p < .001) reported higher levels of motivation.

6.5.4.2 Prediction model with two-way interactions

The study also explored two-way interactions between the predictors. The opioid-related motivation prediction parsimonious multivariate model, which includes two-way interactions, indicated that younger nurses (b = -0.033, p = .006), who worked in community-based setting (b = 0.593, p = .016), or were trained in addiction (b = 1.073, p = .004) reported greater motivation related to opioid use. The association between nurses' age and their opioid-related motivation differed significantly between those who had a personal experience with a family member who had a drug use problem and those who did not and was associated with greater motivation levels among nurses who had a family member with drug use problems (b = 0.031, p = .045). On the

other hand, the association between nurses' race and their opioid-related motivation differed significantly between those who had a master's degree and those who did not and contributed to lower motivation among nurses who had a master's degree (b = -1.164, p = .046).

Personal attitude predictors related to opioids use-related motivation indicated that nurses who had themselves experienced drug use problems (b = 0.948, p = .016), other drug-personal experiences (b = 2.138, p = .003), or who attributed patient's opioid use problems to psychosocial factors (b = 0.072, p = .038) reported higher levels of motivation. On the other hand, nurses who reported a personal experience with a friend who had a drug use problem (b = -0.550, p = .019), perceived patients with opioid use problems as dangerous (b = -0.058, p = .005), or viewed opioid use disorder as a disease (b = -0.049, p = .031) had lower motivation levels.

Nurses' own experience with drug use association with opioid-related motivation was also moderated by SU-education in nursing school and resulted in poorer motivation among those who received SU-education in nursing school (b = -1.802, p = .004). In addition, the association between nurses who had other personal experience with drug use and their opioid-related motivation differed significantly between those who worked in community-based setting and those who did not and contributed to lower motivation levels among those working in community-based setting (b = -3.790, p = .002). The association between nurses who perceived opioid use disorder as a disease and their motivation also differed significantly between those who worked in community-based setting and those who worked in community-based setting and those who worked in a disease and their motivation also differed significantly between those who worked in community-based setting levels among nurses who worked in community-based setting (b = -0.175, p < .001).

Professional predictors of nurses' opioid-related motivation revealed that participants who had work experience with SU (b = 0.636, p = .018), received continuing education in SU (b = 0.840, p = .001), expressed confidence in their ability to provide task-specific care to patients with opioid use problems (b = 0.102, p = .039), or were satisfied when working with this patient population (b = 0.281, p < .001) had higher levels of motivation. The association between nurses' role adequacy scores and their motivation differed significantly between those who had a doctoral degree in nursing and those who did not and resulted in greater motivation scores among nurses who received a doctoral degree in nursing (b = 0.129, p = .004). Nurses' task-specific self-esteem scores' association with their opioid-related motivation differed significantly between those who had a work experience with SU and those who did not and also contributed to higher levels of motivation among nurses who reported SU-work experience (b = 0.190, p = .001). On the other hand, the relationship between nurses' work satisfaction scores and their opioid-related motivation differed significantly between PMHNs and medical-surgical nurses, and were higher among PMHNs (b = 0.217, p = .002). The relationship between nurses' perceived role responsibility to address opioid use within their workplace and their motivation differed significantly between those who received SU- education in nursing school and those who did not and was lower among those who received SU-education in nursing school (b = -0.447, p = .027). However, the association between perceived role responsibility scores and nurses' motivation related to opioid use was moderated by their fear scores and was mitigated when fear scores were higher (b = 0.111, p < 0.111.001).

Predictor	Unadjusted		Adju	sted	Adjusted	
			(Main Predictors)		(Parsimonious Model)	
	b (SE)	p-value	b (SE)	p-value	b (SE)	p-value
1. Socially Desirable Responses						
Social Desirability	-0.082 (.063)	.190	-0.091 (.041)	.027	-	-
2. Demographic/Background Characteristics						
Age	0.042 (.013)	.002	-0.008 (.015)	.601	-0.033 (.012)	.006
Years of Experience in Nursing	0.024 (.012)	.052	-0.009 (.015)	.538	-	-
Gender						
Female	Reference					
Male	-0.070 (.738)	.925	-0.835 (.480)	.082	-	-
Race						
White	Refer	ence				
Non-White	- 0.840 (.470)	.075	-0.328 (.311)	.291	0.167 (.343)	.627
Primary Workplace						
Hospital-based Setting	Refer	ence				
Community-based Setting	2.950 (.421)	<.001	0.313 (.323)	.333	0.593 (.245)	.016
Administrative/ other Setting	1.304 (.474)	.006	-0.298 (.360)	.409	-	-
Multiple Settings	2.106 (.436)	<.001	-0.063 (.319)	.844	-	-
Specialization						
Medical-Surgical Nurses	Refer	ence				
Psychiatric Mental-Health Nurses	2.595 (.346)	<.001	0.060 (.298)	.840	0.001 (.271)	.997
Addiction-Trained Nurses	4.607 (.396)	<.001	0.742 (.392)	.059	1.073 (.372)	.004

Table 15 Motivation Prediction Model for Opioid Use

Highest Degree Obtained in Nursing						
4-year College (Bachelors' Level)	Refer	ence				
2-year College or Less	0.747 (.546)	.173	-0.403 (.359)	.263	-	-
Graduate/Master's Degree	0.275 (.398)	.490	-0.070 (.275)	.799	0.226 (.247)	.360
Doctoral Degree	1.420 (.524)	.007	0.362 (.385)	.347	0.072 (.323)	.825
3. Personal Perceptions						
Personal Experience with drugs						
Any Personal Experience	1.065 (.360)	.003	0.119 (.411)	.772	-	-
Self	2.046 (.497)	<.001	0.286 (.361)	.428	0.948 (.393)	.016
Friend	1.264 (.350)	<.001	-0.680 (.306)	.027	-0.550 (.233)	.019
Family Member	0.799 (.339)	.019	0.074 (.339)	.828	0.143 (.207)	.489
Co-Worker	2.021 (.423)	<.001	0.288 (.319)	.368	-	-
Other	1.218 (.990)	.219	0.582 (.636)	.361	2.138 (.716)	.003
Familiarity	0.577 (.104)	<.001	-0.037 (.082)	.654	-	-
Perceived Dangerousness	-0.248 (.022)	<.001	-0.050 (.025)	.044	-0.058 (.021)	.005
Fear	-0.431 (.043)	<.001	-0.018 (.039)	.650	0.003 (.036)	.929
Social Distance	-0.242 (.037)	<.001	0.012 (.031)	.708	-	-
Personal Responsibility Beliefs	-0.214 (.030)	<.001	0.019 (.023)	.411	-	-
Disease Model	-0.153 (.030)	<.001	-0.073 (.023)	.001	-0.049 (.023)	.031
Psychosocial Model	0.048 (.056)	.388	0.063 (.037)	.095	0.072 (.035)	.038
4. Professional Attitudes						
Work Experience with Substance Use (SU)	3.771 (.292)	<.001	0.674 (.298)	.024	0.636 (.268)	.018
SU-Education	2.964 (.331)	<.001	0.375 (.421)	.373	-	-
School of Nursing	0.476 (.378)	.208	-0.778 (.299)	.010	-0.502 (.259)	.053
Continuing Education	2.892 (.313)	<.001	0.624 (.363)	.086	0.840 (.250)	.001
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In-Service Education	1.567 (.360)	<.001	-0.072 (.284)	.800	-	-
Other	1.957 (.481)	<.001	-0.048 (.351)	.891	-	-
Role Adequacy	0.370 (.023)	<.001	0.047 (.033)	.149	0.003 (.027)	.901
Role Legitimacy	0.662 (.063)	<.001	-0.027 (.064)	.672	-	-
Role Support	0.692 (.071)	<.001	-0.050 (.067)	.455	-	-
Task-Specific Self-Esteem	0.607 (.031)	<.001	0.221 (.045)	<.001	0.102 (.049)	.039
Work Satisfaction	0.693 (031)	<.001	0.330 (.046)	<.001	0.281 (.045)	<.001
Perceived Role-Responsibility	1.349 (.131)	<.001	0.263 (.157)	.094	0.231 (.120)	.056
Perceived Self-Efficacy	1.713 (.128)	<.001	-0.118 (.197)	.550	-	-
5. Two-Way Interactions						
Age X Family-Member Personal Experience	-	-	-	-	0.031 (.015)	.045
Non-white X Master's Degree	-	-	-	-	-1.164 (.583)	.046
Community-based Setting X Disease Model	-	-	-	-	-0.175 (.043)	<.001
Community-based Setting X Other-Personal	-	-	-	-	-3.790(1.215)	.002
Experience						
Psychiatric Mental-Health X Work Satisfaction	-	-	-	-	0.217 (.070)	.002
Doctoral Degree X Role Adequacy	-	-	-	-	0.129 (.045)	.004
Self-Personal Experience X SU-Education in	-	-	-	-	-1.802 (.629)	.004
Nursing School						
Fear X Perceived Role Responsibility	-	-	-	-	0.111 (.027)	<.001
Work Experience with SU X Task-Specific	-	-	-	-	0.190 (.056)	.001
Self-Esteem						

SU-Education in Nursing School X Perceived	-	-	-	-	-0.447 (.202)	.027
Role-Responsibility						

Note. b= unstandardized regression coefficient; SE= standard error; SU= substance use

6.6 DISCUSSION

This online nationwide study aimed to examine the difference in demographic/background characteristics, personal attitudes, professional attitudes and motivation among medical-surgical nurses, PMHNs and addiction-trained nurses. The study also aimed to identify potential demographic/background, personal and professional predictors, including their interactions, of nurses' AO-motivation.

6.6.1 Study Variables and Nursing Specialization

The findings of the study revealed that medical-surgical nurses tended to be younger and have less years of experience in nursing than nurses who worked in behavioral health fields (addiction-trained nurses and PMHNs). Meanwhile, behavioral-health nurses (BHNs) were more likely to work in community-based setting or report working in multiple settings compared to medical-surgical nurses. The transition of mental health services from hospital setting to the community-based setting may explain why BHNs had more work experience in multiple settings. In addition, since the BHNs tended to have more experience than medical-surgical nurses, they may have had more opportunities to work in multiple settings. Among the three-nursing specialization, PMHNs were more likely to have obtained a graduate or doctoral degree in nursing.

The study findings also revealed significant differences among the three-nursing specialization in relation to personal attitudes towards alcohol or opioid use. Compared to medical-surgical nurses, addiction-trained nurses had more personal experiences with alcohol use problems (friend, a co-worker, or any alcohol personal experience). Likewise, addiction-trained nurses were

more likely to report personal experiences with drug use problems (self, a friend, a co-worker or any personal experience with drug use). However, it is not clear whether these personal experiences occurred prior to, during or after they specialized in the addiction field. The study indicated that these experiences may have played a significant role in shaping their perceptions towards this patient population. The study also revealed that BHNs tended to be more familiar with AO use problems when compared to medical-surgical nurses. This finding is expected given that nurses who work in behavioral-health specialization are more likely to work with patients with these conditions.

On the other hand, nurses working in medical-surgical specialties were more likely to perceive patients with AO use problems as more dangerous, feel afraid to work with these patients and were more likely to blame the patients for their AO-condition and its control compared to BHNs. When compared to BHNs, medical-surgical nurses were also more likely to maintain a safe distance from patients with alcohol use problems. Meanwhile, medical-surgical nurses were more likely to maintain safe distance from opioid use compared to PMHNs. These findings align with previous studies, which conveyed that healthcare providers who were less familiar with patients with SU were more likely to perceive them as dangerous and be afraid to work with them and therefore were less willing and less prepared to serve this patient population (Lev-Ran et al., 2013; Neville & Roan, 2014). Likewise, in Horner and colleagues (2019) study, female participants expressed concerns about personal safety when working with patients with opioid use problems (Horner et al., 2019).

In relation to nurses' perception related to AO use problems, addiction-trained nurses were more likely to view alcohol use problems as a disease. Meanwhile, PMHNs were the least likely to view opioid use problems as a disease when compared to the other two-nursing groups. This may be attributed to the fact that not all PMHNs may receive SU-education, in which addiction is often viewed as disease instead of a personal choice.

Professional attitudes also differed significantly based on specialization. Addiction-trained nurses reported the highest work experience and education in SU compared to the other twonursing groups. Medical-surgical nurses were less likely to have received continuing education, in-service education, or other sources of education in SU compared to BHNs. Medical-surgical nurses also reported feeling less prepared, not entitled to ask patients about their drinking, and less supported within their workplace to provide alcohol-related care compared to the other twonursing groups. Among the three nursing groups, addiction-trained nurses demonstrated the greatest motivation and confidence to perform specific alcohol-related care tasks. On the other hand, medical-surgical nurses felt the least satisfied, least responsible to address alcohol use problems and overall the least confident to perform care related to alcohol use compared to behavioral-health nurses. Similar to alcohol use, medical-surgical nurses felt the least prepared and the least supported to address opioid use within their workplace. In addition, those nurses were less likely to inquire about patients' opioid use compared to the other two-nursing groups. Addiction-trained nurses reported the greatest motivation, felt the most confident and expressed the greatest satisfaction towards working with patients with opioid use problems. Meanwhile, medical-surgical nurses felt the least responsible to address opioid-related problems within their workplace when compared to the other two nursing specialties. Likewise, medical-surgical nurses expressed the least overall confidence to respond to opioid-related issues within the context of their work. These findings are expected given the ample of education, training experience and support BHNs receive related to SU compared to other nurses (Albery et al., 2003; Ford et al., 2008; Ford et al., 2009; Horner et al., 2019; Mundon et al., 2015; Vadlamudi et al., 2008; van Boekel et al., 2013). According to Horner and colleagues (2019), perceived role support is an important aspect to consider when working with patients with opioid use problems. Thus, unlike medical-surgical nurses, BHNs often feel more prepared, entitled, supported, motivated, confident, and satisfied to work with these patients and feel more responsible and confident to address these problems within their workplace.

6.6.2 Predictors of AO-Related Motivation

The study also aimed to identify potential demographic/background, personal and professional predictors, with and without interactions, of nurses' motivation to provide AO-related care. The results suggested that nurses who reported working in multiple settings had greater alcohol-related motivation.

On the other hand, the greater nurses perceived patients with AO use as dangerous the less likely they were willing to provide care to these patients. This finding is consistent with previous studies, which linked greater perceived dangerousness with poorer motivation and willingness to provide care to patients with substance use problems (Horner et al., 2019; Lev-Ran et al., 2013; Neville and Roan, 2014). Personal experience with a friend who had a drug use problem was also associated with poorer motivation to provide opioid-related care. The literature reported mixed results regarding the influence of familiarity and SU-personal experiences has on healthcare providers' motivation (Amaral-Sabadini et al., 2010; Ford et al., 2008; Lewis & Jarvis, 2019; Lock et al., 2002; Wakeman, Pham-Kanter & Donelan, 2016). Thus, when assessing how SU-personal experience influence providers' motivation, it is important to consider the type of personal experience and how this personal experience shaped or influenced nurses' motivation to provide opioid-related care. Perceptions related to opioid use disease model was also a significant predictor of nurses' motivation. Nurses who perceived opioid use problems as a disease reported lower motivation. This finding may seem initially counterintuitive; however, it is understandable especially if nurses viewed opioid use problems as a chronic disease with limited chances of complete recovery. According to Horner and colleagues (2019), nurses described working with patients with opioid use problems as futile, especially when patients were not willing or able to completely recover. Such perceptions may also contribute to healthcare providers' feelings of frustration and hopelessness and subsequently result in them feeling less inclined to work this patient population, feelings often expressed by providers in literature review (Horner et al., 2019; Lewis & Jarvis, 2019). Despite calls for viewing SUD as a disease, moral and punitive approaches associated with SUDs contribute to shame, blame and stigma among healthcare providers, including nurses, and can create a barrier for patients to receive optimal care (Compton & Blacher, 2019; Saloner et al., 2018).

For AO use, SU-work experience, task-specific self-esteem and work satisfaction were professional predictors that were associated with greater AO-motivation and willingness to provide care. These findings were consistent with previous studies (Albery et al., 2003; Horner et al., 2019; Mundon et al., 2015; Nash et al., 2017; van Boekel et al., 2013; Wakeman et al. 2016). According to these studies SU-work experience, task-specific self-esteem and work satisfaction were positively associated with higher levels of motivation towards SU. Other professional predictors of alcohol use-related motivation included general education in substance use, role adequacy and role responsibility. Receiving any SU-education, role adequacy and role responsibility scores were all associated with greater motivation to provide alcohol-related care. These findings were supported by previous studies, which conveyed that general education in SU had a positive effect on providers' SU-related motivation (Ford et al., 2008; Wakeman et al., 2013). However, a study

by Ford and colleagues (2009) indicated that providing SU-education without existing support may result in counterproductive outcomes. The findings of our study were similar to other studies conducted on the healthcare providers population that found that role adequacy and role responsibility were positively associated with motivation (Albery et al., 2003; Nash et al., 2017). On the other hand, the study indicated that receiving SU-education in nursing school was associated with poorer AO-motivation. In addition, receiving in-service education in SU was associated with lower levels of motivation towards alcohol use problems. These finding are unexpected given the recent calls to enhance SU-education in nursing schools and subsequent need to promote SU-education and training among current nursing professionals (Compton & Blacher, 2019; Finnell et al., 2018; Mitchell et al., 2019; Savage, et al., 2018; Savage et al., 2014). Nevertheless, it is important to highlight the fact that current SU-education in nursing schools mainly focuses on substance use disorders and their treatment modalities and often overlooked preventive measures related to substance use (Compton & Blacher, 2019; Savage, et al., 2014). In addition, in this study the mean years of experience in nursing was 17 years. thus, those nurses may have not received the current substance use-education that displays a shift in substance use education focus to target the entire substance use continuum.

6.6.3 AO-Predictors with Two-way Interactions

The study also examined demographic/background, personal and professional predictors of nurses' motivation in light of possible two-way interactions for AO use. For alcohol use, although years of experience in nursing did not predict nurses' motivation, it was associated with higher levels of motivation among nurses who viewed alcohol use disorder as a disease. On the other hand, the relationship between years of experience in nursing and alcohol-related motivation was negatively moderated when nurses attributed the cause of alcohol use disorder to psychosocial factors. Unfortunately, there is no information regarding the interaction between years of nursing experience and disease or psychosocial perceptions and their association with nurses' motivation. Therefore, further studies are needed to promote our understanding of these findings.

The findings also indicated that nurses who did not work in hospitals reported greater motivation to provide alcohol-related care. This finding aligns with the expected transition in addiction treatment from hospital to community-based setting after discharge (Horner et al., 2019), thus, the majority of BHNs tend to work in community based or multiple work settings.

For opioid use, nurses who were younger, worked in community-based setting, or were trained in addiction reported greater motivation to provide care for opioid use. Previous studies examined the relationship between healthcare providers' age and their SU-related motivation and found that younger providers were more willing to work with patients with substance use problems (Crothers & Dorrian, 2011; Silins et al., 2007). The association between participants' age and their motivation also differed significantly based on their personal experience with a family-member who had a drug use problem and was greater among nurses who had a personal experience with a family member with drug use problems. On the hand, the association between nurses' race and their opioid-related motivation differed significantly between those who had a master's degree and those who did not and contributed to lower motivation among nurses who had a master's degree.

In relation to nurses' personal attitudes, higher levels of familiarity were associated with greater levels of motivation towards alcohol use. However, the association between familiarity and nurses' motivation-related to alcohol use was mitigated by receiving in-service SU-education and was lower among nurses who reported receiving in-service SU-education. As mentioned earlier, this can be attributed to the SU-educational content offered in these work-related training, in which

the emphasis maybe mainly placed on substance use disorders (SUDs), relapse and treatment modalities, similar to those observed in nursing schools (Savage, et al., 2014). Although higher levels of perceived dangerousness towards alcohol use were associated with poorer motivation scores, the association between perceived dangerousness and nurses' alcohol-related motivation depended on working in community-based setting and resulted in lower motivation levels among nurses working in community settings. This may be in part attributed to the condition, in which the patient present to the community care setting. For example, patients may present to the community care setting in withdrawal or overdose conditions, thus, this may result in nurses perceiving them as more dangerous subsequently contributing to lower motivation levels among these nurses.

Nurses' perceptions related to patients' personal responsibility for their alcohol use condition and control and disease model perceptions were both associated with poorer motivation scores. This finding was consistent with a previous study by Wakeman and colleagues (2016), who found that more than one third of the hospitalists believed SUD was a choice and therefore, was associated with higher stigma perceptions. On the other hand, the association between nurses' perceptions related to alcohol use personal beliefs responsibility was moderated by them viewing alcohol use disorder as a disease and contributed to greater motivation scores. In addition, nurses' alcohol-related disease perceptions were associated with greater motivation levels among nurses who had themselves experienced problems with alcohol use. This finding is inconsistent with the outcomes of a previous study by Lock and colleagues (2002), which indicated that providers were reluctant to work with patients who have alcohol use problems because of their own alcohol use. Although nurses' own experience with alcohol use problem was not associated with their motivation, viewing alcohol use problems as a disease in light of their own struggle with alcohol

use problems may have made them able to relate to other patient's alcohol use struggles without the accompanying feelings of guilt, shame or blame.

For opioid use, personal attitudes that were associated with greater opioid-related motivation scores were nurses' own personal experience with drug use, other drug use-related personal experiences and psychosocial perceptions related to opioid use. Meanwhile, personal predictors that were linked to poorer motivation scores were nurses' personal experience with a friend who had a drug use problem, perceived dangerousness and disease perceptions related to opioid use. According to Compton and Blacher (2019), nurses' own experiences with SUDs with themselves, a family member or acquaintance may play an important role in reinforcing negative perceptions related to addiction. The study also revealed that the relationship between nurses' disease model perceptions and their motivation was also moderated by working in communitybased setting and also contributed to even lower motivation levels among those who worked in community-based settings. This finding is expected given that disease perceptions related to opioid use had already been associated with lower motivation levels. In AO use patient populations, reframing substance use disorder as a chronic disease alone was associated with poorer motivation among nurses, however, when emphasizing SUDs in the context of a disease process, it is imperative to encourage future and current providers to examine their own values and feeling about addiction to enhance optimal nursing care for this patient population (Compton & Blacher, 2019). On the other hand, feeling afraid to work with patients with opioid use problems and their association with nurses' motivation was moderated by their perceived role responsibility and led to higher levels of motivation to work with this patient population. This finding is supported by Neville and Roan (2014) study, which stated that despite providers' feelings of perceived dangerousness to perform substance use-related care, their professional duty towards these

patients' care remained their main priority.

Professional predictors of nurses' AO-related motivation, including their interactions, were also examined in this study. Similar to the earlier model (without interactions), work experience and work satisfaction were associated with greater AO-motivation among nurses. Likewise, role adequacy and perceived role responsibility were associated with greater nurses' motivation related to alcohol use. Meanwhile, role support was only associated with nurses' alcohol-related motivation when moderated by working in community-based setting and led to higher levels of motivation among nurses who worked in community-based setting. This can be attributed to the fact that most nurses who worked in community settings were more likely to be BHNs and therefore feel more supported to respond to alcohol use issues within their workplace, which subsequently result in greater motivation.

Participants' task-specific self-esteem scores' association with their motivation was moderated by working in administrative/other setting and contributed to poorer motivation scores among those working in this setting. This result may be intuitive given that nurses who work in administrative, educational or other settings may feel confident to provide care to patients with alcohol use problems. However, their primary workplace may not provide them with ample opportunities to work with these patients. As a result, they may be less motivated to provide care to patients with alcohol use problems. On the other hand, the relationship between nurses' taskspecific self-esteem and their motivation towards the alcohol use population was moderated by any SU-education and contributed to greater motivation scores among nurses who received any SU-education. This finding is anticipated given that both SU-education and task-specific selfesteem scores, even though not significant, were associated with higher levels of motivation towards alcohol use. Perceived role responsibility scores were associated with lower motivation scores related to alcohol use in nurses who reported SU-work experience. Similarly, participants' role legitimacy scores were associated with lower motivation towards alcohol use among nurses who received SU-education in nursing school. Receiving SU-education in nursing school or as a part of their inservice training was also associated with lower levels of motivation towards alcohol use among nurses. This finding highlights the need to address gaps in nursing school education and in-service education related to SU by focusing on the substance use continuum and preventive measures. This may also reduce nurses' concerns associated with inquiring about patients SU that may appear as accusatory or offensive (Lewis & Jarvis, 2019).

Task-specific self-esteem and continuing education in SU were associated with greater nurses' willingness to provide care for patients with opioid use problems. Compared to other SUeducation, continuing education in SU are often acquired voluntarily and thus, nurses who receive continuing education in SU may do so out of interest in the addiction field and thus, are more likely to report greater opioid-related motivation.

The study's findings also revealed that the SU-education in nursing school was associated with lower levels of motivation towards opioid use when moderated by nurses' own experience with drug use problems. Nurses' preparedness to provide care to patients with opioid use problems was associated with higher levels of motivation among nurses with a doctoral degree in nursing. This may be attributed to the fact that doctoral degree qualified nurses may be exposed to different educational and clinical experiences as well as different patient populations. Such educational and clinical experiences may reflect positively on their knowledge and skills set and result in higher levels of motivation. Likewise, task-specific self-esteem scores were associated with greater motivation among nurses who reported previous SU-work experience. This finding is consistent with Lewis and Jarvis (2019) study, which indicated that nursing students felt more comfortable working with opioid use disorder with time and experience. Meanwhile, nurses' work satisfaction association with motivation differed significantly between PMHNs and medical-surgical nurses and was higher among PMHNs. Finally, the effect of nurses' perceived role responsibility to address opioid use within their workplace on their motivation differed significantly based on receiving SU-education in nursing school and was lower among nurses who received SUeducation in nursing school.

Up to the authors' knowledge, this is the first study that examines the differences in demographic/background characteristics, personal attitudes, professional attitudes and motivation among the three-nursing specializations. In addition, this is the first nationwide study to identify potential demographic/background, personal and professional predictors, including their interactions, of nurses' motivation to provide AO-related care.

6.6.4 Limitations

Although the use of descriptive correlation enabled us to identify potential predictors, we were not able to establish conclusions regarding cause and effect relationships among the study's variables. In addition, certain regions had lower percentage of responses (i.e. Region 7=1.1%) compared to other regions. Thus, the study may not be as representative of the nursing population as intended. Moreover, the generalization of the study's findings may also be limited by specialization representation and because the sample was predominantly female and White . Future studies should employ complex sample survey method to ensure greater representation of the targeted study population. Since the adapted familiarity subscale reported poor reliability for both alcohol (Cronbach's $\alpha = .516$) and opioid (Cronbach's $\alpha = .596$) use, the familiarity results should be

interpreted with caution. Although the final model for both alcohol and opioid use did not include social desirability, in the initial alcohol and opioid prediction models, without interactions, social desirability scores was significant for alcohol (p = .015) and opioid (p = .027). Hence, in light of that the findings of both models should be interpreted with caution and further measures should be implemented to reduce socially desirable responses.

6.6.5 Recommendations for Prelicensure, Continuing and In-Service Nursing Education

The following recommendations are provided for educators of future and current nurses.

1. Incorporate presentations from persons in recovery from alcohol and opioid use in teaching nursing students and educational forums with nurses in practice. Sharing the lived experiences of persons with AO-use problems can be instrumental in nursing students developing empathy and better understanding of the journey patients with AO-use problems go through, which can lead to greater motivation to work with this patient population (Horner et al., 2019; Lewis & Jarvis, 2019).

2. Provide clinical experiences wherein nursing students can experience the day-to-day work of nurses working across the continuum of care with the population. Exposure to positive role models in clinical practice can offset negative experiences students may be exposed to during their undergraduate education (Lewis & Jarvis, 2019). Nursing students and current nurses can benefit from learning from nurses with this specialty expertise in how to manage patients with SU problems (Horner et al., 2019).

3. Expand opportunities for real-world experiences in which students can apply what they learn in lectures into practice. Such opportunities are valuable in fostering students' confidence in applying these skills. This application of learning can also be implemented through simulations, interactions with standardized patients, case studies, and facilitated debriefing sessions. These practices can provide students with a safe environment to practice a difficult conversation or minizine the distress such as associated with experiencing an ethical dilemma and have been successful at improving student's knowledge and clinical skills, including use of appropriate terminology and pharmacotherapy (Horner et al., 2019; Lewis & Jarvis, 2019; Orique & Phillips, 2018; Sasso, Bagnasco, Bianchi, Bressan & Carnevale, 2016).

4. Frame the students' perceptions about substance use problems in the context of disease process. It is, however, important to expose students to patients across the risk continuum and those in different stages of recovery. The first contact students have with the population may be best with a person in recovery. Such an interaction, compared with a patient in a highly acute phase, may be less traumatic and stressful context for students and help present a different image that too often observed in media, leading to less stigma perceptions (Mahmoud et al., 2019; Lewis & Jarvis, 2019).

6.7 CONCLUSIONS

This study was the first study to examine nurses' demographic/background characteristics, personal and professional attitudes as predictors of nurses' motivation to provide AO-related care. This national online survey study also examined the two-way interaction among those variables to identify potential predictors of nurses AO-motivation. The findings of the study provide valuable insights regarding factors that may influence nurses' AO-motivation. The results can inform the development of interventions to enhance nurses' motivation to implement AO-preventive measures and promote the translation of acquired AO-related knowledge and skills into workplace.

The relationship between nurses' motivation and patient outcomes is a key for future study. How nurses' motivation is influenced by other factors within organizations such as workplace support (Horner et al., 2019) is another important area of research. An expanded motivated nursing workforce is needed to deliver evidence-based prevention, intervention, and recovery support for persons who are at risk because of alcohol and opioid use.

APPENDIX A: Search Strategies for PubMed and Ovid PsycINFO

PubMed:

of Health Personnel"[Majr:NoExp]) AND ((((("Substance-Related ((("Attitude Disorders" [Mesh: NoExp]) OR "Alcohol-Related Disorders" [Mesh: NoExp]) OR "Opioid-Related Disorders"[Mesh])) OR ((("Amphetamine-Related Disorders"[Mesh]) OR "Cocaine-Related ((((((("Substance-Related Disorders"[Mesh]) "Marijuana Abuse"[Mesh])))) OR OR Disorders" [Mesh: NoExp]) OR "Alcohol-Related Disorders" [Mesh: NoExp]) OR "Opioid-Related Disorders"[Mesh])) OR ((("Amphetamine-Related Disorders"[Mesh]) OR "Cocaine-Related Disorders"[Mesh]) OR "Marijuana Abuse"[Mesh]))) AND "Health Personnel"[Mesh]) AND ((((((("Refusal to Treat"[Mesh]) OR "Negativism"[Mesh]) OR "Prejudice"[Mesh:NoExp]) OR "Stereotyping"[Mesh]) OR "Social Stigma"[Mesh]) OR "Empathy"[Mesh]) OR "Social Distance"[Mesh]) OR "Social Perception"[Mesh]))

Ovid PsycINFO

(exp Health Personnel/ AND (exp Drug Abuse/ OR Drug Usage/ OR Intravenous Drug Usage/ OR Marijuana Usage/ OR "Substance Use Disorder"/ OR prescription drugs/) AND

(NEGATIVISM/ OR PREJUDICE/ OR Stereotyped Attitudes/ OR STIGMA/ OR DISCRIMINATION/ OR Caring Behaviors/ OR EMPATHY/ OR LABELING/ OR Social Discrimination/ OR Social Perception/ OR FEAR/ OR DANGEROUSNESS/ OR FAMILIARITY/ OR Explicit Attitudes/))

APPENDIX B: Table 16 Demographics/Background Characteristics: Association with Personal Attitudes, Professional Attitudes, and Motivation

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
Cartwright, 1980	NA	NA	NA	- Specialized providers who worked with ARPs showed more positive therapeutic attitudes compared to providers working in community. This can be attributed to availability of experience, support and training
Weschler & Rohman, 1982	NA	NA	 Nursing students tended to be younger and were often classified as intermediate and frequent-heavy drinkers Medical students had the greatest willingness to treat AUD, and the least willingness to spend their professional time in that role. They had the most pessimistic attitude related to AUD recovery or abstinence SW and counseling students had the least interest in treating AUD and were the least likely to care for this patient population Counseling students were less likely to agree that AUD was a disease, and medical students were less likely to believe that AUD was the result of emotional problems Medical students were less likely to rank drug therapy and medical treatment as good resource. SW 	NA

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
			 students were most likely to rank group therapy, halfway houses, social casework and drug therapy as good resources. Nursing students were most likely to favor family therapy, alcohol education, individual therapy and behavioral modification Counseling students believed group and family group were very good, however, only 9% ranked individual therapy as a very good resource for alcoholism treatment 	
Lightfoot & Orford, 1986	- Age was negatively correlated with motivation, task- specific SE and role support	NA	 Compared to nurses, SWs had lower levels of awareness of services available for ARP and were less likely to use community alcohol teams' services Nurses reported higher task- specific-SE, RA and RL than SWs Nurses reported higher role support and education than SWs SWs reported higher SC than nurses 92% of nurse indicated minimal therapeutic response compared to 54% of SWs Over 50% of nurses indicated that they occasionally or regularly used two of the local Community Alcohol Teams' services (counseling and consultation). 37% of nurses either occasionally or regularly used the day center and 29% used the home 	 Long-term SWs tended to use both psychiatric hospitals and A.A either regularly or occasionally Medical SWs tended to refer patients with ARP to either psychiatric hospitals or general hospital services Both long-term and medical SWs tended to adopt procedures for recognizing and responding to ARPs only occasionally. Approximately half of both providers populations did that almost never and very few of them adopted these procedures regularly

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
			 detoxification service. 66% of nurses either occasionally or regularly used psychiatric hospital services 70% of nurses often or nearly always inquired about their patients' alcohol use. However, only 33% discussed controlling drinking goals or abstinence for patients with alcohol-related problems on a regular basis 	
Bendsten & Akerlind, 1999	NA	NA	 Educational program had more impact on GPs than nurses Post project, 1/5 of nurses reported some increase in involvement in screening and counseling, but the great majority reported no change in their practice Compared to nurses, GPs reported a significantly higher involvement in early intervention and detection After education, Nurses' attitude scores improved At follow-up, 60% of GPs and 50% of nurses reported "some" improvement in their ARPs identification and intervention skills Approximately 25% of both GPs and nurses reported a greater overall improvement Compared to nurses, GPs reported more improvement in their communication skills related to alcohol screening and intervention. However, this 	NA

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
			 difference was not significant. Only 10% of GPs and nearly half of the nurses reported that their communication skills did not improve After intervention, only one in four questions exploring knowledge and skills found significant change in nursing group. No similar changes were seen with GPs After intervention, more nurses indicated it was easy to inquire about patients' alcohol use during examination (32% vs 20%) There was significant increase (36% versus 18%) in the percentage of nurses who believe that most patients do not react negatively when asked about their drinking habits 	
Jacka & colleagues, 1999	 Younger GPs felt less confident and effective at treating DRPs. However, they were more knowledgeable about DRPs than older GPs There was no difference between younger and older GPs related to how frequent they referred their patients to other drug services 	 There was no gender difference related to perceived levels of DPRs treatment effectiveness or accuracy Female doctors had significantly lower levels of confidence in working with patients with DRPs 	NA	NA

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
	 Older GPs were less likely to ask their patients about all the drugs they used There was no difference in age based on gender 			
Johansson & colleagues, 2002 [39]	NA	NA	 Nurses screened for patient's alcohol use less often than GPs Nurses reported that they seldom asked about patient's alcohol use, especially if the patients' health status was not influenced by alcohol use Majority of GPs reported that they sometimes or often asked their patients about their alcohol use Compared to GPs, nurses rated their knowledge about alcohol identification and intervention as less satisfactory When nurses believed patients' alcohol use alcohol use influenced their health status, there was a significant association between perceived skills and frequency of assessing patients for alcohol use More nurses believed patients react negatively to questions about their alcohol use, compared to GPs More nurses also believed that patients will be less likely to seek help from primary care if they thought they will be questioned about their drinking compared to GPs 	NA

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
			- Compared to GPs, more nurses believed that other patients care will suffer because treating ARP is time-consuming	
Lock & colleagues, 2002	NA	NA	 Nurses were not enthusiastic about working with patients who have ARPs. This was attributed to previous difficult experiences with those patients Nurses reported they had higher RL than physicians when delivering brief interventions One nurse believed that asking patients about their drinking is more within nurses' role than physicians' role Some nurses felt that they were in a more appropriate position to deliver alcohol brief intervention than physicians 	NA
Kuthy & colleagues, 2005	 Younger and more recent graduate- participants perceived a greater comfort to treat patients with DRPs and HIV+/AIDS in the future Older students felt more comfortable with homebound and other ethnic patient groups 	 Male participants were more likely to express comfort in working with patients with DRPs and other patients' populations. However, male participants did not express higher willingness to work with this patient population in the future Female participants 	NA	NA

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
		expressed a greater willingness to treat Title XIX patients in the future		
Skinner & colleagues, 2005	NA	NA	 Compared to nurses, MHPs reported slightly higher levels of RA and WS For nurses only, AOD-education was associated with RL, RA, motivation, and WS Compared to non-accredited or no AOD-education nurses, RA increased with higher AOD- education or accredited training nurses For nurses, PUE was associated with stronger RA Among MHPs, RA demonstrated the strongest association with motivation RL emerged as the strongest predictor of motivation among nurses PUE predicted AOD-WS among nurses 	NA
Silins & colleagues, 2007	- Older participants (30+) reported higher dislike of patients with ARPs	- Compared to female students, first and fourth year male medical students were less likely to envision a career in addiction medicine	NA	- Fourth year students who have completed a clinically based degree prior to starting medicine had more negative general attitudes and were less likely to envision a career in addiction medicine compared with those with a non-clinically based previous degree

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
Ford & colleagues, 2008	- Nurses' personal characteristics (age and educational level) were not associated with TC and motivation	- Nurses' personal characteristics (gender and church attendance) were not associated with TC and motivation	NA	- Two practice groups (drug and alcohol practice group and the midwives and maternal and child health practice group) had an association with OTA. Thus, an enabling care culture that exists in these two groups was additional to the effect of experience and role support on OTA
Vadlamudi & colleagues, 2008	- Age and educational degree had no statistically significant modifying effect on the impact of educational intervention on outcome variables (the attitudes, beliefs, and confidence levels related to alcohol care)	NA	NA	NA
Ford & colleagues, 2009	Same as Ford & colleagues (2008) study	NA	NA	Same as Ford & colleagues (2008) study
Amaral- Sabadini & colleagues, 2010	NA	NA	 Readiness to implement alcohol-preventive measures were similar among physicians/nurses (37%), nursing assistants (22%) and community health workers (23%) Readiness to implement drug-preventive measures were also similar among physicians/nurses (30%), nursing 	NA

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
			assistants (22%) and community health workers (21%)	
Crothers & Dorrian, 2011	 Age had a negative moderate correlation with viewing AUD as an illness Age was not correlated to all Seaman-Mannello subscales (satisfaction, helpable, personal drinking) Age had a significant, moderate, negative correlation with SAAPPQ pessimism subscale 	NA	NA	NA
Lev-Ran & colleagues, 2013	- Physicians (> 60 years) perceived treatment of addictions as more effective compared to younger physicians (< 40 years)	NA	NA	 Specialists (post-residency physicians) perceived treatment strategies for addiction as more effective compared to residents Compared to all other specialists, psychiatrists had higher levels of competency in treating addictions and lower rates of moralism. However, their level of competency towards addictions' treatment was still relatively low Compared to Pediatricians, family medicine specialists reported lower levels of moralism Pediatricians were more likely to agree with statements that

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
				 perceived addiction as a disorder than internal medicine specialists There was no difference in attitude towards addictions between community and hospital-based physicians
Meltzer & colleagues, 2013	NA	 Regard scores did not differ based on gender 	NA	NA
Wakeman & colleagues, 2013	NA	NA	NA	 Feeling somewhat to very prepared to diagnose and treat SUD did not differ significantly across years of training Preparedness to diagnose or treat did not differ significantly between those intending to go to general medicine and those planning to specialize Although not statistically significant, those intending to go to general medicine were able to correctly answer the diagnostic criteria question compared to residents planning to specialize In outpatient clinical settings, 72% of residents rated training as poor or fair vs 28% who rated it as good or excellent In inpatient clinical settings, 56% rated the quality of instructions as poor or fair The 2-week outpatient education addiction medicine elective had instructions that were rated by

Author / Year	Age	Gender	Discipline of Provider	Work Setting/Specialty
				95% of the residents as good or excellent
van Boekel & colleagues, 2014	NA	NA	NA	 HCPs' regard for patients with SUDs was different among the three sectors with a large effect size Regard towards patients with SUD was highest among addiction services specialists and lowest among GPs. Psychiatrics specialists had the middle position with scores significantly different from the other two sectors Specialty explained 40% of the variance in regard scores In the extended model, the sector where the professional worked was a significant predictor of HCPs' regard: psychiatry providers and addiction services specialists reported higher regard than GPs
Mundon & colleagues, 2015		- Women had higher levels of negative emotional response towards patients with SUD, compared to men and transgender students	NA	 First-year clinical psychology graduate-level doctoral students had lower levels of negative emotional response towards patients with SUD, compared to those in their second year and above First-year graduate students had the least negative reaction. However, students in their 4th-6th year of training expressed the highest interest in working with patients with SUD

Note. ARP= alcohol-related problems; AUD= alcohol use disorder; SW= social workers; SE= self-esteem, RA= role adequacy; RL= role legitimacy; SC= situational constraints; A. A= alcohol anonymous; GP= general practitioner; DRP= drug-related problem; MHP= mental health professional; WS= work satisfaction; AOD= alcohol and other drug; PUE: perceived usefulness of education; TC= therapeutic commitment; OTA= overall therapeutic attitudes; SAAPPQ= short alcohol and alcohol problems perception questionnaire; SUD= substance use disorder; HCPs= healthcare providers

APPENDIX C: Table 17 Personal Attitudes

Author / Year	Familiarity & Personal AOD-	Perceptions-related to AOD-Condition	Fear & Perceived	AOD-related Stereotypical
	related Experiences	& Treatment	Dangerousness	Perceptions
Weschler & Rohman, 1982	 Majority of students' alcohol use was classified as frequent-light drinkers Although students did not drink much, some reported experiencing negative experience and fewer than 5% reported serious consequences such as automobile accidents, getting into fights or losing a friend 29% of students reported being worried, at least a little, about their alcohol use 10% reported they tried to stop drinking at least once, and 3% reported seeking help for ARPs Students stated their reasons for not drinking as much were related to: concerns about health, not wanting to get drunk, interference with school work, not liking the effect of alcohol use, concerns about developing AUD 	 91% of students agreed that AUD was a disease 56% felt that general hospitals should offer AUD treatment 51% believed that some people are genetically predisposed to AUD 69% of students agreed with alcohol control policies. However, 86% believed that people with AUD should be held responsible for their actions while drinking "Nearly half felt that patients with AUD were harder to relate to than people whose problems were not self-inflicted". This was particularly prevalent in nursing and medical students 42% believed AUD was both a disease and the result of underlying emotional problems. Meanwhile, 19% believed that AUD was a disease, the result of underlying emotional problems and a sign of a weak character Participants expressed more optimism regarding improvement in patients with AUDs' social and personal functioning than in their ability to achieve total abstinence Very few felt that the majority of their patients would reach abstinence even at the end of the first year of treatment Most of the students felt that at least 50% of patients would show improvement after a year of treatment 	NA	 61% of the future caregivers agreed that patients with AUDs were "very demanding" or "difficult and uncooperative 23% reported that they were not interested in treating a patient with ARPs 24% believed they were not able to provide care to patients with ARPs in a therapeutic way Interest in AUD issues was found to be positively associated with students' willingness to treat it Neither students' awareness of the problems and consequences of ARPs, nor their interest in alcohol education was related to attitudes toward patients with AUD, AUD prognosis, or drinking practices

Author / Year	Familiarity & Personal AOD-	Perceptions-related to AOD-Condition	Fear & Perceived	AOD-related Stereotypical
	related Experiences	& Treatment	Dangerousness	Perceptions
		 More than 1/3 of students agreed that "few people are able to overcome their drinking problems, even with treatment" 2/3 agreed that even if the patient with AUD could stop using alcohol, they are likely to use again About half of participants agreed that "patients with AUDs are seldom able to follow through with treatment plans" Medical students were the most pessimistic regarding treatment efficacy, while SW students were the least pessimistic Prognostic pessimism was closely linked with negative attitudes and unwillingness to be involved in the care of patients with AUDs Nearly half felt that AUD was rarely helped by medical treatment 18% did not consider any of the alcohol- related treatment resources to be very good. This was highly prevalent among medical students Among those optimistic, A.A was valued. Less than 1/3 ranked the usefulness of other treatment modalities in descending order as follows: group therapy, family therapy, and halfway therapy Other treatments were considered poor 1/5 of participants felt that drug therapy was a poor resource and had negative feelings related to alcohol education Medical students were more likely than other students to feel that patients with AUDs were unlikely to maintain 		

Author / Year	Familiarity & Personal AOD- related Experiences	Perceptions-related to AOD-Condition & Treatment	Fear & Perceived Dangerousness	AOD-related Stereotypical Perceptions
		abstinence, follow through with treatment plans, or overcome their ARP		
Bendsten & Akerlind, 1999	NA	- Oost-education, there was a significant increase in the percentage of GPs (75% vs 20%) and nurses (50% vs 25%) agreeing that it is possible to change patients' drinking habits	NA	- After intervention, there was no significant difference between GPs and nurses related to their attitudes towards early ARPs' identification and intervention
Jacka & colleagues, 1999	NA	 GPs frequently listed alcohol as a "persistent problem" in their practice. They also frequently cited amphetamines, benzodiazepines, heroine and tobacco Most GPs referred DRPs to drug treatment outside their practice: 1-2 patients per week (26.9%), 1-2 per month (30.8%), and 1-4 per year (30.8%) 95% regarded that patients' acknowledgement of their own substance use problems as a significant factor on how they managed these patients 	NA	- Most GPs reported positive AOD-attitudes
Johansson & colleagues, 2002	NA	NA	NA	 The majority of GPs and nurses found treating ARPs in primary care cost-effective Overall positive attitude towards early ARPs' identification and interventions

Author / Year	Familiarity & Personal AOD-	Perceptions-related to AOD-Condition	Fear & Perceived	AOD-related Stereotypical
	related Experiences	& Treatment	Dangerousness	Perceptions
Author / Year Lock & colleagues, 2002	Familiarity & Personal AOD-related Experiences • Nurses expressed hesitancy regarding working with ARPs because of their own use and enjoyment of alcohol	Perceptions-related to AOD-Condition <u>& Treatment</u> NA	Fear & Perceived Dangerousness NA	 AOD-related Stereotypical Perceptions Nurses reported negative reactions towards patients with ARPs. Nurses described their own reaction and patients' reaction to being asked about their alcohol use as highly emotive: ranging from aggression, embarrassment, lack of interest and apathy, to positive reaction, in which patients were keen to discuss their alcohol use. However, it was generally described as negative More than half of the nurses felt patients were not truthful about their alcohol use compared to their nicotine use Most nurses treated patients' alcohol related-responses with some distrust and proceeded to give advice related to alcohol use with great reservation, regardless whether the patients were truthful or not Nurses were also hesitant about working with ARPs because of the social and coping functions that drinking appeared to have for the patients and the acceptable heavy-drinking culture in their country (North-east England) Nurses expressed concern
				about certain pattern of excessive alcohol consumption (i.e. binge drinking weekend
				drinking, regular heavy

Author / Year	Familiarity & Personal AOD- related Experiences	Perceptions-related to AOD-Condition & Treatment	Fear & Perceived Dangerousness	AOD-related Stereotypical Perceptions
				 drinking, and home drinking) especially among older and young adults, students, middle class, businessman and the unemployed. However, they overlooked older adults excessive drinking because they believed it was too late to advise them about the damaging effect alcohol has on their health Nurses did not appear to have issues with delivering alcohol related intervention as long as they do not victimize the patient
Lindberg & colleagues, 2006	NA	NA	NA	 Overall belief that ARPs and DRPs lead to over-utilization of healthcare resources The opinion that HCPs should be permitted to practice in their profession after an AOD- recovery was high across all participant groups More than 97% of participants expressed positive attitude. Participants in all years of training agreed with the statement that "patients can be salvaged and provide a meaningful contribution to society" for both ARPs and DRPs Steady deterioration over time in attitudes towards caring for patients with AOD problems

Author / Year	Familiarity & Personal AOD- related Experiences	Perceptions-related to AOD-Condition & Treatment	Fear & Perceived Dangerousness	AOD-related Stereotypical Perceptions
				 "these patients over-utilize healthcare resources and provide nothing in return", although this deterioration was visible for both ARPs and DRPs, it was observed more strongly with patients who have DRPs There was a strong and persisting agreement that " these patients have challenging medical and social issues from which I learn" and "Caring for these patients is repetitive and takes time from my other responsibilities" for both ARPS and DRPs. For DRPs, agreement with the statement "the care of other patients suffers because of the time and resources spent on these patients" increased significantly
Nordqvist & colleagues, 2006	NA	NA	NA	 Positive change in participants' attitudes towards alcohol preventive measures after intervention was observed in 5 of the 14 questions There was a significant decrease in the belief that other patients suffer because ARPs take too much time and energy. Thus, the need to detect signs of high consumption before discussing
Author / Year	Familiarity & Personal AOD- related Experiences	Perceptions-related to AOD-Condition & Treatment	Fear & Perceived Dangerousness	AOD-related Stereotypical Perceptions
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				 the alcohol use was considered less important Staff's perceptions of the extent of ARPs among patients did not change Most staff thought they had an opportunity to discuss alcohol use with their patients (no change before and after)
Silins & colleagues, 2007	NA	NA	NA	 Pre-teaching, the proportion of students who expressed dislike for SU problems was highest among first year students for alcohol, heroin, nicotine. This order was reversed among fourth year students After teaching, there was a significant decrease in dislike for SU problems among both first- and fourth-year students. The level of dislike for heroin use remained unchanged in first year but decreased significantly for fourth-year students
Ford & colleagues, 2008	- Personal use of psychoactive drugs was not associated with TC and motivation	NA	NA	- Attitudes to illicit drug such as "drug is a vice" and "rejection of marijuana made legal" were negatively associated with therapeutic attitude. However, it explained less than 1% of its variance and the level of association was described as low

Author / Year	Familiarity & Personal AOD- related Experiences	Perceptions-related to AOD-Condition & Treatment	Fear & Perceived Dangerousness	AOD-related Stereotypical Perceptions
Vadlamudi & colleagues, 2008	- Knowing someone with an ARP or one's own alcohol use had no statistically significant modifying effect on the impact of educational intervention on the outcome variables (attitudes, beliefs, and confidence levels related to alcohol care)	- Significant positive effect of educational intervention on the attitudes and beliefs of participants related to ARP and its' treatment	NA	- Beliefs about the impact of nurses' efforts to reach healthy people 2010 goals was positively changed after the educational intervention
Ford & colleagues, 2009	Same as Ford & colleagues (2008) study	NA	NA	Same as study Ford & colleagues (2008) study
Hettema & colleagues, 2009	NA	NA	NA	 At baseline, participants reported having few negative attitudes towards patients with AOD-related problems At baseline, residents reported experiencing minor to moderate levels of barriers to implementing SBIRT such as time constraints and inadequate resources for referral After education, changes to perceived barriers to SBIRT implementation was not significant, however, it had small to moderate effect size. No significant changes were observed in participants' negative attitudes
Natan & colleagues, 2009	NA	- Most nurses disagreed with holding patients responsible for their drug use condition and with the idea that these patients did not deserve high-quality care	 Nurses perceived patients with DRPs as violent, scary and dangerous Nurses were moderately 	 Nurses reported moderate negative attitudes towards patients with DRPs Nurses' level of endorsing stereotypes "Weak character", "Uncultured", "Low cognitive

Author / Year	Familiarity & Personal AOD-	Perceptions-related to AOD-Condition	Fear & Perceived	AOD-related Stereotypical
	related Experiences	& Treatment	Dangerousness concerned about contracting contagious diseases such as HIV and hepatitis - Participants stated that they are afraid to treat patients with DRPs because they are violent and manipulative	Perceptionslevel", "Low socioeconomiclevel", "unhygienic", "Familywith low cognitive level", wasnegatively associated with theiractual behavior and quality ofcare providedNurses believe that drugsespecially marihuana and potshould not be legalizedNurses perceived this patientpopulation as difficult andtreating them as disruptive tothe department routinesPerceiving patients with theseproblems as difficult wasnegatively associated with theiractual behavior, in which theyperceived the quality of careprovided to them as lowerSubjective norms, and attitudeswere significantly associatedwith intention to care. Thestrongest association wasbetween intention and attitudes,followed by subjective norms.No association was seenbetween the actual behaviorand intentionWhen each of the variables wastested alone, attitudes explained38% of variance in intentionscores. Subjective normsexplained 10.3% of variance inintention score.When the three regressedvariables were combined,

Author / Year	Familiarity & Personal AOD- related Experiences	Perceptions-related to AOD-Condition & Treatment	Fear & Perceived Dangerousness	AOD-related Stereotypical Perceptions
				 subjective norms and perceived moral obligation added a small significant contribution to the model containing attitudes Stronger intention to provide quality care to patients with DRPs were associated with more positive attitudes
Amaral- Sabadini & colleagues, 2010	 6.2% of participants had moderate risk levels with alcohol use Alcohol personal use was not significantly associated with readiness to implement AOD-preventive measures The proportion of participants ready to implement alcohol-preventive practices were: 28% for those with lower alcohol risk, 17% for moderate alcohol risk, and 25% for those who never used alcohol The proportion of participants ready to implement drug-preventive practices were: 25% for those with lower alcohol risk, 17% for moderate alcohol risk, 17% for those who never used alcohol 	- Readiness to work with patients who use AOD was negatively associated with blaming patients for their condition	 Readiness to work with patients who use AOD was negatively associated with perceived levels of AOD- dangerousness and the need to segregate those patients from the community For PCPs who do not want to implement AOD-preventive measures two groups exists: those with higher levels of perceived dangerousness and need for segregation and a second group for those with higher level of blame and control 	 The majority of participants expressed positive attitudes related to working with patients who use AOD 68% believed that the amount of workload will increase if they began to identify unhealthy AOD use Participants rated DUD and AUD as representing worse health conditions than HIV-AIDs, depression, HTN and schizophrenia More AOD-stigmatizing attitudes were associated with less readiness to implement AOD-related preventive care (dangerousness and need for segregation, high levels of blame and control)
Shepherd & colleagues, 2010	- All GDPs reported using alcohol	NA	NA	- The main barriers cited included disruption of the patient-clinicians relationship, adverse patient reaction, embarrassment, issues with

Author / Year	Familiarity & Personal AOD- related Experiences	Perceptions-related to AOD-Condition & Treatment	Fear & Perceived Dangerousness	AOD-related Stereotypical Perceptions
				 relevance, fear of causing offence Only one GDP reported limited time as a barrier for not inquiring about patients' alcohol use
Crothers & Dorrian, 2011	 42% of participants reported never using alcohol or only consuming alcohol in special occasions. 25% reported using alcohol once a week and 33% reported using alcohol more than once a week. 57% reported consuming alcohol between 1-2 standard of drinks at any one occasion as opposed to 16% who did not consume any alcohol or 27% who consumed more than 2 standard drinks 73% had personal experience with ARPs Alcohol consumption had a significant effect on participants' alcohol-related satisfaction scores. Participants who consumed alcohol more than once a week had higher satisfaction compared to those who never used alcohol or who used alcohol only in special occasions The number of standard drinks had a significant effect on participants' personal drinking. There was a difference between participants who reported drinks, or 1-2 standard compared to those who did not report standard drinking 	 The mean scores of Marcus subscales (recovery potential, character defect, social status, and illness) were below 3.5, which indicate a positive attitude towards these aspects 	NA	 The Seaman- Mannello subscale reported positive personal attitudes towards alcohol use and inclination to identify patients with at-risk alcohol use Between groups, there was no significant difference (role, personal experience, religious affiliation, service attendance, ward, alcohol consumption, and number of standard drinks) in attitudes toward ARPs

Author / Year	Familiarity & Personal AOD- related Experiences	Perceptions-related to AOD-Condition & Treatment	Fear & Perceived Dangerousness	AOD-related Stereotypical Perceptions
Lev-Ran & colleagues, 2013	NĂ	 When compared to marijuana and nicotine, AUD was attributed to "weak character" When compared to marijuana, nicotine, and alcohol, heroin use disorder was attributed to "weak character" AUD had the highest rates of moralism and the lowest ratings in treatment efficacy Participants perceived the treatment of nicotine as more effective than alcohol or heroin use disorders and AUD treatment efficacy as the lowest Compared to DUD, physicians described AUD as "less treatable" and that confrontation is the best way to treat AUD 	- Compared to other patients, physicians reported experiencing higher levels of aggression when treating patients with SUDs	 Physicians' attitudes towards addiction had a significant role in the type of care the clients with addiction receive Physician's attitudes varied significantly based on the substances that was used
Meltzer & colleagues, 2013	NA	NA	NA	 Compared to medical students, residents had less regard for patients who suffered from AUD Residents reported similar regard levels to medical students regarding patients with pneumonia or heartburn There was a significant difference between residents MCRS scores for patients with each of the four conditions. The highest regard was for patients with pneumonia, followed by heartburn, AUD and then narcotic pain medication use disorder After the addiction medicine course, first-year residents showed a small but statistically

Author / Year	Familiarity & Personal AOD- related Experiences	Perceptions-related to AOD-Condition & Treatment	Fear & Perceived Dangerousness	AOD-related Stereotypical Perceptions
				significant increase in their regard for patients who suffered from AUDs. Similar but non-significant increase in regard was observed for patients with problems related to narcotic pain medication
Wakeman & colleagues, 2013	 34% reported they had a close friend, 8% a parent, 21% another relative, and 4% a sibling with SUD 9% of residents responded that someone had expressed a concern about their alcohol or drug use 	NA	NA	NA
Neville & Roan, 2014	NA	NA	 Safety was a major concern among nurses contributing to their negative attitudes towards patient with AOD use problems. nurses expressed fear and apprehension and reported the need to protect themselves from physical harm. Nurses also expressed that these patients could be aggressive and potentially threatening Safety concerns pertained not only to nurses themselves but also to their other patients 	 2nd theme: Negative attitudes towards caring for patients with SUDs. Thus, the majority of nurses expressed negative attitudes toward working with this patient population Nurses expressed statements that reflected intolerance, anger, and that the demands of patients required greater attention and nursing care Nurses reported being manipulated or distrusting patients with AOD use problems 4th theme: Deals with nurses possessing sympathetic concerns for their patients and their family members

Author / Year	Familiarity & Personal AOD-	Perceptions-related to AOD-Condition	Fear & Perceived	AOD-related Stereotypical
	related Experiences	& Treatment	Dangerousness	Perceptions
van Boekel & colleagues, 2014		 Opinions about addiction being a consequence of someone's weakness were significantly different between all three sectors with a medium effect size Addictions specialists agreed less that addiction was a consequence of weakness, compared to psychiatry providers and GPs, with GPs agreeing the most GPs and addiction specialists were significantly different in their perception of patient's responsibility for addiction. However, the effect size was small. Addiction specialists attributed less patient responsibility for the AOD condition compared to GPs GPs agreed to a lower extent that addiction is a disease compared to addiction specialists. However, it was a small effect size The extended model (sector) with attribution beliefs, emotional reactions and professional characteristics explained 57% of variance in participants' regard scores Having more confidence in that SUDs can be treated with success was positively associated with regard score was associated with attribution of responsibility to patients themselves and feelings of fear and anger GPs tended to agree that SUD was a weakness (and not a disease) 	NA	 The emotional reactions to people with an addiction were significantly different between the three professional groups: Addiction specialists felt less angry and fear compared to the other two professional groups The feelings of pity among professionals differed significantly. However, the effect size was small. GPs felt more pity compared to psychiatric and addiction trained professionals

Author / Year	Familiarity & Personal AOD-	Perceptions-related to AOD-Condition	Fear & Perceived	AOD-related Stereotypical
Mundon & colleagues, 2015	NA	 Trainees were more likely to cite poor willpower as the cause of SUD (alcohol and cocaine use disorder) than for MDD. They were more likely to cite chemical imbalance as the cause for MDD than for alcohol and cocaine use disorder. However, poor will power, and chemical imbalance were the least selected causes across all three disorders Trainees ranked stressful life circumstances as the most likely cause of SUD and MDD, followed by family upbringing, genetic or an inherited condition, chemical imbalance, and poor willpower Highest levels of interest were associated with postmodern theoretical orientation 	NA	 Participants expressed more negative emotional reactions toward clients with SUD (alcohol and cocaine use disorders) than clients with MDD Negative REACT score was negatively associated with trainees reported interest in working with SUDs. However, this association was no longer significant after including professional/ personal variables
Nash & colleagues, 2017	 70% had experience in their personal life with someone with AOD problems 	NA	NA	NA

Note. AOD= alcohol and other drug; ARP= alcohol-related problem; AUD= alcohol use disorder; SW= social work; GP= general practitioner; DRP= drug-related problem; HCP= healthcare provider; SU= substance use; TC= therapeutic commitment; SBIRT= screening, brief intervention, and referral to treatment; PCP= primary care professional; DUD= drug use disorder; HTN= hypertension; GDP= General dental practitioner; SUD= substance use disorder; MCRS= medical condition regard scale; MDD= major depressive disorder; REACT= the ratings of emotional attitudes to clients by treaters

APPENDIX D: Table 18 Professional Attitudes

Author / Vear	Basic Role Requirement	Overall Therapeutic Attitudes (OTA) (RS and TC)	Perceived Role Responsibility	Perceived Self-efficacy/	Situational Constraints
Cartwright	Working Experience & Role		NA	NA	
1980	Support.		11/1		
1700	- Those with increased				
	experience and role support				
	showed improvement in				
	their therapeutic attitudes				
	- Changes in experience or				
	support can lead to changes				
	in therapeutic attitudes				
	- Effect of education and SE				
	on therapeutic attitudes are				
	contingent on experience				
	and role support				
	- Together, experience and				
	support explained 63% of				
	variance in therapeutic				
	attitudes				
	- Those who reported				
	increased experience or				
	support reported a change				
	in their therapeutic attitudes				
	at follow-up compared to				
	the low experience and				
	support group				
	- Changes in support and				
	changes in experiences				
	independently explained				
	together 31% of variance in				
	change score				
	AOD-Education:				
	- The impact of education on				
	therapeutic attitudes was				

contingent upon the levels of experience and support General SE:

- There is significant relationship between SE, therapeutic attitudes, experience and support
- The impact of SE on therapeutic attitudes is contingent upon experience and support. However, this influence in not visible with very low SE
- Effect of education and SE on therapeutic attitudes are contingent on experience and role support
- Without experience and support, difference combinations of SE and education have little to no effect on overall level of therapeutic attitudes
- When an individual reports high levels of support and experience, education and SE independently lead to more positive therapeutic attitudes.
- When these two variables (SE and education) are combined, they have an additive effect

Weschler &	Working Experience & Role	RA:	NA	NA	NA
Rohman,	Support: NA	- 86% felt that they needed to			
1982	 AOD-Education: 79% of participants had taken a course related to alcohol use 	know more about alcohol and AUD, particularly SW (92%) and counseling (90%)			

	 Alcohol related education was most prevalent with nursing (87%) and medical (81%) programs Students were well informed about the basic facts related to alcohol use but lacked the understanding of its social and economic consequences Earlier exposure to alcohol-related education (issues and problems) was associated with willingness to treat 	 Students were well-informed about how to assess drinking behavior and the legal drinking limits Although 88% of students expected that they would treat patients with drinking problems during the course of their careers, many felt unprepared for or uninterested in dealing with ARPs RL: NA Task-Specific SE: NA WS: NA Motivation & OTA: NA 			
	alcohol use was not associated with willingness to treat General SE: NA				
Lightfoot & Orford, 1986	 Working Experience: AOD-Experience was positively correlated with RS (RA and RL) and TC (motivation/willingness, satisfaction, and task- specific SE) RS and TC did not correlate with length of service After controlling for SC, the partial positive correlation between experience and OTA was significant Role Support: Role support was positively correlated with OTA 	 RA, RL, Task-Specific SE, WS, Motivation & OTA: Providers who scored lower OTA scores will not be successful at providing care to patients with ARPs Multiple regression analyses showed that SC, role support and experience together produced multiple correlation with OTA of .75. Meanwhile, role support, experience and general SE together produced an R of .80 	NA	NA	 SC was negatively correlated with OTA SC negated the development of general OTC and specifically the nurses' alcohol-related motivation, task-specific SE and RL SC was negatively correlated with role support, experience, general SE and education After controlling for each of the four basic requirement factors (experience, role support, education, and SE), SC

	 After controlling for SC, the partial correlation between role support and OTA was not significant AOD-Education: Education was positively correlated with OTA After controlling for SC, the partial positive correlations between education and OTA was significant General SE: General SE correlated positively with OTA, but to a lesser degree than AOD-education, role support and experience After controlling for SC, there was a partial positive correlation between and OTA was significant SE: 				 was significantly associated with OTA After controlling for each possible pair of Basic role requirement, partial correlations between SC and OTA all remained significant except for the correlation controlling for role support and experience
Bendsten & Akerlind, 1999	NA	RA: NA RL: There was a significant increase (36% versus 18%) in the percentage of nurses who believed that most patients do not react negatively when asked about their alcohol use Task-Specific SE: NA WS: NA Motivation & OTA: NA	NA	NA	NA
Jacka & colleagues, 1999	 Working Experience: NA Role Support: 80% of GPs felt that access to back-up and support 	 RA: GPS were knowledgeable about the DUDs symptoms, effects and treatment 	- GPs associated motivation with professional responsibility	- GPs felt lower confidence in their effectiveness in treating patients who use drugs	NA

management AOD-Education: NA General SE: NA	 Intervention of the end of the end	that their personal interest influenced their patients' treatment, were more positive about their role in working with this patient population	 (c)poteniny liner and goy or offering clinical intervention for illicit drug use compared to alcohol, benzodiazepine and nicotine GPs Felt moderately confident in their ability to provide drug treatment but reported less confidence in detoxification than in assessment, referral, or brief intervention There was no interaction between the intervention type and the drug type Most GPs reported low AOD-WS, low levels of confidence in working with patients who use AOD Effectiveness and confidence were poorly correlated with general knowledge of benzodiazepines, alcohol and nicotine use For illicit drug, the level of confidence was positively correlated with the level of actual knowledge compared to other drugs. However, self-reported effectiveness did not correlate strongly with illicit drug knowledge accuracy 	
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Johansson & colleagues, 2002	NA	 RA: Both GPs and nurses reported greater knowledge of ARPs identification than knowledge about alcohol use interventions None of the staff rated their knowledge and skills as "very satisfactory" Most GPs and nurses reported that primary care providers lacked adequate knowledge regarding AUD identification and treatment GPs and nurses reported that they currently ask their patients about their alcohol use more often if they believed their drinking influence their health status Both GPs and nurses rated their skills regarding alcohol identification as better than their skills in alcohol use interventions Z/3 of GPs and nurses believed in their RL concerning ARPS There was a significant relationship between providers' perceived knowledge, skills and frequency of asking patients about their drinking, especially when the provider did not believe that patient's 	NA	 Both GPs and nurses lacked confidence in actually influencing patients' drinking habits If patients' health status was not influenced by alcohol use, those who reported better perceived competency were more likely to frequently assess patient's drinking
		did not believe that patient's drinking influenced their health status		
		health status		

NA

		 Very few staff believed alcohol use is a private matter Task-Specific SE: NA WS: Only 1/3 of participants reported that working with ARPs was rewarding Motivation & OTA: NA 			
Lock & colleagues, 2002	Working Experience: - Several nurses experienced extreme patients' reactions when asking them about their alcohol use. Thus, some nurses did not feel excited about implementing alcohol-related intervention Role Support: NA AOD-Education: NA General SE: NA	 RA: Nurses were confused (for themselves and their patients) about the standard drink units, the effect that home-based had on the amount that patients drank, the possible beneficial effects of alcohol drinking, and specifically the recommended sensible drinking limits, which made it difficult for them to advise patients about their alcohol use Most nurses reported receiving no specific training related to ARPs and this lack of experience was mainly attributed to alcohol being a low priority on list of priority and it became a routine that was probably skipped. However, other nurses expressed concern about increased heavy drinking in primary health care Some nurses "glossed over" the issue and did no more than 	NA	NA	NA

consumption levels in their notes

- Others advised their patients about the consequences of heavy drinking and suggested ways to reduce it
- Several nurses instigated tests for patients who reported heavy drinking to either: convince their patients that they have ARPs, to persuade patients that they need to reduce their drinking, or to trigger GPs to refer these patients
- Other nurses worked to both ascertain the reasons for patients' excessive drinking and how that affect their lives
- There was a general consensus among nurses that there are multiple opportunities to screen for and offer advice regarding patient's alcohol use in their practice
- Barriers to screening include: Fear of negative reactions and losing rapport; and confusion about conflicting messages concerning alcohol consumption and health
- Participants reported that they frequently asked patients about their alcohol consumption if they were new, in general health checks or well-clinics, or if patients have HTN, DM or CHD
- Patients reactions to being asked about their drinking

		habits were described as			
		 aggressive, embarrassed and feeling guilty Some nurses felt that patients' negative reaction regarding being asked about their alcohol use led them to be disengaged form the discussion Most nurses were involved to a certain extent in the care of patients with ARPs within their practice Task-Specific SE: NA WS: NA Motivation & OTA: NA 			
Albery & colleagues, 2003	 Working Experience: Increased experience of working with DRPs was linked to training After mediating the effects of RS and SC, providers' drug-related experience was correlated to TC Those who reported higher levels of experience, perceived decreased SC and increased RS, reported increased TC Role Support: Role support had an independent effect on TC Role support's effects on TC was mediated by SC and RS (increased role support was associated with greater TC, which was mediated by decreased 	 RA & RL (RS): RS was positively associated with increased drug-related exposure and role support RS was negatively associated with SC RS had a positive independent effect on TC Task-Specific SE &WS: Levels of TC were positively associated with SE, role support, RS, education and previous WE with patient who use drugs TC was negatively associated with SC Motivation & OTA: NA 	NA	NA	 SC were negatively correlated with general SE, experience with drug use, education and RS SC showed to have an independent negative effect on TC. This relationship was mediated by RS

	levels of SC and increased RS) AOD-Education: - Drug-related education was associated with increased RS and subsequently greater TC General SE: - Higher general SE scores were associated with increased role support - General SE had a direct, independent effect on TC and was not mediated by other factors				
Kuthy & colleagues, 2005	 Working Experience: There were four groups (homebound, homeless, HIV+/AIDs, and jailed) for which less than 1/4 of students had prior experience with 3/4 of students had prior experience with title XIX [Medicaid] For each patient group population, > 60 % of participants indicated their willingness to treat this patient group in the future. However, only elderly and medically complex reported a higher percentage of participants indicating their willingness to treat these groups in the future when compared to percentage of participants with prior patient experience 	 RA: NA RL: NA Task-specific SE: NA WS: NA Motivation & OTA: For each patient population, < 60% of students indicated that they would be willing to treat this patient group in the future Students who were comfortable with the patient group population expressed a great willingness to treat that group in the future (elderly, mentally compromised, drug-related problems, HIV+/AIDS, and non-English speaking patients) 	NA	NA	NA

	 students who had any experience with individuals from a patient population group felt more comfortable with them Except for incarcerated group, students with any prior experience with each group perceived a greater future willingness to treat these patients Those with some prior DRPs experience were 2.19 times more likely to express comfort with DRPs Those with any prior DRPs experience were 2.58 more willing to treat patients with DRPs than those with no experience Prior experience positively impacted participants' comfort level and perceived future willingness to treat patients with drug use problems Role Support: NA AOD-Education: NA 				
Skinner & colleagues, 2005	 Working Experience: AOD-years of experience was not associated with role support, PUE, RL, RA, motivation, and WS Role Support & AOD- Education: 	 RA & RL: Greater RA was associated with increased motivation and WS RA rather than RL emerged as the strongest predictor of AOD-WS RA demonstrated almost full mediation of the association 	NA	NA	NA

- Except for Title XIX group,

	 Nurses and MHPs reported moderate levels of training and high role support Higher support was associated with increased PUE, RL, RA, motivation and WS In both populations, role support emerged as the strongest and most consistent predictor of RL and RA Higher PUE was associated with stronger RL, RA, motivation and WS (WS only for nurses) In both samples, PUE was associated with stronger RL. PUE and role support were associated with AOD-motivation In both samples, RL and RA almost fully mediated the impact of role support and PUE on motivation Overall, the model (role support, PUE, AOD-related education, RL, RA, WS, years of experience) accounted for 46% of variance in motivation for nurses and 38% for MHPs Role support emerged as the strongest predictor of AOD-WS 	 between role support and AOD-WS The predicted pattern of relationships of RA and RL to motivation and WS was not fully supported Higher RL was associated with increased RA, motivation and WS Task-specific SE: NA WS demonstrated a strong positive correlation with motivation Overall, the model role requirement's (role support, experience, AOD-related education, PUE) relationship with AOD-WS mediated by RA and RL accounted for 50% of variance in AOD-WS among nurses and 55% of variance among MHPs Motivation & OTA: NA 			
Lindberg & colleagues, 2006	NA	RA: - There was a general agreement that the	NA	NA	NA

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		participants' professional training curriculum provided them with education that prepared them to diagnose and treat patients with AOD- related problems RL: NA Task-specific SE: NA WS: - AOD-WS diminished over time Motivation & OTA: NA			
Nordqvist & colleagues, 2006	 Working Experience: Those who had experience discussing alcohol use habits with their patients did not encounter any negative experience before or during alcohol screening Role Support: NA AOD-Education: NA General SE: NA 	 RA: Participants reported perceived lack of training in giving advice to patients in both pre-and post-intervention survey Before and after the screening period, there was a perceived difficulty in identifying patients with at-risk alcohol use. There was a perceived lack of training in simple alcohol use advice There was a significant change toward improvement in perceived alcohol-related skills and practice in 3 of the 8 questions RL: There were no reports of impaired relationship with the patients because of screening. There were comments about the difficulty in handing out the questionnaires to everybody in the target group. However, staff delivered the 	 Although staff agreed that screening for alcohol use is important. In the follow-up interview, they still believed that alcohol preventive measures were not the responsibility of ED and maybe the primary care setting. After intervention they believed that handing out alcohol questionnaire should be done in the ED Before the screening begin, more than ½ of the staff considered the ED to have a major responsibility to influence at-risk alcohol use. After the screening 	 After screening, there was an improvement in staff's perceptions related to their ability to explore patients' drinking habits that was considered satisfactory or even good (14% vs 40%) Accordingly, asking about patient's drinking habits became easier (from 4% to 11%). In addition, there was a significant increase in perceived skills to influence patient's alcohol use (from 11% to 43%) 	NA

questionnaire except in cases where they believed the patients were drunk

- Participants still expected mixed reactions from patients when asked about their alcohol use. However, few patients reacted negatively to the intervention. There was a significant decline in expectation of a negative reaction from patients when asked about their drinking habits and the notion that patients' drinking is private. After follow-up, there was no change in their expectations and some still considered it a delicate subject
- Before and after 1 year, most participants thought that physicians have the best opportunities to influence patients' drinking. However, they thought that nurses could be a more practical choice given the limited time physicians have
- 40% of nurses/medical secretaries reported decreased implementation barriers after intervention. Percentage of participants who thought asking about patients' alcohol habits was easy increased from 4% to 11%; and the percentage of participants reporting they had the needed skills to influence patients'

period, less than 1/3had the same view. However, uncertainty increased - The number of participants who believed that the ED had no professional responsibility to provide alcohol care did not change - Most staff were uncertain whether the ED was an appropriate place for alcohol screening and intervention

drinking habits rose from 11% to 43%

- After 6 months of screening, there was a significant improvement in the participants' belief that it is possible to influence patients' drinking habits and increased RL
- During screening period, staff did not report increase in their engagement in alcohol advice and concentrated their efforts on handing out the questionnaire
- Most of the times, the staff reported that they did not ask about patients' drinking habits before and after 1 year of screening
- There was one significant change in practice, when staff believed that there was no connection between alcohol use and the visit, they were more inclined to ask their patients about their drinking habits spontaneously. In visits that the staff suspected a connection between patient's alcohol use and health status, there was no significant change Task-specific SE: NA WS: NA Motivation & OTA: NA

colleagues, 2007	 By the end of 1st year module, 94% of students reported a contact with ARPs and 84% reported a contact with an illicit drug use in the small group setting By the end of 4th year block, 99% of student reported contact with ARPs and illicit DRPs in clinical settings. 58% had a 3-week clinical placement in addiction medicine unit. The rest of the students were placed in only general or other psychiatric settings Contact with patients with illicit drug use in small groups positively influenced participants' general attitudes in first year and participants' motivation in fourth year Contact with ARPs in small groups settings did not influence attitudes in both groups Routine clinical contact with AOD-related problems in all units (general psychiatric, medical or addiction) did not significantly affect attitudinal constructs. Likewise, AOD placement did not significantly influence core attitudes in fourth year students 	 KA: Before AOD-education, first year anticipated feeling more uncomfortable working with patients who have heroine-related problems than ARPs or nicotine- related problems During the fourth year, there was a significant drop in the anticipated levels of discomfort in working with ARPs and non-significant drop related to working with heroin-related problems Near the beginning of medical training, only 1/3 of students perceived a career in addiction medicine. At the beginning of the fourth block, 53% could not imagine a career in addiction medicine. This percentage fell to 42% after fourth-year teaching RL: After fourth year block, students felt significantly better prepared to discuss health-risk behaviors with patients Task-specific SE: NA WS: NA Motivation & OTA: Before AOD-education, motivation to treat was high in both first- and fourth-year students. This did not increase significantly after AOD-education 	 98 – 100% of students agreed that the practitioner had a responsibility to provide advice to alcohol, heroin and nicotine-related problems 40% of (pre- education) first-year students agreed that practitioners should offer advice for alcohol use, and 37% for heroin use problems. Throughout the training, the proportion of students who agreed that HCPs' have a responsibility to provide advice to heroin-related problems remined lower than the other two substances After fourth year block, students expressed an increased sense of responsibility for ARPs and heroin- related problems than before the block 	 Confidence increased after first-year education After 4th year education, participants reported small but consistent improvements in confidence, general attitudes and RL 	
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Role Support: NA AOD-Education: NA General SE: NA

Ford & colleagues, 2008

Working Experience, Role Support & AOD-Education:

- Increasing years of registration as a nurse had negative association with OTA. However, the association was small
- Role support, *AODeducation, **experience with that patient group, the interaction block (role support and experience, role support and preservice education, role support and workplace education, experience and workplace education, preservice education, preservice education, and ***workplace factors had significant associations with OTA
- Role support, the drug and alcohol education block, experience with the patient group block, the workplace factors block, and the interaction terms were positively associated with OTA
- Role support had the strongest association with OTA, followed by interaction between role support and workplace

RA:

- Only 25% of the participants reported that they had adequate AOD-education in their role

RL:

- Nurses scored the highest in the RL subscale
- 65% of the participants agreed that their role was legitimate

Task-specific SE: NA

WS:

- Only 15% reported they gained satisfaction in their nursing role

Motivation & OTA:

- 30% of the RN reported motivation to work with patients who use illicit drugs
- 54% of the variation in OTA was explained by a combination of the following factors: professional practice factors (basic role requirement and workplace factors) and attitudes towards illicit drugs
- Professional practice factors explained 53.4% of the variation in OTA. While attitudes towards illicit drugs explained < 1% of the variance in OTA

NA

- 44% of participants stated that they believed in their own performance in the role, or their self-esteem NA

education and experience with the patient group

- Education at preservice level and experience with needle and syringe program had a positive but lesser association with OTA
- Interaction of high levels of experience with the patient group, high levels of preservice with the patient group, and high levels of preservice education had a negative small association with OTA
- The positive experience with the patient group was mitigated by higher levels of preservice education
- Increased role support had the most impact on OTA. By doubling the role support, OTA increased by 15.8%
- An increase workplace education in the presence of low role support was ineffective. Doubling workplace education by 6.8 hours resulted in less than .05% increase in OTA
- Minor benefit (.05%) was gained by increasing the group experience with needle and syringe programs and a 2.6% benefit was gained by doubling the group's level of experience with the

	 patient group for 43 patients The combined effects of all initiatives showed that OTA increased from 4.5% to 20.3%. Most of the benefit was gained from role support and the interaction between high role support and workplace education General SE: NA 				
Vadlamudi & colleagues, 2008	 Working Experience Past experience with patients with ARPs had a significant effect on participants' attitudes, beliefs, and confidence levels towards working with this patient population Nurses with moderate, little or no past experience with patients with ARPs showed great improvement in their confidence levels after the training Nurses with more than moderate experience showed no change in their confidence levels after intervention Nurses with a vast past experience had high baseline confidence levels compared to those with reported lesser experience. Thus, this left little room for improvement after the educational intervention 	NA	NA	- After educational intervention, confidence levels of primary care nurses positively changed	NA

	AOD-Education: Educational degree had no modifying effects on the educational intervention impact on the outcome variables (alcohol-related attitudes, beliefs, and confidence level) General SE: NA				
Ford & colleagues, 2009	 Working Experience: NA Role Support & AOD- Education: Workplace education was not effective in changing OTA in the absence of role support When role support was low, OTA decreased as education increased, however, this association was not significant Education had an impact on OTA only for nurses who reported moderate to high level of role support. Thus, the impact of education on OTA was potentiated by moderate to high levels of role support With high levels of education (> 20 hours) and high levels of role support (> level 6), the increase in OTA was more obvious. Thus, the benefit of role support is important even in the event of high levels of education and vice versa 	Same as Ford & colleagues (2008) study	NA	Same as Ford & colleagues (2008) study	NA

 Workplace AOD-education by itself had no association with OTA for illicit drug. Only in the event of moderate to high role support that workplace education facilitated nurses' OTA
 General SE: NA

Hettema & colleagues, 2009	NA	 RA: NA RL: At the baseline, participants reported inquiring about patients' AOD habits sometimes to usually, but they rarely to sometimes gave advice, treatment or referral After education, advising, treating or referring did not change significantly, however, they still had small to moderate effect size Task-specific SE: NA WS: At baseline, participants reported some-to-moderate satisfaction with working with patients who use AOD After education, satisfaction scores did not change significantly, however, they still had small to moderate effect size 	- At baseline, participants reported a very high sense of personal responsibility to engage in SBIRT After education, perceived responsibility for engaging in SBIRT did not change significantly	 At baseline, residents reported moderate levels of confidence in their SBIRT abilities After education, confidence in engaging in SBIRT practice changed significantly and had a large effect size 	NA
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Natan & colleagues, 2009	 Working Experience: 38.5% of participants who had no previous experience working with DRPs reported they would provide high to very high levels of care. While 3.8% reported that they would provide very low levels of care Role Support: Participants agreed that their superiors, colleagues, medical staff, own family and patient's family and their patients think that they should provide adequate care to DRPs. However, they attributed much significance to their superior and medical staff and moderate levels of significance to the rest AOD-Education: NA General SE: NA 	 RA: Participants believed they had a high level of ability to identify and diagnose patients who have DRPs including "overdose" situations Participant moderately agreed that they had the necessary knowledge, skills, tools, and experience to provide quality care and advice. However, they still felt uncomfortable treating this patient population RL: NA Task-specific SE: NA WS: Most respondents moderately agreed that they felt WS with this patient population Motivation & OTA: 61.5% Participants reported very high to high levels of care provided to these patients 6.6% provided low to very low levels of care 	NA	- Most nurses felt confident in their ability to provide care to those patients. They also felt they knew enough about the problems associated with drug use and they do their best to provide optimal solutions related to drug-related care	NA
Amaral- Sabadini & colleagues, 2010	NA	 RA: Around 60% reported not having adequate training to provide AOD-preventive measures RL: 56% of respondents always or almost always implemented general health prevention practices. However, only 25% reported implementing interventions targeting unhealthy AOD use Task-specific SE: NA 	NA	NA	NA

WS:

		 Greater AOD-WS was significantly associated with readiness to implement AOD- related preventive care. Those with high levels of professional satisfaction increased the odds by 6.2 times for alcohol use and 10.6 times of drug use Motivation & OTA: 53% reported feeling a little or not- at- all ready to implement AOD-preventive practices 			
Shepherd & colleagues, 2010	NA	 RA: Current practices, views on providing alcohol advice, knowledge about guideline whether alcohol should be discussed by a GDP during a consultation: three mentioned general oral cancer guidelines, seven were not aware of such a guideline, two reported awareness from NICE and BDA organizations RL: Nine GPDs recorded patient's alcohol use and five of them reported that it was recorded as well in the medical history questionnaire, two reported that they did not because it was on the medical history questionnaire, and seven GPDs passively inquired about patient's alcohol consumption but did not follow-up with any active questioning. ¼ of GPDs 	NA	 GDPs expressed low confidence in addressing ARPs Only one GDP expressed being confident in discussing difficult issues such as patient's alcohol use Five participants felt confident to discuss patient's alcohol use sometimes or only when there was a clinical indication 	NA

did not ask, record or recount using the medical history questionnaire for alcohol use

- Only one GPDs asked patients about alcohol use if it was excessive, eight reported never doing so irrespective of alcohol consumption and three reported that they did that sometimes
- 11 out of the 12 GDPs views potential relationship imbalance or interference a potent underlying barrier to asking about alcohol use
- 5/12 indicated that relevance was an important aspect to initiate discussion about alcohol use
- Potential options for managing those with at-risk alcohol use were perceived as limited. Despite that four out of 12 were willing to offer advice, five out of 12 refer to GMP, and one knew a potential resource, two GDPs reported the lack of resources as a barrier for inquiring about alcohol use especially, when they cannot follow-up after identifying patients with ARPs
- 1/3 felt there was no advantage at all to inquire about patient's alcohol use and felt that the patients may not perceive that GDPs have a legitimate role to inquire about their alcohol use. They also felt that any measures taken to

		 promote the GDPs' role legitimacy would be a persuasive facilitator GDPs identified the importance of using media, training and educating dentists and non-specific support identified as a catalyst for undertaking this behavior Wider awareness about GDPs' role in delivering alcohol-related advice was a perceived facilitator. Reimbursement was seen as a facilitator by one GDP. While, four GDPs felt there was nothing to be done to facilitate GDPs' role in alcohol-related advising Primary barriers for intervention included: disruption of the clinician-patient relationship and embarrassment and/or the perceived irrelevance to the clinical situation Task-specific SE: NA WS: NA Motivation & OTA: NA 			
Crothers & Dorrian, 2011	Working Experience: - 94% had professional experience with ARPs Role Support: NA AOD-Education: NA General SE: NA	RA & RL: Multiple regression analyses on SAAPPQ subscales of RA and RL revealed that there were no variables, which had a significant effect on either outcome variables (satisfaction, self-esteem, desire, and pessimism) Task-specific SE, WS, Motivation & OTA:	NA	NA	NA

- Personal and professional satisfaction subscale was below 3.5
- Four of the SAAPPQ subscales were positive (above 3.5) (WS, RA, RL and Taskspecific). Meanwhile, pessimism and desire were below 3.5
- For the SAAPPQ subscale WS, scores on Seaman-Mannello satisfaction had a significant, positive effect and accounted for 41.6% of the variance
- Although consuming alcohol once a week had a significant positive effect on participants' self-esteem and accounting for 18.4% of the variance in selfesteem subscale, the addition of the recovery potential subscale to the model showed that recovery potential also had a significant negative effect on participants selfesteem.
- Together, consuming alcohol once a week and scores on recovery potential subscale accounted for 45.4% of the variance in scores of the selfesteem subscale
- After controlling for social status, consuming alcohol more than once a week and scores on Seaman-Mannello satisfaction subscale had a significant, positive effect on participants' desire to work

		 with alcohol use. Together these variables accounted for 38% of variance in participants' scores on the desire subscale Consuming more than two standard drinks had a significant positive effect on participants' pessimism scores and accounted for 11.5% of variance in this subscale. The addition of age and character defect to that was also significant After controlling for age, the character defect subscale and consuming more than two standard drinks accounted for 34% of the variance in the pessimism subscale 			
Lev-Ran & colleagues, 2013	NA	 RA: NA RL: NA Task-specific SE: NA WS: Compared to other patients, physicians reported lower levels of satisfaction in treating patients with AOD use disorders Motivation & OTA: NA 	NA	NA	NA
Meltzer & colleagues, 2013	 Working Experience & AOD-Education: Regard scores did not differ based upon prior hours of addiction education or year of training Role Support: NA General SE: NA 	 RA: NA RL: NA Task-specific SE: NA WS: NA Motivation & OTA: The pre-post differences did not vary when stratified by 	NA	NA	NA
		 gender and number of educational sessions attended Mean baseline scores were lower (less regard) for alcohol and narcotic pain medication conditions than for pneumonia and heartburn conditions 			
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Wakeman & colleagues, 2013	 Working Experience: Residents reported that 22% of patients were admitted for a condition related to AOD use and 26% met the criteria for a SUD 48% of residents reported that contentious patient interactions negatively impacted their perceived preparedness to treat those patients Role Support: NA AOD-Education: 37% of participants reported that they had not received any instruction related to addiction. Of the 63% that reported some addictions training during medical school, 53% reported having been exposed to clinical care for patients with SUD 55% of residents rated their overall instructions received in addictions as poor or fair 	 RA: No resident correctly answered all six questions related to SUD diagnosis. 77% correctly answered the question about SUD diagnostic criteria > 50% correctly identified the buprenorphine mechanism Only 19% correctly answered a question regarding naltrexone Only 6% correctly answered all 3 questions regarding pharmacological treatment options for addiction RL: NA Task-specific SE: NA WS: NA Motivation & OTA: 25% of residents reported feeling unprepared to diagnose addiction and 62% felt unprepared to treat addiction 	NA	NA	NA

	 74% of residents reported that their formal residency curriculum had a positive impact on their perceived preparedness to provide care to patients with SUDs 75% of residents reported that the instruction provided by their attending physicians had a positive impact on their perceived preparedness General SE: NA 				
Neville & Roan, 2014	 Working Experience: Exposure to patients with AOD use problems may influence how nurses view pain management for all patients Role Support: 3rd theme: Nurses mentioned they needed additional supportive services for themselves and their patients from psychiatric and addiction trained professionals AOD-Education: NA General SE: NA 	RA: - 3 rd them: Need for education: Several nurses reported that they were unprepared and lacked appropriate knowledge to take care of patients with AOD use problems RL: NA Task-specific SE: NA WS: NA Motivation & OTA: NA	 ****Ethical Duty of care: Despite perceived dangerousness in carrying out professional duty, patient's care and nurses' ethical duty of care remained a primary concern Nurses' professional responsibility and accountability prevailed in the delivery of comprehensive, holistic patient care Incongruence in the assessment of pain and patient's need of analgesic reflect the dissonance between particiapants' professional assessment and the patients' requests 	NA	NA

			and/or demands for analgesia or medical order		
van Boekel & colleagues, 2014	 Working Experience: GPs were less familiar with AOD use problems compared to addiction specialists Frequency of working with patients who have AOD use problems was associated with higher regard scores for those patients Greater familiarity with AOD use problems and higher frequency of working with these patients were associated with increased regard scores Higher tendency to answer in a socially desirable way and AOD-related familiarity were associated with higher regard scores Role Support: NA AOD-Education: NA General SE: NA 	NA	NA	NA	NA
Mundon & colleagues, 2015	 Working Experience: 17% of variance in trainees' interest to work with SUDs was explained by professional/ personal variables, which included: previous work with SUD clients, personal or relational experience with SUD, 4-6 years of clinical 	 RA: NA RL: NA Task-specific SE: NA WS: NA Motivation & OTA: 37.4% of trainees reported that they would like to work with SUD 	NA	NA	NA

	 experience, and a postmodern theoretical orientation Highest levels of interest were associated with 4-6 years of clinical experience Highest levels of interest were associated with prior experience with SUD Role Support: NA AOD-Education: NA General SE: NA 	 54.8% reported they would consider working with this patient population 7.7% reported they were not interested at all to work with these patients 			
Nash & colleagues, 2017	Working Experience: - 70% had seen patients with AOD use problems in clinical settings Role Support: NA AOD-Education: NA General SE: NA	 RA & RL (RS): After the practicum, there was significant improvement noted in participants' composite scores of RS (RA and RL) For the SAAPPQ: Improvement was noted in the composite scores of RS For the DDPPQ: Significant improvement was also noted in the composite scores of RS For the DDPPQ: Significant improvement was also noted in the composite scores of RS Task-specific SE, WS, Motivation & OTA: After the practicum, significant improvement was noted in the total scores of all the SAAPPQ subscales except motivation For the SAAPPQ: Improvement was also noted in the composite scores of TC Significant improvement was also noted in the total scores of TC Significant improvement was also noted in the total scores of TC Significant improvement was also noted in the total scores of TC Significant improvement was also noted in the total scores of TC Significant improvement was also noted in the total scores of TC significant improvement was also noted in the total scores of all the DDPPQ subscales DDPPQ's composite scores of TC significantly increased after practicum 	- Students' responses included themes such as growth in professional role, a new understanding of the complex health determinants of addiction and growth in empathy and respect for patients affected by SUD	NA	NA

-	In SAAPPQ, the motivation
	pre-clinical were 37.5%
	neutral and 31% somehow
	agreed. Thus, there were no
	significant changes observed
	after clinical. This can be
	attributed to the fact that
	students self-selected SUD
	treatment center as their
	clinical site implying
	motivation to work with this
	patient population

Note. SE= self-esteem; AOD= alcohol and other drug; NA= not applicable; RS= role security; TC= therapeutic commitment; RA= role adequacy; AUD= alcohol use disorder; SW= social work; ARP= alcohol-related problem; RL= role legitimacy; WS= work satisfaction; OTA= overall therapeutic attitudes; SC= situational constraints; R= variance; GP= general practitioner; DUD= drug use disorder; DRP= drug-related problem; HTN= hypertension; DM= diabetes; CHD= coronary heart disease; WE= work experience; PUE= perceived usefulness of education; MPH= mental health professional; ED= emergency department; HCPs= healthcare providers; *AOD-education included: pre-service and workplace, recency of workplace education); ** experience with that patient group included: number of episodes of care, experience with methadone maintenance program, detoxification program, the needle and syringe program, the alcoholic and narcotics programs, and the salvation army residential program; *** workplace factors included: practice group, years of registration as a nurse, status of job, public/private sector employment; RN= registered nurse; SBIRT= screening, brief intervention and referral to treatment; GDP= general dental practitioner; NICE= National Institute for Health Clinical Excellence; BDA= British Dental Association; GMP= general medical practitioner; SAAPPQ= short alcohol and alcohol problems perception questionnaire; SUD= substance use disorder; **** Ethical duty is defined as "the delivery of nursing services using advocacy, compassion, and understanding to provide equitable care without regard to the nature of a patient's health problems" (18, p. 341); DDPPQ= drug and drug problems perception questionnaire

APPENDIX E: IRB



University of Pittsburgh Institutional Review Board

3500 Fifth Avenue Pittsburgh, PA 15213 (412) 383-1480 (412) 383-1508 (fax) http://www.irb.pitt.edu

Memorandum

- To: Khadejah Mahmoud
- From: IRB Office
- Date: 12/21/2017
- IRB#: <u>PRO17070291</u>
- Subject: Motivation towards Working with Patients Who Use Alcohol and Other Drugs (AODs): A Focus on Nursing Professionals

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