International Health Trends and Perspectives

Exploration of student nurses' perceptions towards individuals with opioid use disorders in Scotland: A mixed method investigation

Research

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ABSTRACT

Introduction: Worldwide, an opioid epidemic continues to escalate. While the scientific community has recognized substance use disorders as a biophysiological disease, society continues to view addiction as a social problem and not a medical one. Individuals with opioid use disorders have been stigmatized and negatively characterized as morally weak and defective. Previous studies reveal that these negative attitudes often prevail among nurses and that nurses report dissatisfaction and a lack of education preparation to care for this increasing worldwide population. While studies have been conducted in countries with high incidences of opioid deaths, Scotland, a country faced with significantly high opioid related deaths, has not investigated student nurses' perceptions of individuals with opioid use disorders. **Purpose and Design:** This mixed-method explanatory sequential investigation sought to explore pre-registration nursing students' knowledge, attitudes and stigma towards individuals with opioid use disorders in Scotland. The objectives of this study were to measure pre-registration nursing students' knowledge, attitudes, and stigma towards individuals with opioid use disorders and explore relationships among any variables. **Results/Conclusion:** Study participants demonstrated the need for increased knowledge, and improved attitudes towards individuals with opioid use disorders. While stigma was evident, the qualitative findings showcased that participants were empathic, compassionate, non-judgmental and willing to care for individuals with opioid use disorders. Further inquiry should explore the role of empathy-based training and experience with individuals with opioid use disorders to reduce mortality and morbidity in this escalating population worldwide.

KEYWORDS

Attitudes, Knowledge, Opioid Use Disorders, Nursing Students, Stigma

INTRODUCTION

Opioids represent a classification of drugs derived from Opium, a naturally occurring poppy plant that is increasingly grown worldwide and provides the raw material for both legal and illicit drugs. Opioids are either semisynthetic (heroin, oxycodone) or fully synthetic (fentanyl, methadone) derivatives that work in the brain to activate opioid receptors that block pain signals and create euphoria (Compton & Manseau, 2019; Opioids, 2023). While opioids, also known as narcotics, have been prescribed legally for pain management for decades, during the 1990's to 2010, prescriptions of opioids skyrocketed; after which prescription reform was implemented, resulting in numerous patients transitioning to illicit drugs, further contributing to the current escalation of mortality and morbidity related to opioid use disorders (OUDs) (Compton & Manseau, 2019).

The opioid epidemic is increasing worldwide. Globally, approximately 275 million people have used drugs, including opioids, representing a 22% increase since 2010 with resultant significant increases in the number of people with drug use disorders (United Nations Office on Drug and Crime, 2021). Illicit and prescribed opioid drug consumption is increasingly becoming a worldwide problem.

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Among the European nations, Scotland has the highest drug related death (DRD) rate and "has an even higher opioid-related death rate (ODR) than the United States" (van Amsterdam, den Brink, & Pierce, 2021, p. 1). Drug related deaths in Scotland have increased dramatically: "there were 4.6 times as many deaths in 2020 as compared with 2000" (National Records of Scotland, 2020, p. 4). According to van Amsterdam et al., (2021), multiple factors are responsible for the opioid crisis in Scotland, including an increased incidence of people using opioids in a problematic manner, increased polydrug use, a higher age range of people using drugs in a harmful manner, and less treatment coverage.

The United Nations Office on Drugs and Crime World Drug Report (2019) reveals that North America has the highest drug related mortality in the world. In one year, ending May 2020, there were >81,000 drug overdose deaths, the highest number ever recorded in U.S. history, followed by an increase of an estimated 93,000 drug overdose related deaths reported in July 2021 by the Centers for Disease Control (CDC, 2021), and over 107,000 deaths reported in 2022 (CDC, 2022). Due to the COVID-19 pandemic and the concomitant multiple stressors experienced by individuals, along with the challenges inherent in receiving OUD treatment, increases in mortality and morbidity were noted throughout the pandemic. Simultaneously, use of illicit fentanyl and psychostimulants significantly escalated during the pandemic and contributed to significant mortality and morbidity. While the opioid epidemic is largely viewed as a U.S. public health crisis, mortality, illicit and prescribed drug consumption is increasingly becoming a worldwide problem, including Scotland. Thus, both countries as well as other countries worldwide are combatting an opioid epidemic and dealing with significant mortality and morbidity.

Stigma Surrounding Addiction

In the classic text, Goffman (1963) defined stigma "as the situation of the individual who is disqualified from full social acceptance" (p. 9). This stigma is often related to fear, apprehension and beliefs that individuals with OUDs and other potentially lethal drugs are dangerous, irresponsible and possess other negative discriminatory characteristics. Stigma surrounding OUDs prevents individuals from seeking treatment, as patients report being ashamed, have diminished self-esteem, and perceive themselves as non-deserving of care, which dramatically increases recidivism (Cadet & Tucker, 2019; da Silveira et al., 2018).

Although the scientific community has recognized substance use disorders as a biophysiological disease, society continues to view addiction as a social problem. As a result of this persistent view, most addiction treatment has occurred outside of mainstream healthcare settings (Wason et al., 2021). The American Society of Addiction Medicine (ASAM, 2015) advocated that health care providers identify OUDs as a treatable, chronic neurological disease and in 2019, ASAM updated their definition of addiction to emphasize that successful prevention and treatment modalities can be as successful as other chronic diseases. Despite this view of addiction as a disease capable of treatment and recovery, derogatory societal perceptions of individuals with OUDs, who represent a most vulnerable population and in need of increased care, persist. In an international study, Scott et al. (2016) identified that individuals with substance use disorder have double the risk of other chronic medical illnesses, including heart disease, hypertension, arthritis and asthma. People who inject drugs frequently face additional health problems associated with their substance abuse, such as HIV, skin and soft tissue diseases, and varied bacterial infections as well as hepatitis C and other diseases; they seek more frequent medical care than those in the general population (Wason et al., 2021). Of major recent concern is the influx of xylazine, an animal sedative and anesthetic, which when mixed with illicit fentanyl, prolongs the effect of fentanyl, but produces stupor and unresponsiveness, and causes severe wound infections leading to increased numbers of amputations among users of illicit drugs (Neville & Bonfim, 2023).

Need for Nursing Education

In a comprehensive systematic review of studies originating from western countries, these societal negative attitudes also prevail among health care professionals, including nurses who have reported negative attitudes towards working with patients with substance use disorders, involving perceptions of aggression, manipulation, and lack of motivation as factors that impede effective care delivery (van Boekel et al., 2013). Furthermore, van Boekel et al.

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(2013) substantiate that health professionals are unable to empathize, and report dissatisfaction when caring for patients with substance use disorders, ultimately resulting in suboptimal care. Many nurses have negative attitudes and beliefs such as mistrust, perceived powerlessness, anger, futility, and intolerance when working with patients with substance use disorders (Tierney, 2016). Neville and Roan (2014) identified that nurses perceived patients with substance use disorders as "manipulative, rude, aggressive and unsafe" (p. 344). However, nurses also identified being unprepared to care for this population and the need for education with more recent literature supporting the need for increased education (Kratovil et al., 2023; Vottero, et al., 2023; Wason et al., 2021).

Nurses worldwide represent the largest number of health care providers and are frontline providers ideally suited to addressing the opioid epidemic through their close interpersonal relations with patients and families in all types of settings. Across countries and cultures, evidence exists that the educational preparation of nursing students is insufficient to adequately prepare students to provide care for individuals with substance use disorders (Diaz et al., 2021). Unfortunately, nursing curricula on OUDs still remains sparce in order to provide nurses with the essential competencies to provide interventions (Compton & Blacher, 2020). Education to prepare students to recognize OUDs as a potential treatable disease is essential to change perceptions of individuals with OUDs and to promote patient-centered compassionate care.

While addiction is a disease capable of treatment and recovery, derogative societal perceptions of individuals with addiction persist (ASAM, 2019; Kratovil et al., 2023) Individuals with OUDs have been negatively characterized as morally weak and defective (Stuart, 2019; Vottero et al., 2023). These negative attitudes also prevail among health professionals, including nurses. In the U.S. context, nurses and nursing students have been found to have condemnatory attitudes towards individuals with OUDs which impacts care delivery (Kantrowitz-Gordon et al., 2022; van Boekel et al., 2013). At the time of this writing, there have been no identified studies examining nursing students' perceptions in Scotland. Measuring student nurses' knowledge, attitudes and stigma towards individuals with OUDs will be useful to design curricula to address the escalating opioid mortality in Scotland and provide useful information for other countries facing this epidemic.

PURPOSE

The purpose of this mixed-method explanatory sequential investigation is to explore pre-registration nursing students' knowledge, attitudes and stigma towards individuals with OUDs in Scotland. The objectives of this study are to measure pre-registration nursing students' knowledge, attitudes, and stigma towards individuals with OUDs and explore the relationships among any variables.

METHODS

A mixed method explanatory sequential design was used to comprehensively explore pre-registration nursing students' perspective towards caring for individuals with OUDs. The use of a mixed method approach can lead to a more comprehensive and detailed understanding of a phenomena using both qualitative and quantitative methods rather than use of one approach only (Creswell & Plano Clarks, 2018). In the explanatory sequential design, data collection and analysis begin with the quantitative component, followed by the qualitative component to expand and explain the quantitative results. In a mixed method approach, "The researcher first utilizes quantitative data to follow up with interviews to help explain and provide meaning of the qualitative results" (Creswell & Clark, 2018, p. 6).

Part 1 – Quantitative Component

Descriptive statistics were used to describe the demographic and instrument variables for measures of central tendency and dispersion. Inferential statistics using Pearson Product Moment Coefficients, Analysis of Variance and Multiple Regression analyses were performed to determine relationships, differences and significant predictors. Collected data included a demographic form and four self-report instruments: i) The Opioid Overdose Knowledge Scale (OOKS; Williams, Strange, & Marsden, 2013), ii) The Drug and Drug Problems Perception Questionnaire (DDPPQ; Watson, Maclaren, & Kerr, 2006), iii) The Opioid Overdose Attitudes Scale (OOAS; William et al., 2013) and. iv) The Perceived Stigma of Addiction

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Scale (PSAS; Luoma, O'Hair, Kohlenberg, Hayes & Fletcher, 2010) (Table 1). Power analysis revealed that a minimum sample size of 89 participants was needed (Faul et al, 2007). Eligible participants were students in their second year of a three-year Bachelor in Nursing (n=64) or two-year Masters Direct Entry program (n=2) leading to nursing registration and who were 18 years of age or older at a Scottish University.

Part 2 – Qualitative Component

On completion of the survey, participants were invited to participate in the follow-up semi-structured individual virtual recorded interview with the lead researcher on Microsoft Teams to elicit further elaboration about perceptions towards individuals with OUDs. Interview questions were guided by the results and gaps identified in Part 1 of the study. Participants were asked to respond to focused questions pertaining to their perceptions about individuals with OUDs, their experience with individuals with OUDs and thoughts about how their perceptions will impact their clinical practice. Data was analyzed via thematic analysis. Recordings were transcribed verbatim and coded by hand to discover emergent themes and patterns. Codes were verified through inter-rated agreement checks performed by a research team member (Edinburgh Napier University Professor of Nursing) for all interviews conducted. No qualitative software was used to manage the data. Upon completion of the recording and transcription of the interviews, all interview data were discarded, transcribed data were anonymized by the lead researcher, e.g., no names or identifying information were recorded, for reasons of confidentiality and anonymity. Trustworthiness via credibility was demonstrated using validating the findings of the interview by sharing and reviewing the results to ensure that the findings were true to the participant's experiences. Through these member checks, participants validated the findings of interviews to be true.

Ethics

Ethical approval was obtained from the participating students' university in Scotland and the lead researcher's university in the northeastern U.S. The lead researcher initially introduced the study to relevant student groups via attending in-person classes, and eligible students received an email inviting them to participate in the study. Upon written informed consent, participants were able to access and complete the surveys using Novi Survey. Reminder emails about the survey were also sent. The emails used student numbers, not names, so identities were unknown. At the completion of the survey, students were provided additional information about the qualitative study and once written informed consent to participate in the qualitative study was obtained, students were contacted by the lead investigator via email to schedule interviews.

There were no paper documents. All research data was stored on the Edinburgh Napier University's secure research drive and transferred electronically to the lead researcher's secure research drive. All consent forms were stored electronically on the secure research drive that was separate to data.

RESULTS

Quantitative Data

As seen in Table 2, the sample consisted of sixty-six participants. Students were predominantly female (87%), aged between 18 and 39 (52%), white and of Scottish descent (89%). Students were studying to register in the four UK nursing fields: Mental health, adult, child health and learning disabilities. Most participants worked part-time (88%) in addition to their studies with varying health care experience ranging from no experience (39%) to 12 years or more (18%). Nearly half of the sample reported some professional experience related to working with individuals with OUDs. The majority did not know anyone in their professional and personal lives (65% and 58%, respectively) with an OUD.

Most (80%) had not yet received educational training on OUDs and its management, and this is reflected in the data. Mean scores of the four surveys generally indicated scores reflected towards the lower or mid-range of possible scores (Table 3). The OOKS mean score of 18.96 (3.32) out of a possible range of 0-45 indicates a lack of knowledge of opioid overdose management, the OOAS mean scores of 103.01 (SD =10.56) out of a possible of 28-140 indicated positive attitudes towards individuals with OUDs, the DDPPQ's mean score of 89.51 (SD = 19.74)

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out of a possible range of 22-154 indicated a somewhat low-moderate level of knowledge and attitudes towards individuals with OUDs. Lastly, the PSAS mean score of 32.42 (SD = 6.16) out of a range of 8-56 indicated moderate levels of stigma among participants. Analysis of Pearson Product Moment Coefficients (Table 4) revealed significantly moderate to high positive relationships between the DDPPQ and the OOAS ($r = .65$, $p < .01$), and OOKS (r -.42, $p<.01$) and a positive, albeit weak significant relationship between the OOAS and the PSAS ($r = .167$, $p <.01$) indicating that knowledge, attitudes and stigma are related.

A multiple regression of the independent variables of the OOAS, OOKS, and the DDPPQ did not reveal any significant predictors of PSAS. Additional findings through the conduct of a one-way Analysis of Variance by program type revealed statistically significant differences in OOAS, OOKS and DDPPQ (Table 5). Mean scores were statistically significantly lower among participants in the child health nursing program for the OOAS, OOKS and the DDPPQ. Post-hoc analyses revealed that child-health mean scores were statistically significantly different from the above three measures, but no differences in program type were detected on the PSAS.

Analysis of individual items revealed mixed findings related to knowledge regarding management of overdose, attitudes and stigma. While most participants reported accurately on the identification of risks for opioid overdose, indicators of an opioid overdose, management of an opioid overdose and use of Naloxone to treat opioid overdose, only 26% correctly reported the recommended route of nasal administration, only 45% of participants reported that a second dose of naloxone could be administered if a first dose had no effect and 68% were not aware that Naloxone could provoke withdrawal symptoms.

Greater than 50% of participants reported having a working knowledge of drugs and associated problems (58%) and the factors that contribute to risks of developing drug problems to work effectively with individuals with drug use (64%). Forty-seven percent of participants reported knowing enough about the causes of drug problems, and less than half (48%) of the participants reported knowing enough about the physical and psychological effects of drugs to carry out their role in working with individuals with drug use and drug related problems. Additionally, lower percentages were noted with ability to counsel (21%) and advise (45%) patients, parents and families. Of note, 59% of participants reported wanting to work with this population and 80% of participants reported that it is both rewarding and satisfying to work with individuals with drug problems.

Individual items on the OOAS revealed some concerns about caring for individuals experiencing an opioid overdose. Only 23% identified having enough information regarding management of an overdose, 20% reported being able to administer naloxone and participants had fears of needle stick injuries (33%). However, in general, most participants reported being able to administer emergency care and to do whatever was necessary to save a life.

While total scores of the PSAS reveal moderate levels of stigma, some individual items reflected stigmatizing views. For instance, only 23% of participants reported willingly accepting someone treated for substance use as a close friend, 20% of participants reported that an individual treated for substance is trustworthy and only 14% would hire someone treated for substance use to care for their child.

Qualitative Data

There were fifteen interviews conducted and each interview addressed the interview questions (Table 6) in approximately thirty minutes. Data saturation was reached after 15 participants were interviewed when no new patterns or themes were identified, and information being shared became repetitive. Eight participants were in the mental health program, two in child-health, three in adult health, two students in learning disabilities and two students were in the direct entry master's program. Four participants were male and 11 were female.

One of the three predominant themes expressed pertained to the awareness of the severity of the opioid epidemic facing Scotland. Several participants relayed stories of the long-standing prevalence of illicit opioids and the acknowledgement that heroin is on Scotland's streets. One participant provided a detailed history of heroin in the city as the heroin capital of the world in the 1980's.

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"I grew up very much aware of heroin's effect on the culture and how we had to find new ways to deal with it. But heroin is still really prevalent; it's the cheapest drug and it's still going to be affecting generations for years to come. The percentage of people who use heroin is high, at some point you are going to see or smell someone taking it."

Other participants reported,

"There's quite a lot of variety of drugs, but heroin is the big one, but there's cocaine, valium, LSD, ecstasy and weed as well."

"It's very common, if you went to a bar or a club or somewhere with alcohol, I bet my last dollar that 9 out of 10 people are using."

Findings reveal that opioid use and in particular, heroin was clearly identified as an epidemic, generating the theme of Heroin is on the streets.

A second theme was *'Trauma a precipitating factor'*. All the participants spoke of addiction and use of opioids as a coping mechanism in response to traumatic past or present current circumstances. One participant who worked in policing prior to enrolling in their nursing program described the following:

"With crime a lot of time it's substance use, 99% of these offenders have been victims; it's lack of education, it's mental health, it's trauma; they have traumatic histories and they have just self-medicated their whole lives."

Other participants said,

"If you're brought up in a deprived area, there's lots of difficulties you're going to experience and might not make the best choices and perhaps not have the best start in life."

"I believe that addiction is all related to trauma and what's happened in their childhood or adulthood or anything that is a shaping experience. I just think there's a reason why people do it and we have to look at that. We have to treat the trauma that we see the way we deal with acute illness; the symptoms of an illness without actually looking at the reasons why."

"People with opioid use disorders use opioids as a kind of medicine to forget or to cope with trauma. It's a lot obviously in childhood, so they have been subjected to sexual abuse to physical abuse and many of their parents have been drug users themselves and there's been a lot of neglect. I don't think people wake up and say I'm going to take drugs and become addicted."

"I think a lot of the people have quite horrible life like things that have happened to them that are quite dramatic and a lot of them got into drugs and can't stop. There's a lot of childhood abuse, sexual and physical and sometimes people have died and they're grieving."

"It's not their fault and everyone deserves a second chance."

In all the in-depth interviews, participants expressed that difficult and traumatic life events were the primary factor which led individuals to engage in drug use. Additionally, participants conveyed the perception that individuals were not to be blamed for their drug use and resultant opioid use disorders.

Closely associated with the participant's perception that difficulties, challenges and trauma were largely responsible for drug use, all the participants conveyed compassion, empathy and were nonjudgmental (Theme 3) when discussing perceptions towards individuals with OUDs. For example, the following participants stated:

"I just see someone who uses opiates as just the same as having an illness. I don't see them as any different from any other person or patient. I can get frustrated with people who use drugs because I really want to help them, but I have felt frustrations, but not judgement."

"People can recover from addiction, but it is a lifelong battle, but everyone deserves a second choice. There is no person on this planet that deserves lesser treatment for their sexual orientation, their gender, race or choice. There's a reason for someone to use heroin, we just don't understand the reason."

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"It's important when treating people to look beyond the addiction and see the person suffering and to treat people holistically."

"The most important thing is compassion and people will always make judgements no matter what. We are all human and we all have reasons to why we make some strange mistakes."

Many participants recognized OUDs as a disease capable of recovery and expressed the belief that like other diseases, individuals with OUDs are entitled to treatment and that a comprehensive, holistic, person centered approach to treatment should be available to support recovery. Importantly, several participants expressed the recognition that recovery from addiction is possible.

DISCUSSION

Quantitative analyses of the four surveys measured in this study generally revealed scores indicative of low or mid-range of possible scores. The OOKS mean score indicated a lack of knowledge regarding opioid overdose management and the DDPPQ's low-to-moderate score (X = 89.1) indicates the need for more knowledge and improved attitudes towards individuals with drug problems. Such findings could be expected from students who have yet to complete their learning, and a recent study conducted in 2019 measuring the impact of an educational video on nursing students' knowledge and attitudes towards individuals with OUDs (Williams et al., 2020), showed significant improvement post intervention. This illustrates the potential for all student nurse participants in this study to improve their knowledge in this area as they progress through their studies and learn more about OUDs. Also, although Scottish students in this study needed to learn more about OUD management, among participants there were some areas, such as risk factors to developing drug problems, where knowledge was reasonably high.

Again, mid-range scores on the OOAS indicated slightly moderately positive attitudes among participants and mid-range scores on the PSAS indicated moderate levels of perceived stigma. Pearson Product Moment Coefficients revealed moderate correlations among the three measures of the OOAS, OOKS, and the DDPPQ, indicating that knowledge and attitudes are related, but only the OOAS was related, (albeit a weak relationship) with stigma. Multiple regression analyses did not reveal any significant predictors of stigma. There were no statistically significant differences in stigma among the various nursing programs. However, statistically significant differences in the OOAS, OOKS and DDPPQ scores were noted in the participants in the child health program from participants in the other fields. Child health student nurses in this study were younger (X= 25 years) than other participants in the other fields (>30 years of age). This finding correlates to the literature citing that older nurses have more positive attitudes than younger nurses (Kratovil et al., 2023; Neville & Roan, 2014).

Among nurses in practice, studies report that nurses who were familiar with patients with OUDs were more willing to care for these patients (Mahmoud et al., 2021), and nurses with more years of nursing experience reported less challenges in caring for this vulnerable population (Keener et al., 2023).

Quantitative data pertaining to the analysis of several individual items on the four measures yielded interesting findings. Lack of knowledge regarding the use of Naloxone, the antidote for an opioid overdose was evident, as well as participants' ability to counsel and advise patients, parents and families. On individual items of the PSAS, stigma was evident in participant's reluctance to accept someone with a drug problem as a close friend or to care for their child, as well as issues of being trustworthy. These findings are consistent with the literature and identify the need for education to increase knowledge and reduce stigma.

The three main themes identified in the interviews (heroin on the streets, trauma as a precipitating factor, and a nonjudgmental, empathic approach) towards individuals with OUDs indicate more positive perceptions than the quantitative findings of this study and the findings in the vast literature documenting that negative perceptions persist. It is important to note that the majority of participants (n=64) in this study were just entering their second year of nursing study in their three-year Bachelor of Nursing program and all had clinical experience, but drug related content would be further introduced in subsequent content. Additionally, a significant portion of the participants were engaged in part-time health related employment. Of the two students in

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the Masters Direct program, it is not known whether they had clinical experience. While some of the items on the quantitative analysis revealed a lack of knowledge, clearly all participants conveyed empathy and understanding that OUDs are not intentional or due to a moral weakness, nor was fear or blatant mistrust of individuals with OUDs expressed. An important finding not previously identified in the literature was the predominance of statements elicited by these participants was that individuals who develop addictions were not to blame and as one participant explicitly stated, addiction was not their fault. Unlike literature in a Canadian study supporting that addiction was due to moral weakness (Stuart, 2019), participants in this UK study conveyed that due to trauma and socioeconomic factors, individuals use drugs to cope with their life challenges.

The qualitative statements elicited by participants clearly expressed empathy defined as "the ability to understand the personal experience of the patient without bonding to them, constitutes an important communication skill for a health professional, one that includes three dimensions, the emotional, cognitive and behavioral" (Moudatsou et al, 2020, p. 1.). This study did not set out to investigate empathy but emerged from the voices of the participants. While it remains unknown as to why participants expressed empathic responses towards individuals with OUDs, several possible factors should be considered. According to the literature, females, student exposure to clinical instructors who provided emotional care to patients, family influence (supportive emotional care) and educational interventions increase empathy among nursing and health professional students (Karayiannis et al., 2020; Nembhard et al., 2023; Ouzouni & Nakatis, 2012). Educational interventions in nursing programs involve the development of interpersonal relationships, communications skills involving listening and interviewing, self-reflection, role playing and experiential simulation (Lee et al., 2018; Levett-Jones et al., 2019). In the clinical setting, nursing students may have witnessed empathic role models, with faculty and/or clinical staff and who saw the positive outcomes of therapeutic relationships between patients and nurses. It is also possible that the long history of exposure to opioid use in Scotland may have influenced their positive perceptions. Based on these perceptions, many participants expressed the desire and or plans to engage in clinical practice with this population.

Despite science acknowledging addiction as a medical disease, nurses in many countries still possess stigma towards individuals with OUDs and view substance use disorders as an intentional choice (Kantrowitz-Gordon et al., 2022; Kratovil et al., 2023; Nusbaum & Farkash, 2022). Solheim et al (2024) using a descriptive qualitative design interviewed 11 people who injected drugs and received care from nurses in hospitals in Norway. Themes identified were diminishment and distance, predominantly based on the nurses' awareness of the patient's medical records of drug use and distance, nurses' engaging in the minimum amount of care, and engaging in lack of warmth or compassion. The second theme, Gratitude- equal care not taken for granted, was characterized by patients reporting positive perceptions of care from nurses, and the third and last theme, Vulnerability-Already Carrying a Heavy Burden, described how patients reported feeling stigmatized, devalued and defenseless (p. 7). An important finding to this study was that participants expressed nurses lacked knowledge about trauma-informed care; how patients life patterns and histories shaped their lives as well as structural vulnerability, defined as "the outcomes of a combination of socioeconomic and demographic attributes, in conjunction with assumed or attributed status" (Bourgois et al., 2017, p. 301).

In a recent mixed method U.S. study (Kratovil et al., 2023), findings among nurses indicated that hospital nurses continue to have negative attitudes towards individuals with substance use disorders and that although nurses reported receiving education about substance use disorders, additional education specifically, empathy-based education was needed to improve care to this vulnerable population. Kratovil et al. (2023) reported that education should focus on the provision of enhanced understanding of the many social, psychological and interpersonal reasons people use substances to improve attitudes and consistent with van Boekel et al (2013), it is important to note that knowledge by itself does not improve attitudes.

Vottero et al (2023) developed the Substance Use Disorder Nursing Attitude Model which identified that lack of formal and informal education contributed to

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nurses' knowledge and attitudes towards caring for this population in the U.S. Recognizing that nursing students enter programs with preconceived beliefs based on society, previous experience and the media, formal empathy training programs in nursing programs can improve attitudes and behaviors and mitigate biases towards this increasingly worldwide vulnerable population.

Opioid-related mortality remains a serious worldwide concern. Knowledge, skills and competencies along with empathy training to address the continuum of substance use across the lifespan needs to be infused worldwide. In all nursing programs across the globe, content needs to be embedded in all nursing curricula to adequately prepare the nursing workforce to address the global opioid epidemic and improve the health outcomes of individuals with the disease of opioid use disorders.

STRENGTHS AND LIMITATIONS

Data collection began at the beginning of the fall semester and continued for two months. Only second year students were invited to participate in this study as participants needed some knowledge of clinical practice and experience in working with people with OUDs. First year students would not have had this knowledge and final year students were on clinical placement and not on campus to be recruited or be interviewed. The year two student cohort also offered sufficient sample size (circa 700 students). However, unexpectedly substantial numbers of second year students did not return to in-person classes where the study was introduced, likely due to the continued impact of COVID-19 and increased UK living costs, which reduced the sample size. The 66 participants in the sample size did not reach the minimum number of participants needed to reach power; therefore, possibly affecting the quantitative outcomes related to the findings of the PSAS which showed no correlation to the other measures. Additional limitations include the lack of racial and ethnic diversity among participants. The use of a nonprobability convenience sample created a potential bias. The possibility of a response set bias exists as participants interested in the opioid epidemic may have participated in the study while other participants who were less interested chose not to participate. Additionally, those participants who chose to participant in the quantitative component of this study followed by the interview may have had more vested interest or experience with individuals with OUDs and may have been more aware of the impact of structural vulnerability and trauma informed care. However, this is the first study of UK nursing students' attitudes towards OUD and its management using these four surveys.

IMPLICATIONS FOR FURTHER RESEARCH

The findings of this study reveal several areas for future research. The concept of empathy emerged during the qualitative phase of this mixed method investigation. While evidence supports the important role in improving care and patient outcomes (Nembhard, 2023), there remains a dearth in mixed method research on the concept of empathy (Karayiannis et al., 2020).

While most empathy studies have been self-report assessments of empathy, there is a need to conduct multiple measurements, including assessments from care recipients, as well as the need for longitudinal research to investigate changes in empathy with advanced education and in practice.

Many participants in this study expressed being nonjudgmental towards individuals with opioid use disorders. One participant expressed her frustration with repeatedly caring for individuals with OUDs, but stated she was not judgmental. The role of empathy and its relationship with being nonjudgmental and compassionate should be further investigated to identify if being nonjudgmental and compassion are integral components of empathy. In addition to the need for further research on measures to increase empathy among nursing students across all types of patient settings, further inquiry should explore the role of formal nursing education on empathy-based OUD and substance use disorder training to combat the opioid crisis and improve care to this increasingly vulnerable worldwide population.

Increasingly, nursing accreditation bodies are now requiring substance use disorder training as a curriculum requirement in nursing and other health professional programs. Further studies evaluating the impact of these educational interventions on students' perceptions towards these highly vulnerable individuals is warranted to improve health

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outcomes and combat the opioid and substance use disorder epidemic.

CONCLUSION

The opioid epidemic is worldwide and continues to contribute to significant mortality and morbidity across the globe. This study revealed the need for nursing education to increase knowledge, attitudes and reduce stigma towards individuals with OUDs. Importantly, the qualitative data elicited in this study revealed compassion, empathy and a nonjudgmental approach and recognition of OUDs as a disease and not a moral weakness among nursing students in Scotland.

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Table 1. Summary of Quantitative Measures

The Opioid Overdose Knowledge Scale (OOKS) Williams, Strange, & Marsden (2013) This self-report, 45 item scale is in a multiple-choice and true-false format which assesses the level of knowledge of opioid overdose management for substance use professionals, patients and family members. Divided into 4 subscales (risk factors for an overdose, signs of an overdose, actions to be taken in an overdose, and Naloxone use), it takes approximately 10 minutes to complete. The OOKS has demonstrated internal reliability ($\propto$ = 0.83), and face, content and construct validity (Williams, et al., 2013). Scores range from 0-45. In this study, Cronbach's alpha was .80.
The Drug and Drug Problems Perception Questionnaire (DDPPQ) Watson, Maclaren, & Kerr (2006) This measures knowledge and attitudes of professionals who work with individuals using drugs and is a 22 item, 7-point Likert scale ranging from strongly agree (7) to strongly disagree (1). The DDPPQ has content and construct validity, and internal reliability of $\propto$ =.82 (Watson et al., 2006). Scores range from 22 to 154 with low scores indicating negative views and high scores indicative of positive attitudes. In this study, Cronbach's alpha was .94.
The Opioid Overdose Attitudes Scale (OOAS) (William et al.(2013) The OOAS is a self-report scale consisting of 28 items in a 5-point Likert format, ranging from completely disagree to completely agree and measures attitudes towards managing an opioid overdose among addiction professionals, patients and their families. The OOAS has face, content and construct validity and has reported internal reliability ($\propto$ = .90; Williams et al., 2013). Scores range from 28-140 with higher scores indicative of more positive attitudes. In this study, Cronbach's alpha was .84.
The Perceived Stigma of Addiction Scale (PSAS) Luoma, O'Hair, Kohlenberg, Hayes & Fletcher (2010) This is a self-administered 8-item scale, in a 7-point Likert format, ranging from strongly disagree to strongly agree and measures perceived stigma towards those with substance use problems. The scale has documented convergent and discriminant validity and is internally consistent ($\propto$ = .73; Luoma et al., 2010). Scores range from 8-56 with higher scores indicative of higher stigma. In this study, Cronbach's alpha was .88
Permission was granted to use all tools in this study.

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Table 2. Demographic Characteristics of Study Participants

Characteristic	n	%
Age		
18-29	34	52
30-39	19	29
40-52	12	18
Unknown	1	1
Gender		
Female	57	87
Male	7	11
Non-binary	1	1
Unknown	1	1
Race		
White Scottish	59	89
Other British	2	3
Irish	2	3
Mixed Multiple Ethnic	2	3
Asian Scottish British	1	2
Nursing program type		
Adult Health	18	27
Child Health	12	18
Mental Health	21	32
Learning Disabilities	13	20
Masters Direct Entry	2	3
Employment		
Part-time	58	88
Not employed	8	12
Healthcare experience		
None	26	39
1-5 years	15	23
6-11 years	12	18
12-24 years	12	18
Unknown	1	2
Professional experience related to OUD		
Yes	32	49
No	34	51
Educational training related to OUD		
Yes	13	20
No	53	80
Know anyone in professional life with OUD		
Yes	23	35
No	43	65
Know anyone in personal life with OUD		
Yes	28	42
No	38	58

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Table 3. Descriptive Statistics and Reliability for Study Scales

Scale	n	M	SD	Range	Potential Range
DDPPQ	62	89.51	19.74	49-130	22-154
OOAS	64	103.01	10.56	76-127	28-140
OOKS	66	18.96	3.32	10-23	0-45
PSAS	66	32.42	6.16	19-50	8-56

Note. DDPPQ=Drugs and Drug Problems Perceptions Questionnaire, OOAS=Opioid Overdose Attitudes Scale, OOKS=Opioid Overdose Knowledge Scale, PSAS=Perceived Stigma of Substance Use Scale

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Table 4. Pearson Product Moment Coefficients

Scale	DDPPQ	OOAS	OOKS	PSAS
DDPPQ	-	.654*	.422*	.020''
OOAS	.654*	-	.380*	.167*
OOKS	.422*	.380*	-	.071''
PSAS	.020''	.167''	.071''	-

*Note. *Correlation is significant at the 0.01 level (1-tailed)*

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Table 5. Analysis of Variance of Program Type

Scale		Sum Squares	ofdf	Mean Square	F	Sig.
DDPPQ	Between Groups	8018.263	4	2004.566	7.253	<.001
	Within Groups	15753.221	57	276.372		
	Total	23771.484	61			
OOAS	Between Groups	2233.467	4	558.367	6.858	<.001
	Within Groups	4803.518	59	81.416		
	Total	7036.984	63			
OOKS	Between Groups	178.833	4	44.708	5.040	.001
	Within Groups	541.107	61	8.871		
	Total	719.939	65			

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Table 6. Interview Questions

Interview Questions
Can you tell me your perceptions about individuals with Opioid Use Disorders (OUDs)?
What is your experience with individuals with OUDs (professional and/or personal)?
What factors may have influenced your perceptions of persons with OUDs?
How do you think your perceptions will impact your clinical practice?

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