



**Level of Knowledge and Attitude Patterns
That Relate to Drug Use Disorder Among Substance Users**

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Abstract

Purpose/ Background : One of the major public health concerns until this date is drug use or drug abuse. In this consideration, understanding the trends of drug dependence is necessary in order to foster appropriate management of this problem and allow for making the right decisions in mitigating this issue. This paper highlights the knowledge level and attitude patterns relating to drug use disorder among users in order to understand behavioral changes or decision making with respect to drug use.

Method : A systematic literature review was carried out in order to address the objectives identified for this research. Different databases were utilized in order to find relevant articles to be reviewed wherein the eligibility of the included articles are based on the inclusion and exclusion criteria. A total of 61 articles were found and 31 articles remained and were included for the final analyses on the basis of the inclusion and exclusion criteria.

Findings : The 31 articles included in the study were characterized based on common themes generated from the systematic literature review including aspects of substance use, knowledge and awareness on substance use and abuse, attitudes towards substance use and abuse, and substance use in the UAE which is used as the main case study for this review.

Findings from this review revealed that there is low level of knowledge about drug use disorder. In addition, findings also indicated that drug use disorder is significantly attributed to negative attitudes such as violence and drug dependence that affects physical and mental health of users.

Conclusion : This review concludes that there is a need for more proactive policies and programmes related to increasing knowledge and awareness of the people about drug

dependence and substance use disorders in order to influence positive attitudes on reducing risk taking behaviors of individuals with substance use disorders.

Originality/ Implication/s : This review presents implications for health professionals wherein the findings can contribute to understanding of how to better handle users with drug use disorder or implement early interventions to prevent drug use disorder. The findings from this study also suggests implications to policy makers towards creating more awareness about drug use disorder and how to address negative attitude patterns from users with drug use disorder.

Keywords : awareness , substance use, attitudes towards substance use, awareness and attitudes of healthcare professionals to patients of substance use, level of awareness and attitudes related to substance abuse, substance use, and level of knowledge and attitudes related to substance abuse

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List of Abbreviations

(in alphabetical order)

Abbreviation	Meaning
ACMD	Advisory Council on the Misuse of Drugs
APA	American Psychiatric Association
BMC	Biomedcentral
CASP	Critical Appraisal Skills Programme
DSM	Diagnostic and Statistical Manual of Mental Disorders
EBSCOhost	Elton B. Stephens CO (company).
GCC	Gulf Cooperation Council
NCBI	National Center for Biotechnology Information
NGOs	National Institute on Drug Abuse
NIDA	non-governmental organizations
SAMHSA	Substance Abuse and Mental Health Services Administration
UAE	United Arab Emirates
UNODC	United Nations Office on Drugs and Crime
WHO	World Health Organization

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Chapter 1 Introduction

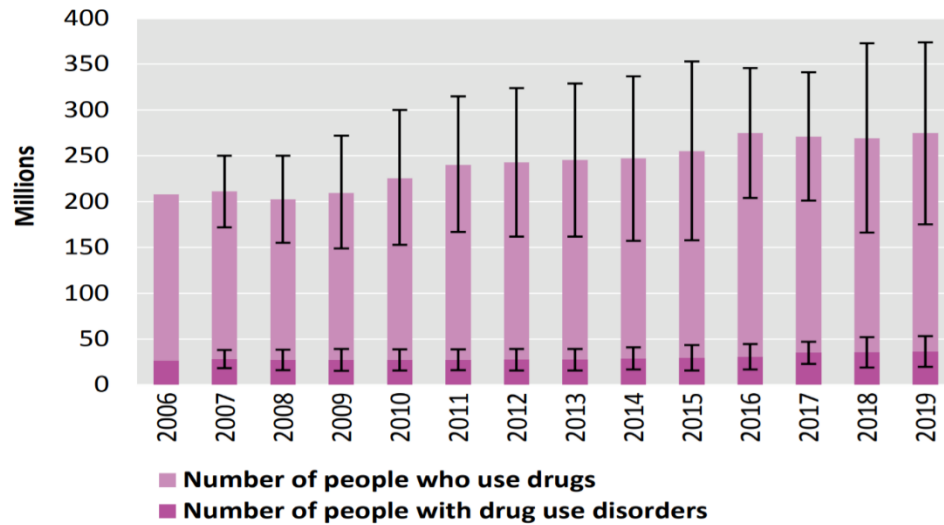
1. Introduction

Drug use disorder has increased globally, by a remarkable 22 percent among age populations ranging from ages 15 to 64 , as recorded by the World Drug Report (UNODC, 2021) .This has become a global phenomenon that has risen public health and social concerns in different countries worldwide (Jayanthi, 2011). As such, local governments as well as the international organizations are widely committed to addressing drug-related issues including that of Drug Use Disorder. In order to develop and implement effective policies across health, social care, and justice, there is a need to have a better understanding of people's knowledge and attitudes towards Drug Use Disorder. Sungu (2015) explained that attitude is an essential concept that is believed to influence the thoughts and behaviors of individuals that impact their decision making towards substance use.

Moreover, Bryan et al. (2016) asserted that understanding the degree of knowledge as well as attitude patterns towards drug use disorder can aid in the production of effective and proportionate responses towards it. This is significantly important because it can contribute to the development of effective initiatives to combat potential risk-taking behaviors among individuals due to drug use disorder.

According to the 2021 World Drug Report by the United Nations Office on Drugs and Crime (UNODC, 2021), about 36 million individuals globally were estimated to suffer from drug abuse disorder in 2019. As highlighted by Malik et al. (2012), knowledge on desirable and undesirable effects of Drug Use Disorder can influence alterations of drug usage and attitudes among users. Thus, the high percentage of drug use and abuse

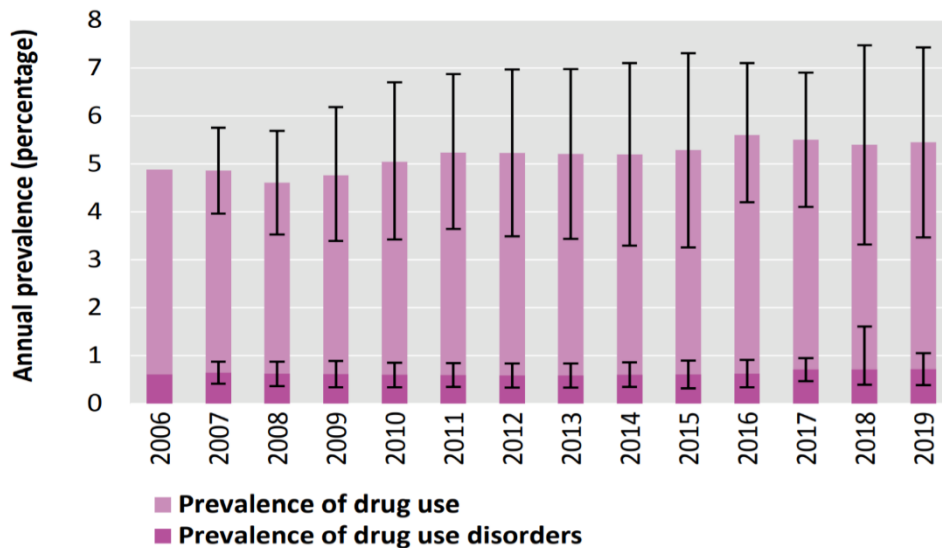
worldwide suggests the need to develop strategies that can enhance attitudes and knowledge on Drug Use Disorder among users.



Source: UNODC, responses to the annual report questionnaire.

Note: Estimated number of people (aged 15–64) who used drugs in the past year.

Fig.1(a) Global Trends Estimated No. of People Using Drugs and Those with Drug Use Disorders, 2006-2019 (UNODC, 2021)



Source: UNODC, responses to the annual report questionnaire.

Fig. 1(b) Global Trends in Estimated Prevalence of Drug Use and Drug Use Disorders, 2006-2019 (UNODC, 2021)

Having a better understanding of the knowledge and attitudes related to Drug Use Disorder is a contributing factor to the development of strategy to decrease users' demand for drugs.

This review is therefore focused on the level of knowledge and attitude patterns related to drug use disorder among users , with aim that the findings from this work can be used as guiding framework for policy makers, health and social care professionals, and international organizations to the development of appropriate strategies and interventions towards addressing drug use disorder issues.

This work presents importance in the attempt to contribute to addressing drug use disorder by acknowledging the impact of the level of knowledge and attitudes to users' behaviours. In exploring the level of knowledge and attitude patterns related to drug use disorder, appropriate interventions can be developed and effective reinforcements can be initiated to help with the management plans

1.1 Classifying Attitude

In order to understand the impact of attitude patterns on behaviors of individuals towards drug use disorder, attitude is classified accordingly by identifying proposed antecedents of attitudes to determine intentions of drug use. Attitude can be classified through a one-dimensional view, either cognitive, affective, or behavioral (Kroenung and Eckhardt, 2011).

From a general perspective, attitudes are commonly identified as either positive or negative attitudes which, according to Haddock and Maio (2008), are components of cognitive attitudes. As explained by the same authors, the cognitive component of attitudes refers to the thoughts, beliefs, and attributes associated with a particular object. For example, when an individual purchases a new thing like a mobile phone or a car, a considerable attention

to factors such as the features, maintenance cost, resale value and others which determines the experience of the buyer thereby influencing their attitudes towards positive or negative ones. This is the same analogy for classifying attitudes towards drug use wherein individuals' positive or negative attitudes can be influenced by their experiences.

Affective type of attitude consists of the feelings, emotions, or moods that people experience particularly when they are confronted with certain attitude object such as drug use (Kroenung and Eckhardt, 2011). As explained by the same authors, affective attitudes can be measured based on responses of affected individuals that can range between extremely positive such as optimism, happiness, or enthusiasm to extremely negative like fear, anger or depression among others. For example, the study of Laitano et al. (2021) illustrates that a group of psychoactive substance users is more susceptible to depressive symptoms and anger reactions than non-users. This means that affective attitudes are highly dominant as either cause of or effect by substance or drug use.

Finally, behavioral type of attitude is characterized by overt actions performed by people in relation to the attitude object (Kroenung and Eckhardt, 2011). The same authors also noted that these responses are measured by an evaluative continuum. Helmer et al. (2021), points out that peer substance use perceived by school students greatly influenced their licit and illicit substance use.

1.2 Patterns and Trends (Knowledge) of Substance Use and Drug Use Disorder

Throughout history, legal and illegal substance use have become prevalent affecting people's lives, personally, socially, religiously, and politically. Several people have also become dependent or abusive on substance use despite the consequences of substance problems. Souza, et al (2018) noted that substance abuse and dependence associated with

harmful use and various social and health problems have become a major problem in developed and developing countries. In this work, the term drug use disorder will be used frequently in order to refer to problems associated with use of and dependence on legal or illegal substances.

Excessive substance use can be described as a condition that may cause an individual to experience problems related to intoxication, misuse or dependence (Advisory Council on the Misuse of Drugs (ACMD), 1998 cited in Department of Social Protection, 2009). In relation to this, Nutt and Law (2009) noted that any patterns of licit or illicit substance use can generate addictive or dependent behavior. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5), defines dependence as “continued substance use despite behavioral impairment or distress in the same 12-month period” (Kopak, et al., 2014). Thus, problematic or excessive substance use can lead to becoming a disorder that causes negative consequences to different aspects of people’s lives (Bhat, et al., 2015). Therefore, problematic or excessive substance use has already become a major public health concern across the globe.

Why do people engage in excessive or dependent substance use? There are different factors that need to be considered in attempting to understand the attitudes of individuals with regards to substance use. Several literatures discussed the behaviors or attitudes of substance users that were directly influenced by their knowledge and awareness of the consequences of substance use. Therefore, this review is based on the need to understand the knowledge levels and attitude patterns influenced drug use.

1.3 General Aim and Specific Objectives

The general aim of this study is to explore the level of knowledge and attitude patterns related to Drug Use Disorder among users. The following specific objectives will be targeted:

1. To define the concept of Drug Use Disorder from the global perspective.
2. To assess the level of drug-dependence knowledge among those who abuse drugs.
3. To explore the impact of drug-dependence knowledge on the attitude patterns toward drugs among users.
4. To determine the significance of the level of knowledge and attitude patterns on Drug Use Disorder towards the development of initiatives to manage drug use disorders.

1.4 Research Questions

Grounded on the objectives, this research aims to answer the following questions:

1. What is the definition of Drug Use Disorder as reported by the general public or users worldwide?
2. What is the average level of knowledge about Drug Use Disorder in the target population?
3. What are the common attitudes towards Drug Use Disorder among the study population?
4. How does the level of knowledge and attitude patterns relate to drug use disorder impact users' risk-taking behavior?
5. What is the significance of the level of knowledge on the attitude patterns relating to Drug Use Disorder towards the development of initiatives in its treatment and management?

1.5 Structure of Research

This research is divided into five major chapters summarized as follows:

Chapter 1 is the introduction which provides the background to the topic. This is also the section that presents the objectives and research questions.

Chapter 2 is the literature review which presents a discussion of existing relevant literatures selected based on the inclusion and exclusion criteria identified for use for this study.

Chapter 3 is the methodology section which describes in detail the methods used in undertaking this research.

Chapter 4 is the findings section which highlights the themes found based on the systematic review of literatures.

Chapter 5 is the conclusion section which presents the discussion of the findings, the summary of main points of the research, and recommendations for future research.

Chapter 2 Literature Review

2. Introduction

2.1.Theoretical Background

Drug dependence and drug use disorder can be explained using various theories in view from the lens of neuroscientific, psychological, and social cognitive perspectives. In order to have a better understanding of drug use disorder, an overview of theoretical perspectives influencing drug use disorder is discussed.

Neuroscientific Theories

Neuroscientific theories present explanations on the effects of drugs on people's brain. Correspondingly, different drugs clearly have different primary actions on the brain but the most common are the dopamine reward system and the endogenous opioid system (Teesson et al., 2002). As explained by the same authors, different types of drugs can have molecular or cellular effects on the brain, for example, amphetamine increases monoamine and dopamine release that has an effect on the re-uptake and metabolism of dopamine. In relation to this, Mosher and Akins (2007) noted that the sensitization theory explains the principle that alterations in the brain generated by chronic administration of certain psychoactive drugs can increase vulnerability to continued drug use or relapse and drug craving or dependence.

Biological/ Genetic Theories

Another area of research underlying drug dependence is the role of biological factors on individuals' liability to drug dependence. According to Teesson et al. (2002), genetic

characteristics accounts for drug dependence as influenced by inheriting increased likelihood of developing dependence on substances. Similarly, Mosher and Akins (2007, p. 53) noted that the “Genetic or biological theories of substance use suggest that the individuals who are most likely to use and (especially) to become addicted to drugs are characterized by genetically inherited predispositions to these problems”. This suggests that vulnerability to substance use disorder can also cluster from families that share the same environment. However, there is still lack of empirical evidence to suggest direct relationship between candidate genes and drug dependence (Teesson et al., 2002).

Psychological Theories

Psychological theories highlight perspectives of substance use with focus on the significance of reinforcements or punishments. For example, the positive reinforcement theory posits that users will say that they take drugs because they enjoy using them (Newton et al., 2009). The same authors also explained the relation of the positive reinforcement theory with the stimulus response learning model wherein conditioned reinforcement as well as impulsivity are considered key features. Psychological theories also encompass behavioral and cognitive theories. Teesson et al. (2002) noted behavioral theories on drug addiction place emphasis the consequences (or reinforcers) of drug use behavior and cognitive theories explains drug dependence in relation to cognitive constructs such as self-regulation, addictive personality, and impaired control over individuals’ use of substances.

Sociological Theories

According to Mosher and Akins (2007), sociological theories of substance use focus on the role of social structure in explaining substance use and abuse. For example, the social learning theory places emphasis on the importance of social-psychological processes (i.e. imitation and operant conditioning) in the learning process such as recognizing the effects of drugs whether they can be viewed as enjoyable (Mosher and Akins, 2007).

2.1. Substance Use and Drug Use Disorder as a Public Health Concern

Problematic substance use and dependence has already contributed to high mortality rates in different parts of the world. According to Peacock, et al (2017, p. 8), “Globally, the highest age-standardised rates of mortality were for smoked tobacco as a risk factor at 110.7(101.0, 120.3) per 100,000 deaths, compared to 33.0(28.0, 37.7), and 6.9 deaths 6.9 (6.1, 7.6) per 100,000 people in 2015 for alcohol and illicit drugs, respectively”. This suggests that illicit drug, alcohol and tobacco use is associated with attributable high mortality rates. As explained by Peacock and colleagues (2017), illicit substance use, to some degree, can be linked to negative health outcomes, some injuries or accidents and diseases among others which means that there are direct or indirect consequences that users may or may not be aware of.

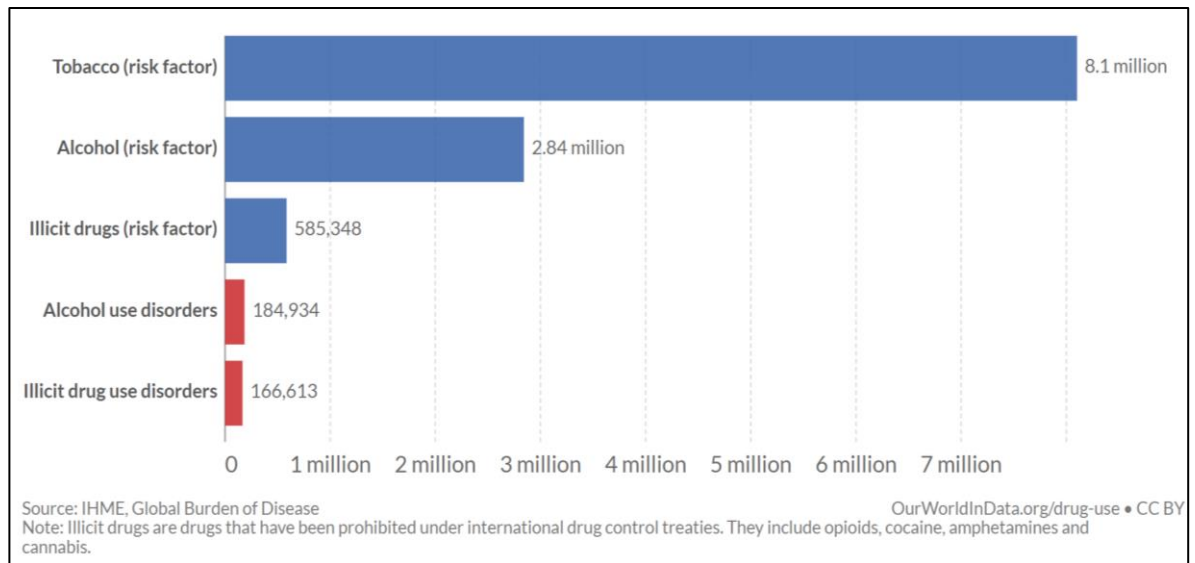


Fig. 2 Deaths from Tobacco, Alcohol and Drugs Worldwide, 2017 (Ritchie and Roser, 2019)

Figure 2 shows that substance use is directly and indirectly responsible for millions of death each year. In the figure, the blue bar represents indirect death as risk factors (shown in figure 2) and the red bar represent direct deaths from substance use disorders. Indirect consequences of substance use result from risk factors such as development of various diseases and injuries in association with problematic substance use whereas direct deaths result from alcohol or drug overdoses (Ritchie and Roser, 2019). As explained by the same authors, substance use can increase risk of premature death from diseases and injuries such as suicide, HIV, cancer, diabetes, stroke and heart diseases among others.

Moreover, problematic substance use can also be associated with mental health disorders. According to Diradtsile and Rasesigo (2018), substance use and abuse were found to be preceded by mental health disorders such as depression, anxiety and personality disorders and suicidal tendencies among others. Similarly, Ferreira, et al (2019) found that substance use is associated with higher chances of psychological distress leading to psychiatric disorders particularly among adolescents. This suggests that substance use is highly

associated with mental health disorders that need to be considered to provide effective interventions and treatments.

The 2016 United Nations General Assembly Special Session on drugs consisting of 193 member states has unanimously recognized “drug addiction as a complex multifactorial health disorder characterized by chronic and relapsing nature” which they considered as being preventable and treatable (Volkow et al., 2017). As explained by the same authors, addressing substance use disorders is one of the ways to achieve the public health goal of reducing the world’s drug problem. Similarly, Lo et al. (2020) noted that substance abuse has long been considered as a major and thorny public health concern and prevention and treatment were found to be the two most common strategies adopted to mitigate substance abuse problems. This suggests that substance use disorder has since been prevalent as a public health concern worldwide and should be addressed accordingly which means future research is still recommended particularly in association with advanced methodological designs and procedures.

2.2. The Concept of Drug Use Disorder (Substance Use Disorder)

From a general understanding, people commonly use the terms substance use disorder and drug use disorder interchangeably. Interestingly, the American Psychiatric Association (APA) replaced substance (drug) dependence with substance use disorder in the 2013 DSM-5 as grounded on the disorder that involves the use of substance (Selner, 2018). According to Haydock (2012), drug dependence is about people turning to drugs for relief and becoming dependent whereas drug abuse is a social problem that has serious pharmacological aspects. Historically, the concept of dependence has been divided to psychological and physical dependence but today, most researchers came to believe that

drug dependence and behavior are mainly influenced by the environment. As such, substance dependence can be understood as the compulsive and repetitive consumption of illicit drugs with possible tolerance to their effects or withdrawal symptoms if they are reduced or stopped.

Correspondingly, drug use disorder can be characterized by behavioral and other responses that include compulsion to take drugs on a continuous or periodic basis so as to experience its psychic effects or avoid discomfort of its absence (Heather, 2017). This means that compulsion is the central feature of drug dependence which is also understood as severe drug use disorder. According to Suliman (2016), drug dependence is the consumption of drugs within three or more times in a twelve-month period. The same author identified its characteristics to include tolerance, substance taken in larger amount for a longer period than intended, continuous use despite knowledge of adverse consequences, and reduced or giving up important social, occupational, or recreational activities. Therefore, the main rubrics of epidemiology of drug dependence include quantity, location or variation, causes, mechanisms, and prevention and control (Anthony, 2017). In order to satisfy artificial appetite, users depend on their substances such as alcohol, drugs or tobacco despite harmful consequences to their health or to others around them. As highlighted by Benjamin and Chidi (2014), “Drugs that produce physical dependence are powerful determinant of behavior”.

Substance use disorder, as claimed by Kalojiya and Sonkar (2018), is a major cause of death and disability in different parts of the world. The same authors explained that in DSM, substance use disorder consists of addictions that relate to the following substances – alcohol, tobacco, opioids, prescription drugs, hallucinogens, and other unspecified

substances. One of the theories that can explain the concept of substance use disorder is the cognitive expectancy theory. According to this theory, the addictive behaviors on substance use are chosen by people over healthy behaviors because of human expectations (Kaloiva and Sonkar, 2018). In the past year, substance use disorders are widely characterized by impairments caused by the recurrent use of substances such as alcohol or drugs that lead to health problems or disabilities that limits the functionality of the users either in school or as a part of the society (Substance Abuse and Mental Health Services Administration (SAMHSA), 2019). In relation to this, the same author defined drug use disorder as meeting the criteria of DSM-IV relating to dependence or abuse of one or more illicit drugs such as cocaine, marijuana, heroin, inhalants, methamphetamine, and hallucinogens among others.

Zhong et al. (2020) conducted a systematic literature review to examine the link between individual drug categories and violent outcomes. In their study, the authors found that individuals diagnosed with drug use disorder have higher risk of violent acts as compared to the general population without drug use disorder. More so, Mohamed et al. (2020) carried out a descriptive case control study to explore the associations between substance use disorder and high levels of anxiety and depression. Their findings indicated that drug use disorder is positively correlated with anxiety and depression. Correspondingly, Aas et al. (2021) carried out a prospective cohort study to assess the impact of substance use patterns and sociodemographic factors on mental health distress. Their findings revealed that individuals with substance use disorder were found to have considerable burden of mental health based on variations on substance use patterns. These findings suggest that

drug use disorder is associated with various physical and mental health problems as well as high degree of violent risk-taking behaviors.

2.3.Impact of Knowledge and Awareness on Substance Use Behavior of Users

In order to understand the prevalence of substance use, it is important to assess users' level of knowledge and awareness patterns regarding the consequences of substance use. In the study of Malik, et al (2012) about determining the prevalence of substance abuse among the adult population, they carried out a cross-sectional study in Nurpur Shahaan, Pakistan. In their study, the authors assessed the awareness of adults regarding substance abuse and its effects on health as well as its social implications. Their findings indicated that awareness of the negative consequences of substance abuse is higher among non-users as compared to substance users. This suggests lack of awareness on the consequences of substance use among substance users.

Heckman, et al. (2011) examined substance-related attitudes and behaviors among college students at a Midwestern state university. Based on their research, the authors found that majority of the students lack the knowledge and awareness about drug use and abuse. Their findings also suggest that gender, class enrollment, and baseline substance use were positively associated with students' baseline attitudes and behaviors. Thus, the authors concluded that substance use education opportunities should be exploited in order to contribute to increasing students' knowledge and awareness towards substance use and dependence towards positively influencing their attitude patterns.

On another study, Bhat, et al (2015) attempted to explore the awareness of drug addiction among college students. The authors used a cross-sectional study and found low level of

awareness of drug addiction behaviors among the respondents. From their study, different triggers for drug abuse were identified, most of which are associated with mental health disorders, including high levels of stress, traumatic experiences and depression among others. This suggests that the lack of awareness of drug use among adolescents is masked by mental health problems, mainly by stress and depression.

Similarly, Divya, et al (2018) carried out a survey study in order to assess the level of knowledge and awareness and attitudes of adolescents regarding the negative consequences of substance abuse. Their findings indicated that adolescents have average level of awareness on the negative consequences of substance abuse but have higher level of awareness on the social effects of substance abuse. From their findings, the authors argued that there is a positive correlation between awareness and attitude in relation to the negative consequences of substance abuse among adolescents.

On a slightly similar note, Chakravarthy, et al (2013) conducted a research relating to preventive science in order to explore awareness and prevention strategies for substance abuse. According to the authors, prevention of substance abuse requires high level of awareness of the risk factors associated with substance use. The authors further argued that being aware of the risk factors can aid families, health professionals and social workers in preventing and treating substance use problems. This suggests that increasing knowledge level on the consequences of and risk factors leading to substance use can serve as a guide in the implementation of prevention and treatment programmes.

More so, Alhyas et al. (2015) explored the attitudes and perceptions of adolescents in the United Arab Emirates in relation to substance use. Their findings revealed that among the main factors influencing substance use among adolescents are classified as relationship

with parents, peer pressure, drug accessibility, religion, and others. Additionally, the authors also found that there are varying levels of awareness and knowledge towards substance use or dependence across all age groups. Thus, the authors suggested the importance of the incorporation of drug education curricula in schools, colleges, and universities as accompanied by other strategies like the family and community-based program initiatives in order to foster better response to substance-related dependence among adolescents.

Similarly, the systematic literature review carried out by Njoroge (2017) described the knowledge of, attitudes, and practices towards substance use disorders by university students. Their findings suggest that while there is considerable level of awareness on substance use disorder, there is still a need for enhanced awareness and education programs for university students with regards to substance use disorders. Interestingly, their results indicated that students' perception on substance use is that is a normal part of adolescent or college life. The authors also found that college students have some knowledge on reasons for substance use highlighting citations on peer pressure and curiosity. Thus, one can argue that drug dependence can be influenced by the level of knowledge and attitudes of users about its causes and consequences.

Yet, the study of Lone and Mircha (2013) about understanding awareness regarding the possible treatment and rehabilitation of drug addiction of young users shows contradicting results. Their findings indicated low level of awareness on drug treatment and rehabilitation and on non-governmental organizations (NGOs) working in the rehabilitation field.

2.4.Factors Influencing Attitude Patterns Towards Drug Use Disorder

In the study of van Boekel et al. (2013), the authors assessed the attitudes of healthcare professionals towards patients with substance abuse disorder. Their findings indicated that in general, healthcare professionals have negative attitudes towards patients with substance use disorder that result to diminished feelings of empowerment of patients and poor treatment outcomes. In their study, the authors also found that healthcare professionals still lack the education, training and support structures in working with this patient group. Similarly, the study of Pilge and Arabaci (2016) about exploring the perceptions of emergency nurses and their attitudes towards patients with substance addiction indicated nurses having negative attitudes. Their findings also revealed that nurses lack education and knowledge about providing care to this patient group. This suggests that there is lack of knowledge and awareness among healthcare professionals in relation to substance use thereby influencing poor attitudes with regards to care provided to patients with substance use problems.

In relation to this, Green, et al (2011) carried out a study to examine the level of parental awareness of substance use and related problems among the youth. Findings from their study indicated mixed results with regards to the level of parental awareness when it comes to children's substance use problems. The authors also highlighted that despite efforts of exploring moderating and mediating relationships, there were no significant results found. This suggests a gap in substance use studies creating a need to contribute to empirical knowledge and evidence in relation to exploring the awareness level and attitudes of parents regarding children's substance use.

Furthermore, Embleton, et al (2012) attempted to describe the knowledge and attitudes of street-involved youths in Kenya towards substance use. A cross-sectional study was carried out in order to address this aim and their findings suggest high level of awareness on the negative consequences of substance use particularly to the health and attitudes toward substance use are majorly influenced by awareness. The authors explained that based from their study, attitudes of caring more about their health led to their behavior of being against substance use. This suggests that having knowledge and awareness about the consequences of substance use can contribute to positive attitudes toward the prevention of substance use problems.

In the study of Daley (2013) about the effects of substance use disorders on family and social problems, it was found that substance use disorders have negative implications on family members thereby creating the need for coping strategies. As explained by the same author, substance abuse disorders also impact individuals' social functioning thereby creating a burden for society. Accordingly, the public perceptions towards drug use disorder also have significant influence on the attitude patterns of drug use among the users. As highlighted by Kapoor et al. (2021, p. 264), "The perception of problems related to drug addiction significantly influences the attitude towards drug addiction. The perceived nature of the support structure augments the influence further (partial mediation)". This suggests that general perception of drug-related problems contributes to influencing attitudes towards drug use and abuse.

2.5. Knowledge and Attitude on Substance Use in GCC countries

Substance use disorder is also emerging in different Arab countries which has become one of the major issues in societies. In particular, substance use and abuse have become

significant public health concern associated with various social and economic consequences (Anetor and Oyekan-Thomas, 2018). For example, in the GCC Arabian Gulf, attitudes were found to be the strongest predictor for behavioral intentions with regards to marijuana use (Almageni, 2013). In the Gulf States, research about drug abuse or substance use is lacking and there are limited studies about the knowledge and attitudes towards substance use in the Gulf (Alhyas et al., 2015). Similarly, the study of Sweileh et al. (2014) on substance use disorders in Arab countries indicated that fear of God and religious values contribute to limiting substance abuse problems in Arab countries.

In the study of Elarabi et al. (2013) about understanding the interaction of socio-demographic factors, knowledge, attitudes, and practices of the public, parents, and youth towards the development of culturally sensitive prevention programs against substance use. Their findings revealed that religiosity is the primary cause of the weakening of substance addiction in Abu Dhabi, UAE. It was also found that the addicts are perceived by the people as victims because of the influence of the attitude of experimentation leading to substance use and abuse. This is also in line with the study of Alblooshi et al. (2016) about describing the patterns of substance use disorder in UAE wherein it was found that there has been a rise in the use of prescription medication in the country particularly among the youth. The same study also suggests that there is a need for the UAE government to develop specific prevention and intervention programs and strategies that target differences in demographic profiles.

The study of Alqashan (2017) about investigating the relationship between risk factors and predicting drug use among Kuwaiti youth found that the attitude patterns have significant impact on the influence of risk factors on substance use. The same study also suggested

that no relationship exists between acculturation, substance use, and attitudes of users towards drugs. The authors therefore argued that attitude play an important role in influencing substance use among Kuwaiti high school students.

More so, the study of Siddiqui and Ali Salim (2016) on assessing the awareness of secondary school students on substance abuse and finding associated social factors suggests that majority of the students have sufficient awareness on substance abuse wherein age, scholastic year, the science subject, and being a non-Saudi have positive association with awareness. Yet, the authors claimed that drug abuse is more common in Saudi community but is not being addressed accordingly because addictive behaviors tend to be concealed by the users in Saudi Arabia because of the Islamic law and strict laws against the use of addictive substances.

Similarly, the study of Saquib et al. (2020) about identifying knowledge gaps in literature on substance use disorder in Saudi Arabia indicated that despite religious and legal prohibitions in the country, substance use and consumption are still prevalent. It was also found that Saudi Arabia lacks harm reduction programs despite having policies and government-funded programs for treatment and rehabilitation of substance abusers. Moreover, the study of Mobrad et al. (2020) about assessing the knowledge, attitudes and beliefs regarding drug misuse and abuse among pharmacists in Riyadh City, Saudi Arabia indicated that pharmacists are trained in recognizing drug abuse or dependence and they believe that selling controlled drugs is unethical. This suggests that there is a strong association between knowledge and attitude with regards to drug misuse and abuse.

Chapter 3 Methodology

3. Introduction

A systematic literature review was carried out in order to address the research objectives. This is the selected method of review because it allows the researcher to map and assess existing literature and knowledge gaps with regards to exploring the knowledge and attitudes on the awareness of consequences of substance use among users, healthcare and social care workers, and support groups. According to Mengist et al. (2020), a systematic literature review makes use of a systematic procedure in order to reduce the occurrence of bias during searching, analysis, and summary of studies. The same authors explained that if done properly, a systematic literature review can provide reliable findings and conclusion that can aid both decision makers and scientific practitioners to act accordingly.

3.1.Search Strategy

In carrying out this review, the researcher searched different online databases for existing literatures, both published and unpublished. The researcher focused on searching for related literatures from PubMed, Procedia, NCBI, Wiley, Researchgate, Sage, BMC and Sciencedirect. Other online databases and websites used in searching for related literatures are Scielo, World Health Organization (WHO), Digitalcommons, HAL, university online libraries, Semantic scholar, and government websites. The search terms that were used in searching through Google search and Google scholar include awareness on substance use, attitudes towards substance use, awareness and attitudes of healthcare professionals to patients of substance use, awareness and attitudes of social workers to patients of substance

use, awareness and attitudes of support groups and parents to people engaged in substance use, and level of awareness and attitudes related to substance abuse.

3.2.Review Selection

In carrying out the selection process, the researcher manually went through all 56 articles found and accepted or rejected them based on the following inclusion and exclusion criteria:

Inclusion Criteria

- Literatures with English content
- Published or unpublished between the years 2011 and 2021
- Books, Journals, and Reliable Websites in compliance with ethical principles were considered
- Literatures about awareness and attitudes on consequences of substance use
- Substance use in the UAE

Exclusion Criteria

- Literatures published or unpublished prior to 2011
- Literatures about prevalence or impact of substance use or anything that is not about awareness on substance use
- Literatures without English translation if written in different languages

All literatures found that meet the inclusion criteria were eligible for review and those that that fall under the exclusion criteria were excluded. The articles selected were those that contains some or all of the key terms used when searching for literatures. From the use of the inclusion and exclusion criteria, 56 articles on awareness and attitudes towards substance abuse were identified: 7 from PubMed, 8 from Procedia, 3 from Wiley, 6 from Researchgate, 2 from Sage, 4 from BMC, 3 from NCBI, 5 from Sciencedirect, 3 from Scielo, 4 from Digitalcommons, 3 from HAL, and 8 from Semantic scholar. Out of the 56 articles found, a total of 26 were used for this review. Figure 2 shows an illustration of how the selection process was carried out.

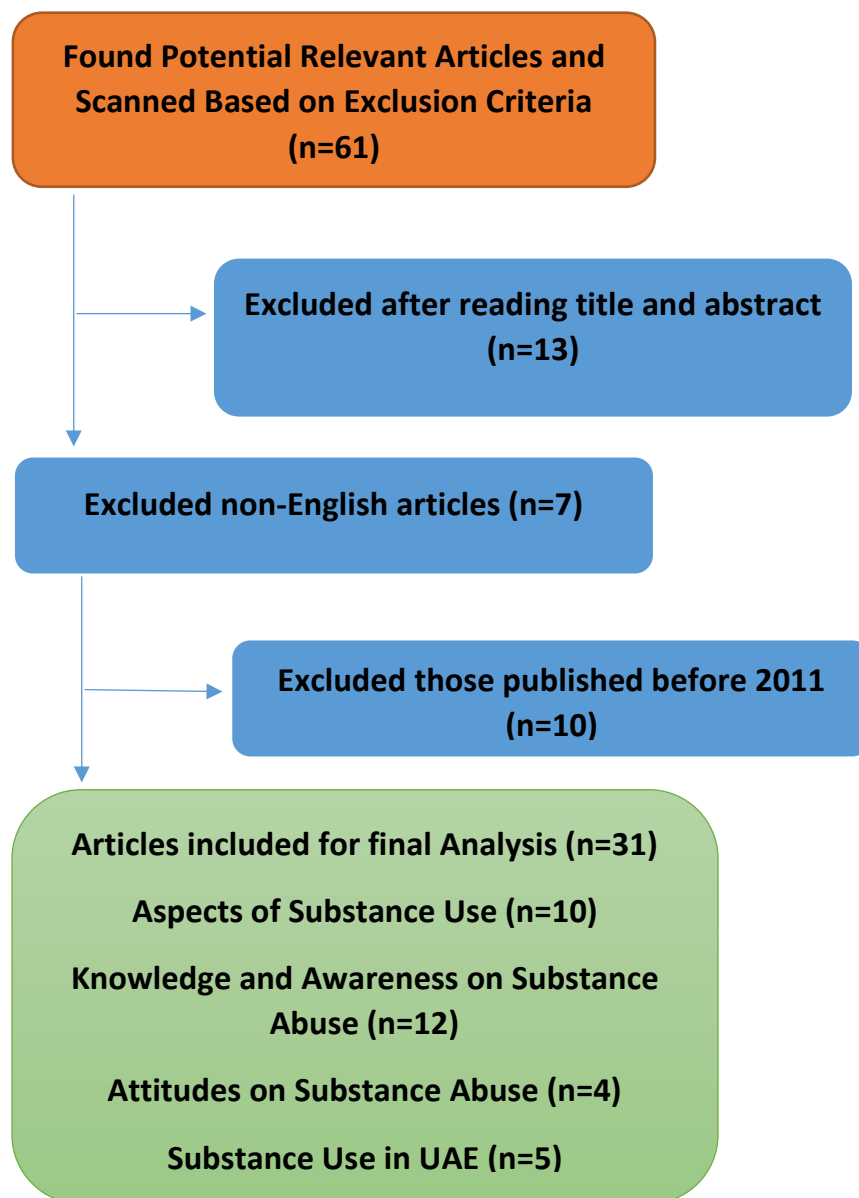


Fig. 3 Review Selection for the Systematic Review for this work

3.3.Search Outcomes

As shown in figure 3, a total of 61 articles were retrieved from researchgate, Pubmed, NCBI, Sage, BMC, EBSCOhost, and some other online journal database. These produced 31 eligible articles. The remaining articles included 13 not related to knowledge and

attitude, drug dependence, and substance abuse disorder, 7 written in different languages other than English, and 10 published prior to the year 2011 (n=30) were excluded for not meeting the inclusion criteria. Table 1 shows a summary of some of the articles that were found, both eligible and not.

Table 1: Search Results

Eligibility	Author/Year	Relevance	Points of Variation	Result/s
Y	Malik et al. (2012)	The background provided in the review is centered on the growth of drugs in Pakistan. The papers used in the literature review agreed on the growing use of opioid, alongside other illicit drugs such as heroin to induce spiritual euphoria.	One particular variation that exists between the findings and the literature review of the review is with regards to the level of awareness about substance abuse. According to existing studies, users and non-users have an idea on the facilities to go to for rehabilitation assistance.	The results of the survey indicated that non-users have higher level of awareness about the negative effects and the risks involved of substance abuse compared to users. However, there is no definite explanation whether depression and anxiety are developed as a result of depression.
Y	Mobrad et al. (2020)	The authors assessed the knowledge, attitudes, and beliefs of pharmacists with regards to drug misuse and abuse in Saudi Arabia.	There is no direct variation between knowledge and beliefs in relation to the ethical aspect of offering controlled medication to misusers.	Findings from the study indicated that majority of the pharmacists had been trained in recognizing drug abuse or dependence.

N	Sekulic et al. (2012)	In the background of the review, the papers used for review agreed that substance abuse is one of the most serious issues in public health. Aside from its growing prevalence, substance abuse is also found to have significant negative effects on health. It is also indicated in the background section that physical activity can help improve the overall wellbeing of the adolescents; however, there is lack of research with regards to the correlation between physical activity and substance. There are also different factors identified as mediators to this correlation including gender and type of sports.	The points of variation between the results and the literature review are centered on age being a mediator in the linkage between alcohol use and academic achievement. This was not consistent with the review because the authors examined the correlation for both sexes. In previous research as well, the correlation between alcohol use and academic success was significant unlike in this review wherein the association was identified to be weak.	The results of the review revealed that there is negative correlation between substance abuse and educational achievement which means that adolescents who use drugs or tobacco or alcohol have poorer academic performance. There is also a weak correlation between substance abuse and sports among boys and that sports participation among girls leads to increased likelihood of smoking.
Y	Baiwa et al. (2013)	Existing data used in the literature review agreed that drug experimentation starts at an early age. This experimentation is further deemed as a risk factor of future drug use. These reviewed papers also agreed that substance abuse has become one of the biggest and most serious issues in many countries specifically among male students. There is also consensus in the prevalence of substance use among high school and college students.	The findings of the review contrast existing research which denoted that the students who come from a low-income family are more likely to use drugs. For this review, the findings revealed that students who come from high-income families are more likely to use illegal substances.	Based on the findings, it was revealed that substance use in Kuwait begins at an early age, around high school. The risk factors associated to substance abuse include parents' marital status, number of siblings, age, family income, type of high school, and level of educational performance.

Y	Daley (2013)	The main context of the literature review is the negative implications of substance abuse on family members. It further indicated how the severity of substance abuse disorders can influence the impact they will have on the family. This then prompts the need for coping strategies to be in place.	This article did not have any specified variation. The results were supported by existing findings.	The authors delineated the different interventions that can be implemented to treat SUD. Among these include education, facilitation of family treatment, providing family support, and paying attention to the children.
Y	Elarabi et al. (2013)	The reviewed papers primarily highlight the factors that encourage substance abuse. These include peer pressure, psychological issues and lack of supervision. They also reiterated the role of religiosity within the context of substance abuse wherein it was entailed that social changes and declining religiosity have contributed to the increased substance use in the UAE.	The variation in the review lies on the perceived prevalence of substance abuse in the UAE as well as on the concept of victimization for drug addicts. Considering the severity of penalties for substance abuse, the findings of the review came as a surprise noting that this practice or behavior is highly forbidden in the UAE.	The results of the review indicated that substance use is mainly caused by weakened religiosity and is consequently influenced by factors such as gender, nationality and education. Majority of the participants also perceived drug users to be victims instead of criminals. Experimentation is also found to result in increased likelihood for alcohol and hashish use.

Y	Lone and Mircha (2013)	The literature review of this review focused mainly on the risk factors of drug addiction and the growing prevalence of the issue. The existing studies also pointed out the diagnosis of drug addiction as well.	The review used both quantitative and qualitative approaches for this review. Using purposive sampling, 150 participants were selected and an interview was conducted. The participants were between the ages of 16 and 35. Inferential and descriptive statistics were used to analyze the data.	The results of the review indicated that majority of the participants are aware of drug de-addiction process; however, majority of them did not also have any idea about the treatment centers in their city. There was also low level of awareness about the non-governmental organizations dedicated in the treatment and rehabilitation of drug addicts.
N	Whitesell et al. (2013)	Existing literatures had a consensus on the adolescence being the stage where substance use is initiated. It was indicated that this poses a risk to the health and wellbeing of the young population, entailing that use of illicit drugs can lead to substance use disorder which will affect cognitive development.	The authors did not specifically identify any variation in the data obtained for the discussion. This means that the findings presented are consistent with one another and with the existing literatures.	The review highlighted the various risk factors for substance use among adolescents which include familial risk factors, physical and sexual abuse, emotional abuse, neglect, social risk factors and deviant peer relations, among others.
Y	Sweileh et al. (2014)	Existing studies used in the background of the review noted that Arab countries which are found to be politically and economically stable have experienced a significant positive change in medical education and medical services. Another aspect that was mentioned in the background was with regards to bibliometric analysis which is widely used in medical research.	The variation identified is regarding the gap between the current review's findings and the literature review on the results found about tobacco and smoking. This is because this review focused on tobacco within the SUD context.	It is found that Saudi Arabia has the highest number of studies about SUD. Although the yearly research productivity in the region is low, there have been improvements in the recent years. In addition, the findings indicated that majority of the studies focused on tobacco use and smoking.

Y	Bhat et al. (2015)	Existing literatures used in the review mainly focused on the negative impacts of drug addiction. They also indicated the current efforts of the government to reduce incidence of drug addiction.	Qualitative and quantitative methods were used in the review. Interview and survey were adopted to collect data. There were 400 randomly selected students involved who came from different institutions in Kashmir. To analyze the data, SPSS was used.	The results revealed that majority of the participants were not aware of the drug de-addiction process, the NGOs working in treatment and rehab for drug addiction and where treatment centers are in Kashmir. This emphasized a need to increase efforts in drug awareness.
Y	Alhyas et al. (2015)	The literature review noted that substance use in some countries starts at an early age and that factors such as peer and family influence, personality issues and curiosity drive the use of illicit substances. Another aspect agreed on among existing studies is the protective role of religion against substance use.	In the current review, it was revealed that educational campaigns about the risks and adverse effects of substance use can discourage such usage. However, there are studies which indicated that increased awareness through campaigns would not be sufficient to curb this type of behavior. Additional strategies must be implemented as well.	The results of the review indicate several factors perceived by adolescents to influence the use of substances such as peer pressure, relationship with parents, accessibility to illicit drugs, and religiosity. Boredom and limited knowledge about the risk of substance use were also found to be motivating factors for substance use.
Y	Alblooshi et al. (2016)	The background of the review did not provide specific comparisons between the papers used for the literature review. Although, it was mentioned that there was a consensus between the findings in the three studies in 2009 regarding the most commonly used substances in the Arab Peninsula. These include cannabis, heroin and alcohol.	The variation between the literature review and the findings is attributed to the limited female representation of female in the cohort review. With that, the conclusion is more targeted towards male patients which is inconsistent with the existing research pointing out that SUD treatment is provided mostly to female patients in the UAE.	The findings of the cohort review indicated that smoking and marital status are associated to substance abuse disorders (SUD). It is also entailed that the most common substances used in the UAE are opioid and alcohol.

N	Das et al. (2016)	The data obtained from existing research indicated that substance abuse is one of the factors which caused significant problems in public health include suicide, mental illness, accidents, etc. Tobacco is also found as one of the leading causes of premature death and is initiated at an early age. Europe and North America were found have a decreasing trend of alcohol use among adolescents and young adults.	The findings obtained regarding the effectiveness of school- and family-based interventions were not consistent with existing data. This is because there is still lack of empirical evidence suggesting their efficacy in preventing drug abuse among adolescents, further entailing the differential impacts of these interventions across different populations, genders, socioeconomic status, and age groups.	Based on the interview findings, this review revealed that interventions that are school- and family-based are the most effective in reducing smoking and substance abuse. Campaigns spearheaded by mass media are also effective.
Y	Siddiqui and Salim (2016)	The points that the reviewed papers mentioned in this current review included the strict implementation of laws against alcohol and drug use in Saudi Arabia. A few existing literatures also noted the cases of drug abuse are common in this Islamic country.	The review findings and data from existing literatures are consistent with each other. For example, the results pertaining to the correlation of parental educational level and level of awareness among students about substance abuse are supported by existing studies.	The cross-sectional findings of the review indicated that majority of the students in the country are aware of substance abuse. Factors such as age and being a non-Saudi are found to have a positive correlation with good awareness while family income and education and status of living of parents are significantly linked with the students' level of awareness.

Y	Sandhya et al. (2018)	With the increasing use of illicit substances among adolescents, this review indicated that drug abuse is influenced by a variety of factors including accessibility of the drugs, knowledge and attitude towards this matter and the type of drugs used. Race, religion, peer pressure and job stress are also identified as one of the most common reasons of substance abuse.	The authors conducted a cross-sectional survey among 100 participants. The survey questionnaire contained 17 knowledge- and awareness-based questions. Statistical analysis was then used to interpret the data.	The results indicated that majority of the participants have attended or participated drug abuse awareness programs. The results also noted that alcoholism and drug addiction are genetically inherited.
Y	Vinish and Prasad (2018)	In the literature review, the main emphasis is on the prevalence of substance abuse among the adolescents, specifically in low- and middle-income nations. The existing studies further noted that use of drugs, tobacco and alcohol is increasing among Indian students.	So far in the discussion, there is no point of variation between the findings and the literature review. As indicated in the review, the findings match the data obtained from existing literatures.	From the survey conducted, the findings indicated that majority of the participants have sufficient knowledge about substance abuse and its effects. More so, the results noted that knowledge and demographic attributes have no significant correlation.

N	Alahmari et al. (2019)	The literature review of the review noted that substance abusers in Arab countries have striking attributes: male, unemployed, young and low educational attainment. Studies indicated that the average age of substance abusers in the region is 29 years old and that prevalence rate for female substance abuse is lower compared to males. In Saudi Arabia, existing studies reiterated factors such as employment and marital status, mental health, occupation, age, and education level to be correlated with substance use. Heroin was also found to be the most commonly used type of drug among adolescents.	Current findings are consistent with existing or previous data and therefore no point of variation was found or identified.	Substance addiction is found to be correlated with demographic characteristics such as education, age, criminal record, and employment status. Generally, the results indicated a change in the trends of substance abuse relative to these factors from 1993 to 2013 in Saudi Arabia, thus suggesting the need to further conduct research to determine the most suitable strategies and policies to reduce substance addiction.
N	Lo et al. (2020)	The literature review of the review indicated that adolescents and male adults are more likely to use illicit drugs. It also noted the different types and forms of substances and that tobacco, despite their adverse implications on health and wellbeing.	One variation was noted between the findings and existing studies. This is with regards to the impact of substance abuse on the user, entailing that these existing studies have a general approach in determining the impact of substance abuse but this current review highlights differences in the impact depending on the type of substance used.	The results of the review denote that there are different types of substances which lead to different levels of addiction. Further research must be done to examine how these levels of addiction can be addressed.

Y	Murah et al. (2020)	The primary aspect underpinned by existing literatures is the growing prevalence of substance abuse among adolescents. It is entailed that the age of drug abusers is declining which is concerning. The existing studies also found that substance addiction affects a variety of dimensions – social, economic, educational, psychological and even religious.	No variation is identified between the findings and the literature review.	In the findings, it is underscored that schools in Dubai need to implement effective drug awareness training programs given the high rate of drug use among students. Three factors were noted to be essential in ensuring the effectiveness of these programs including the use of multimedia and interactive programs, counseling and involvement of parents and community.
N	Saquib et al (2020)	The papers reviewed in the introduction of this review focused mainly on the prevalence of substance use and on the types of drugs being commonly used. It is additionally pointed out that there is a lack of updated information about substance use disorders (SUD) in Saudi Arabia; however, it is indicated that religion and family play an important role in protecting people from using drugs while curiosity and peer pressure are motivational factors of substance abuse.	One variation between the literature review and the findings focuses on the lack of detail regarding the role of family and religion within the context of SUD. Given the importance of these two factors in Saudi Arabia, it is important that this aspect be investigated specifically with how the parents or the family members adapt to SUD.	The results of the systematic review noted that the reasons for initiating drug use in Saudi Arabia include peer influence, curiosity, foreign travels, etc. An emphasis was also made on the various risk factors of SUD including low family income, low education attainment and unemployment.

Y	Umokoro et al. (2021)	The review pointed out that substance abuse has become prevalent in Nigeria especially among adolescents; however, a large proportion of their population lack awareness of the risks and dangers of substance abuse. At the same time, it is mentioned that there is limited research about this topic within the Nigerian context.	Descriptive cross-sectional research was performed. A total 315 students were involved in the review who came from three different schools in Sapele, Nigeria. A questionnaire was provided to the participants and descriptive statistics was used to analyze the data.	The results indicated that the adolescents primarily obtained their information about substance abuse in school and from mass media. It was also identified that peer influence was the biggest factor that influenced them to use illicit substance. Additionally, it was emphasized that schools must integrate into the curriculum education about drug abuse.
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3.4. Analytical Approach

In analyzing the literatures used, the researcher coded them based on their fit to the purpose of the review. The codes were identified in phrases (also shown in figure 4) based on whether the articles included or used the keywords used in the search process. These codes include Aspects of Substance Use, Knowledge and Awareness on Substance Abuse, Attitudes on Substance Abuse, and Substance Use in UAE. These codes were then used to offer descriptive of the results in answer to the research questions identified in this review.

In carrying out critical appraisal of the eligible literature review, the Critical Appraisal Skills Programme (CASP) Checklist was used as shown below with different versions for quantitative and qualitative papers.

Paper for Appraisal and Review: Critical Appraisal Steps for Selected Articles

Section A: Are the Results of the Review Valid?

1. **Did the review address a clearly found focused question?**
2. **Did the author/s look for the right type of papers?**

Is it worth continuing?

3. **Do you think all the important and relevant studies where included?**
4. **Did the author/s do enough to assess the quality of included studies?**
5. **If the results of the review are combined, was it reasonable to do so?**

Section B: What are the Results?

6. **What are the overall results of the review?**
7. **How precise are the results?**

Section C: Will the Results Help Locally?

8. **Can the results be applied to the local population?**
9. **Were all important outcomes considered?**
10. **Are the benefits worth the harms and costs?**

Based on the results from the use of the CASP Checklist, the literatures included for this review were ensured to be of quality and relevant to addressing the research objectives.

3.5. Advantage/s and Limitation/s

The main advantages of using a systematic literature review include limiting bias and easy delivery of required information to target audience which in this case are the users, healthcare and social workers, and support groups for substance use. In addition, the systematic literature review contributes to improving generalizability and consistency of results and increasing the precision of the results (Gopalakrishnan and Ganeshkumar, 2013). The main limitation though, according to the same author, is its reliance on the information provided in the reviewed articles. This is because there are instances wherein data or information have changed over time. In particular, the literatures reviewed from 2011 to 2016 are more than five years old and therefore information on the level of awareness and attitudes on the consequences of substance use among users, healthcare and social care workers, and support groups could have changed already due to several factors such as social, economic and technological aspects. Consequently, this could potentially have an important impact on the analysis of data and generation of conclusion.

3.6. Ethical Consideration

In carrying out this systematic literature review, due ethical considerations were observed strictly. First, in using or borrowing ideas, words, quotes, or paragraphs from other authors, they are cited accordingly. The use of quotation marks was applied to direct quotes followed by acknowledging the original author/s. The researcher also ensured that a list of all sources used are presented as a bibliography at the end of the research. Finally, the researcher considered the strict implementation of the ethical principles in selecting the

articles for review. The ethical criteria of anonymity, confidentiality, and beneficence were strictly observed for this review. If the articles are not in compliance with ethical principles and with the ethical criteria, they were excluded from the review.

Chapter 4 Findings and Discussion

4. Introduction

Out of the 31 eligible articles, 10 showcased aspects of substance use or substance use disorder, 12 discussed the knowledge and awareness on substance use, 4 presented attitudes on substance abuse or substance use disorders, and 5 were focused on the knowledge and attitudes of substance use in the Gulf states. The eligible **articles** were categorized geographically between the Middle East region and the Whole World. Majority of the reviews were carried out using cross-sectional and systematic literature review approaches.

4.1.Main Findings

This systematic literature review explored the impact of the level of knowledge and attitude patterns related to drug use disorder among users. There were 31 eligible articles identified from different countries worldwide. There were three main findings. First, there is low level of knowledge about drug use disorder. All of the examined articles under the category of level of knowledge and awareness on drug use disorder indicated a strong influence of the level of knowledge on drug use disorder on users' attitude patterns towards drug use. Second, drug use disorder to widely associated with negative attitudes such as violence risks, health problems, and mental health concerns among others. The examined articles indicated that drug use disorder has significant impact on the attitude patterns of users towards violence and drug dependence. Finally, there are partially mixed results between reviews in the Middle East region and the rest of the world because of varying factors such as mental health status, beliefs, and culture among others.

Aspects of Substance Use

Findings from this review suggests that family and social aspects are among the most significant facet of substance use. Based on the ten eligible literatures that were reviewed, substance use has significant influence on family and social problems. Findings identified the effects of substance use on family such as in terms of emotional and economic burden, distress on relationships, family instability, and guilt feelings among parents of children with substance use disorders. In addition, findings also revealed that individuals with substance use disorders have significant impact on their social functioning and this contributes to creating burden for society. Among the social problems being associated with substance use disorders include homelessness or housing instability, criminal or violent behaviors, unemployment, and high risk diseases or comorbidities among others. As such, findings from this review suggest the indication of negative trends in family, psychological, and mental problems as well as on social and cultural environment issues.

Knowledge and Awareness on Substance Abuse

Based from the review of twelve eligible literatures, findings revealed that from a general perspective, there is still lack of knowledge and awareness on drug dependence among users, the public, policy makers, and health and social care professionals. From the literatures reviewed, it was found that one of the major factors hindering the implementation of effective prevention and treatment programs is the need for more knowledge and awareness of both the risks of substance use and its consequences to individuals with substance use disorders, to their families and to the society. Yet, knowledge and awareness on substance use in the Gulf region is limited because of their religion, culture, and Islam. However, from a general perspective, findings from this

review suggests that there is a need for further research about understanding the level of knowledge and attitudes on substance abuse and drug dependence among users in order to facilitate effective interventions and rehabilitation programmes to address substance use problem worldwide.

Attitudes on Substance Abuse

Additionally, findings revealed that substance users, particularly the youth, demonstrated indifference attitudes to substance use. Based from the review, it was indicated that among the factors influencing attitudes towards substance use or abuse include socio-demographic factors like age, gender, social status, parents' backgrounds, and peer pressure among others. Moreover, the findings from this review also determined that the most common reasons influencing the attitudes of young people towards substance use include the need to relax, to become intoxicated, to keep awake for socialization or studying reasons and to alleviate depressed moods among others.

In the Gulf region, findings indicated that peer pressure, stress, curiosity, excessive free time, and affluence are the main factors impacting substance use. Some literatures indicated that there are also some favorable attitudes towards alcohol and drugs as impacted by desire for adventure, search for new sensation, and clash of generations among others. This suggests that there are mixed attitudes on substance use depending on different factors that influence users' decision making. Yet, one can argue that attitudes can be considered as one of the main predictors of substance use behavior of individuals.

4.2.Discussion

Summary of Results

RQ1: What is the definition of Drug Use Disorder as reported by the general public or users worldwide?

Findings from this review indicated a strong association between drug use disorder and attitude patterns of the different study population including the adolescents, parents, peers, healthcare professionals, and educational staff. Interestingly, drug use disorder reflects a common characteristic which is the sense of compulsion to use illicit substances on either a periodic or continuous basis in order to experience psychological effects or to avoid the feeling of discomfort of their absence. This is in line with the study of Benjamin and Chidi (2014) wherein the authors noted that drug use disorder that promotes drug dependence is recognized as the “compulsion to continue taking the drug to experience a pleasurable psychological effect and sometimes avoid discomfort due to its withdrawal”. According to the same authors, drug dependence may result to harm among individuals or the society.

Similarly, the study of Suliman (2016) indicated that the term dependence can also be referred to as addiction which can be defined as a maladaptive pattern of substance abuse that can potentially lead to clinically significant distress or impairment. As such, the same author noted that per the DSM-5, substance abuse and dependence can be consolidated into one disorder – the substance use disorder. Therefore, one can argue that having a strong desire to use illicit drugs on a periodic or continuous basis is the main concept of drug use disorder. Simply, drug use disorder is the state in which an individual becomes dependent on drugs for normal physiological functioning.

Volkow et al. (2017) argued that substance use disorder can also be a type of psychiatric disorder. For example, based on the drug use disorder identification test scores highlighted in the study of Mohamed et al. (2020), there are approximately fifty-three percent of drug users who were found to also have at least one serious mental illness. Aas et al. (2021), on a slightly similar note, claimed that individuals with mental health disorder are also likely to increase their risk for misuse of drugs.

RQ2: What is the average level of knowledge about Drug Use Disorder in the target population?

Based on majority of reviewed eligible articles, findings from this review indicated that there is still a growing gap in literature in relation to explaining the level of knowledge about drug use disorder among users. This is because of the different factors that can influence the level of knowledge of users on drug use disorder. According to NIDA (2020), while the lack of knowledge about drug use disorder was one of the most cited areas in the field, the use of drugs continues to be persistent until today.

According to Whitesell et al. (2013), adolescents are particularly susceptible to involvement in substance use because of the underdeveloped state of their brain. If this is the case, can it be argued that adolescents have average to poor knowledge about drug use disorder and its effects? In a descriptive study carried out by Vijayan and Prasad (2018), a random sampling among adolescents was conducted wherein it was found that majority has average knowledge on the effects of substance use. On another note, the study of Kulak and Griswold (2019) reported low levels of knowledge and preparedness with regard to substance use and its treatment based on the results of the screening process conducted by few primary care physicians. Moreover, Berge et al. (2015) conducted a study to assess the

level of parental knowledge and awareness relating to substance use of adolescents. In their study, it was found that the level of parental knowledge is dependent on certain factors such as age and sex of adolescents. Based on their findings, it was revealed that parental knowledge on substance use is higher among higher age and female adolescents and lower among lower age and male adolescents.

RQ3: What are the common attitudes towards drug use disorder among the study population?

Findings from this review suggests that the level of knowledge and attitudes on drug dependence have significant influence on the risk taking behaviors of drug users. Lack of knowledge on and the indifference attitudes towards drug dependence resulted to the risk taking behaviors of individuals to take drugs. This is in line with the study of Heckman et al. (2011) wherein it was found that lack of knowledge and awareness on the effects of using drugs influenced several risk-taking behaviors of users such as increasing riskiness to use drugs, risky sex behaviors, and risky health behaviors among others. On a similar note, the study of Secim (2017) indicated that drug use was found to influence the demonstration of risky attitudes of users, particularly among young individuals. According to the same author, the factors associated with the development of drug dependence include the possession of weak personality, the desire to avoid stress, and insufficient coping skills among others which are found to be determinants of risky behaviors. Correspondingly, reducing risk-taking attitudes or behaviors can be achieved by increasing knowledge and awareness of the consequences of drug dependence.

There are different perspectives on the concept of drug dependence based on the knowledge and attitudes of people involved such as the public, the users, and healthcare

and social care professionals. This entails the need to have a better understanding on the level of knowledge and attitude patterns that relate to drug dependence. For example, in a cross-sectional study carried out by Talih et al. (2018), it was found that attitude patterns of Lebanese medical students relating to substance use are mostly associated with depressive symptoms, burnout, stress, and anxiety. Correspondingly, the study of Chang et al. (2019) about the beliefs and attitudes of pregnant women relating to marijuana use indicated that there are mixed beliefs on the significance of prenatal marijuana use towards dependency on the drug. In the same study, the authors found that some pregnant women described marijuana as being neutral and safe as compared to other substances like alcohol, tobacco or recreational drugs while other pregnant women have some concerns on the potential risks of marijuana use. These findings suggest that the attitude patterns of different people relating to substance use differ based on various factors such as mental health status, beliefs, and culture among others.

Findings from this review also suggests that values have mediating roles in affecting attitude patterns on substance use. This is in line with the study of Coelho et al. (2018) wherein it was revealed that human values and affective traits contribute to predicting attitudes towards using different types of drugs. Specifically, the same authors found that excitement values and the need for affect presented positive predictive attitudes towards drug use while normative values showed negative predictive attitudes.

RQ4: How does the level of knowledge and attitude patterns related to Drug Use Disorder impact users' risk-taking behavior?

The habit theory of dependence suggests that dependence is mainly driven by “excessive goal-directed drug choice and greater sensitivity to acute adverse” (Hogarth, 2018, p.325).

As explained by the same author, their study also found that habit theory can be attributed to general cognitive deficits or task disengagement among drug users. As such, one can argue that drug dependence can be related to habit demonstrated by individuals underpin human drug dependence.

RQ5: What is the significance of the level of knowledge on the attitude patterns relating to Drug Use Disorder towards the development of initiatives in its treatment and management?

Findings from this review suggests that improving the level of knowledge and awareness about drug dependence can contribute to reducing the risk-taking attitudes of individuals with substance use disorder. Interestingly, if there is high level of knowledge and awareness on drug dependence and if there are positive attitudes towards drug dependent users, appropriate treatment and rehabilitation initiatives can be developed that can help reduce risk-taking attitudes of individuals with substance use disorder. This is in line with the study of Elarabi et al. (2013) wherein the authors noted that the level of knowledge and negative attitude on drug dependence can influence the perceptions of individuals towards substance use. In relation to this, the study of Siddiqui et al. (2016) revealed that awareness regarding substance use has a positive association with the attitudes of users towards substances. More so, the study of Mura et al. (2020) suggested that the level of awareness on drug use can aid in the development of effective drug awareness training programmes and prevention and treatment programmes that can help reduce risk-taking attitudes of individuals. Therefore, one can argue that the level of knowledge about drug dependence is highly associated with influencing drug dependence and risk taking attitudes of drug users.

4.3.Implications

In relation to the findings from this review, one can argue that there are mixed results with regard to the knowledge level and attitude patterns among the target population dependent on different factors such as age, gender, and environment. Yet, the importance of this can be reflected from a greater public health perspective since drug use disorder was found to be highly prevalent across the Middle East region and in different parts of the globe. Therefore, one can argue that drug use disorders can have greater impact on the general population particularly when taking into account both knowledge level and attitude patterns of users. As such, this underscores the importance of the development of appropriate and innovative treatment and management programmes and approaches that can be designed based on significant factors such as age, gender, level of knowledge, degree of risk taking behavior and attitude patterns.

A second implication based on the findings from this review, is associated with the need to lower or reduce risk estimates on potential drug use among the target population. This study can contribute to the provision of accurate estimation of associations between drug use disorder and potential prevalence based on increasing the level of knowledge and managing attitude patterns of the target population. Thus, future observational research is recommended wherein adolescents and parents as the target population should be prioritized.

4.4.Strengths and Limitations

These are some of the strengths of this review. First, the articles included in this systematic literature review are only those that were validated using the Critical Appraisal Skills

Programme (CASP) Checklist. In using this validation tool, drug use disorder and substance use disorder were used as eligible studies whereas other studies that did not have these topics were excluded. Second, articles that examines drug use disorders or substance use disorders in selected samples such as offenders, criminals, cohorts with mental disorders and users under treatment because these samples do not generally characterize users with drug use disorders. This increases the likely generalizability of the findings of this review

Despite these strengths, there are also some limitations to the review. The main limitation is that the articles reviewed are from all over the world. Future reviews should therefore include studies from a specific region or from either middle-income or low-income countries. Doing this can create a better analysis of the observational data generalized on a specific group. Also, there were only 31 eligible articles used in this study which may not be sufficient enough to draw definite conclusions about the impact of the level of knowledge and attitude patterns relating to drug use disorder. Finally, this review considered both substance use disorder and drug use disorder which can limit the specificity of the subject area. Therefore, future reviews should examine and analyse different categories of drug use disorders while also considering moderating link of some factors such as age, gender, and environment.

Chapter 5 Conclusions and Recommendations

5. Conclusions and Recommendations

5.1. Conclusions

The articles selected for review focused mainly on the level of knowledge and awareness about the risks and dangers of substance abuse. Majority of the articles placed emphasis on the importance of sufficient knowledge and awareness about substance abuse and its implications to health and overall wellbeing; however, in terms of the level of knowledge among the participants about substance use, the findings of these articles differ or are not consistent with each other. To mention the study of Malik, et al. (2012) noted that users have a lower level of awareness about the consequences of using illicit substances while the study of Siddiqui and Salim (2016) revealed that the participants know the context of substance abuse. On the other hand, studies of Lone and Mircha (2013) and Bhat, Rahi and Sidiq (2015) indicated that participants lack awareness or knowledge about substance abuse, the de-addiction process and even the access and availability for treatment and rehabilitation in their areas. Aside from this, the risk factors associated to substance use were also explored in these articles wherein the most common factors include curiosity, low educational attainment, unemployment and low family income. Religion and family are also found to be protective factors against substance use especially in Islamic countries like the UAE wherein use of any form of illicit substance is highly forbidden. Interventions such as education campaigns are additionally suggested by the articles, denoting that they are important in raising awareness among the people about substance use and consequently changing their perceptions, attitudes and behaviors towards it.

This review presented a discussion about the level of knowledge and attitudes related to drug dependence among users. In order to understand the concept of drug addiction and the impact of knowledge and attitudes on drug dependence among users, a systematic literature review was carried out. Findings from this study revealed that there is still lack of knowledge about drug dependence in several countries worldwide despite the interventions launched by local governments and international organizations. It was also found that there is a strong association between level of knowledge and the high level risks on the attitudes and perceptions of individuals about drug dependence. Therefore, this review concludes that there is a need for more proactive policies and programmes related to increasing knowledge and awareness of the people about drug dependence and substance use disorders in order to influence positive attitudes on reducing risk taking behaviors of individuals with substance use disorders.

5.2. Recommendations

Based on the findings from this review, the following recommendations were developed:

Develop more proactive knowledge and awareness training programmes related to drug dependence and substance use disorder

Findings from this review revealed that there is lack of knowledge about drug dependence thereby hindering the reduction of drug use. This therefore created the need to consider developing a more proactive knowledge and awareness training programmes for parents, students, educators, and health and social care professionals. According to Martin et al. (2016), training programmes such as counselling psychology in schools can aid in increasing the level of knowledge and attitude related to drug dependence, which in turn, can contribute to addressing substance use disorder as a local and public concern.

Promote family, youth, and community programmes to encourage people to engage in drug-free activities

The findings from this review suggest lack of knowledge and poor attitudes on drug dependence due to several factors such as social (i.e. peer pressure, fulfillment of sense of adventure, experimentation) and environmental (i.e. media-related influences, family behavioral patterns on substance abuse) factors. As such, promoting engagement activities such as sports events or substance use seminars and workshops at the local, regional and international levels can contribute to reducing risk taking attitudes and behaviors towards drug use. According to Abuse (2016), there were already evidences on the effectiveness of using different digital technologies and actively promoting engagement activities to addressing the needs of individuals with substance use disorder towards reducing drug use. As such, it is recommended for the launch of engagement activities to reduce drug dependence.

Policy recommendation focusing on the exploitation of school-based initiatives for preventing drug use and influencing positive attitudes among students

The findings from this review suggest that some of the indicators of drug use or misuse among the adolescents and the youth are attitudes and peer pressure. In order to encourage positive attitudes, school-based interventions such as increasing physical activity, more educational programmes about the dangerous consequences of drugs (or illicit substances) and promoting positive reinforcements are recommended to influence the attitudes of students against drug misuse or abuse. The school can also initiate school bonding activities while also promoting initiatives that foster positive parent relationships.

5.3. Reflections

With light thrown on the importance of knowledge and awareness of the consequences of drug abuse as one of the many aspects in tackling drug use disorder, it is worth mentioning that one did not expect the scarcity of literatures, qualitative or quantitative studies in that matter in the Middle East in general and in the UAE in specific. Given one's profession in the drug enforcement field , and encountering as many patients with drug use disorder as one does on a daily basis , pushed the writer into the thought of the availability and abundance of relative studies and reviews. Needless to mention the writer's humble skills in critical appraisal and literature reviewing ,that has only added to the level of difficulty in collecting data in addition to being a novice researcher in the field of addiction and drug use disorder . Yet the writer was taught by the most elite professors about constructing review articles ,and gained a handsome share of experience with academic writing during the Masters program , by teachers who enabled the writer with all the theoretical and practical understanding of this intricate science of addiction. The faculty aided with all the possible tools known to the writer previously, and those that were unknown until was trained by professionals, to whom the writer bears great respect and appreciation. Time management was of the essence , and if it was not for Allah, and for the understanding and compromise of superiors at work and parents and family at home , none of this would have been possible . One has definitely grown on many aspects, and the last two and a half years have definitely changed one's prospective towards whom the writer once called addicts and now refers to them as patients. The writer is adamant on continuing to learn more and support those patients with more papers in the same field , with aim to help them and help

decision makers understand and appreciate their disease and develop efficient programs and tools to help them thrive as productive , self-sufficient individuals .

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Appendix

Table 1: Awareness of negative consequences (categorized geographically)

Reference	Locale	Methodology	Population	Results
MIDDLE EAST STUDIES				
Malik et al. (2012)	Pakistan	Cross-sectional Study	Adult population	<ul style="list-style-type: none"> • Higher among non-users as compared to substance users
Bhat et al. (2015)	Kashmir Valley	Cross-sectional Study	College students	<ul style="list-style-type: none"> • Insufficient awareness • drug abuse triggered by mental health disorders
Siddiqui and Ali Salim (2016)	Saudi Arabia	Cross-sectional Study	Secondary School Students	<ul style="list-style-type: none"> • Majority have sufficient awareness on substance abuse • Non – Saudis have positive association with awareness • Drug abuse is common but not addressed accordingly
WORLD STUDIES				
Chakravarthy et al. (2013)	Global	Qualitative Study	Family School Community	<ul style="list-style-type: none"> • Risk factors associated with substance are mitigated by increased knowledge • Increased awareness aids in intervention and

				treatment approaches
Njoroge (2017)	Global	Systematic Literature Review	University Students	<ul style="list-style-type: none"> considerable level of knowledge Drug use is perceived as social norm among students
Green et al. (2011)	San Diego, CA	Interview Study	Parents Youth Public Service Sectors	<ul style="list-style-type: none"> There is a gap in substance use studies

Table 2: Attitude Patterns

Reference	Locale	Methodology	Population	Results
Alhyas et al. (2015)	United Arab Emirates	Qualitative Study	Adolescents	<ul style="list-style-type: none"> Relationship with parents, peer pressure, religion, and drug accessibility are main factors The level of knowledge depends on age group
Elarabi et al. (2013)	Abu Dhabi, UAE	Quantitative Study	Public Parents Youth	<ul style="list-style-type: none"> Religiosity is the primary cause of the weakening of substance addiction Attitude of experimentation leads to substance use and abuse
Alqashan (2017)	Kuwait		Youth	<ul style="list-style-type: none"> Significant impact on the

				<p>influence of risk factors of substance use</p> <ul style="list-style-type: none"> • No relationship exists between acculturation, substance use, and attitudes of users towards drugs
Heckman et al. (2011)	Texas, United States		College students	<ul style="list-style-type: none"> • Gender, class enrollment, and baseline substance use are positively correlated with attitude patterns towards drug use disorder
Divva et al. (2018)	India	Survey Study	Adolescents	<ul style="list-style-type: none"> • Positive relation between awareness and attitude patterns
Boekel et al. (2013)	Global	Systematic Review	Healthcare Professionals	<ul style="list-style-type: none"> • Negative attitudes towards drug use disorder patients • Lack of education and training