



Original Article

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Assessment of Attitude Knowledge and Skills among Senior Dental Undergraduates on Substance Use Disorder (SUD)

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ABSTRACT

The dental visits are a potentially valuable opportunity for screening patients with substance misuse and potentially assisting. However, it is not clear if there is a systematic approach in training general dental practitioners to gain competencies for screening and referral in such cases. We surveyed dental interns to learn about their readiness and understand their training on patients with substance misuse disorder. A 21- items questionnaire was formulated and then distributed among dental interns at KAUFD. The participants filled the questionnaire at the start of dental seminars organized by the intern office. A total of 130 interns completed the questionnaire. Drugs were perceived harmful and problematic in the region of 83% of participants. However, 52% of the participants did not believe that crimes were related to drug use. It was believed that most drugs have oral manifestations and dental practitioners should be trained to identify patients with SUD and modify the treatment plan accordingly. Participants believed that screening skills should be introduced to undergraduate students in their 4th and 5th years. Dentists reflect the understanding of the importance of addressing substance use however the competencies of screening and referrals are lacking in their training. Dealing with the global issue of drug abuse can be supported by including training as part of the curriculum and educating dental graduates and postgraduates on screening and basic interventions of patients with SUD.

Key words: *Substance use disorder, Dental screening, Perception, Competencies*

INTRODUCTION

The use and misuse of tobacco, alcohol, or illicit drugs represent a global public health problem that may result in more death or disability rates than other known health conditions [1, 2]. This is mainly because these users are not diagnosed or offered the needed support right [3]. Substance use disorder is the inability to have voluntary control over substance use resulting in negative outcomes leading to poor health and disrupted social functioning. Drug use remains at alarming rates among university and college students, this can negatively affect lives and lead to chronic complications [4]. Moreover, drugs of many pharmacological classes cause changes in social behavior, however, they can differ depending on a variety of situations drug, individual differences, and environmental conditions [5]. With the rise of the opioid epidemic and the use of novel psychoactive substances, awareness regarding substance use and dependence has been globally increased in the past decades along with methods of screening and early intervention [6].

Health care professionals' visits constitute a valuable chance to screen for drug use as many people's visits to the dentist's office appear to be the first point of contact with a health care professional. Studies revealed that an

estimated 42% of adults in the United States saw a dentist, with 23% seeing no other healthcare practitioner during the year [7]. This could be an indirect way of screening and identifying patients with substance abuse disorders and facilitating an appropriate referral path. Moreover, oral health is also problematic and presents its challenges among the population of patients with substance abuse, and frequent manifestations are found which are distinct to each drug consumed [8]. Candida, angular cheilitis, median rhomboid glossitis, frictional hyperkeratosis, candidal leukoplakia, xerostomia, gingivostomatitis, hairy tongue infections, aphthous stomatitis, herpes simplex, and bruxism are some of the most prevalent oral alterations associated with drug use [9]. Therefore, proper education and training on dental screening for SUD is essential at different stages of dental training [10, 11]. Increasing awareness among dentists and articulating their responsibility in the identification of possible SUD patients is critical. This is to avoid any potential contraindications during dental treatment, oral and craniofacial symptoms, and provide the necessary dental treatment and referral routes to specialists for counseling and the right level of care. Another dental issue with this demographic is polypharmacy. Because pain relievers and anaesthetics are frequently provided for dental operations, there is a risk of drug-seeking or adverse drug reactions. Therefore, these patients are considered complex when planning and receiving dental treatments as they may require a modified pain control regimen. They also could present high caries risk, non-cariou tooth surface loss, soft tissue damage, with high susceptibility to periodontal disease even with drugs taken to treat their dependence like methadone. However, due to the lack of quantitative reporting, routine examination, and referral protocols, recognizing and treating those patients presents significant obstacles for healthcare practitioners. There is also limited information on the dentist's role in screening for substance abuse and the necessary competencies required as part of their professional responsibilities [12]. Although the literature emphasizes the relevance of their position, the actual training, screening procedure, and application are still challenging [13]. In the current study, a survey was conducted on general dentists to learn more about their level of competency, practice patterns, experiences, and attitudes about drug use screening and therapies. The goal was to examine the current potential for the dental practice to have an established role in recognizing and assisting patients with substance use disorders, as well as identifying the possible impediments for the integration of these services within the dental settings. This study is the first to assess the attitudes of Saudi dental practitioners toward screening and interventions for possible illicit drugs, and it adds to the expanding body of knowledge about preventative measures in dentistry.

MATERIALS AND METHODS

This was a descriptive cross-sectional questionnaire survey. Dentists surveyed in this study were fresh graduates (dental interns) with BDS in dental medicine and surgery. The study was conducted in agreement with the Research Ethics Committee of the Faculty of Dentistry in KAU (51-12-19).

A 21-item questionnaire was the primary mean of data collection. It was developed by the authors after a thorough review of the literature and was peer-reviewed by the investigators. 200 questionnaires were distributed among dental interns at KAU and were asked to fill in before dental seminars were organized in their department. 130 participants filled and returned the questionnaire, the response rate was 65%.

The questionnaire was divided into five sections: demographic details (anonymous), knowledge about abusive drugs, competency in identifying patients with SUD, perception of the drug problem and drug abusers, and education survey about the importance of addressing substance use and screening skills in undergraduate education.

Statistical analysis

The data were displayed in percentages and compared using the Chi-square test and the Fisher exact test. The significance level was set at 0.05.

Statistical analysis was performed with IBM® SPSS® Statistics Version 20 for Windows

RESULTS AND DISCUSSION

A total of 133 participants were included in the study and completed the questionnaire. All participants (100%) were interned dental students who have BDS in dental medicine and surgery and practicing as general dentists. A major proportion of the 70 % was female and 27.7% were male interns.

Knowledge about the substance of abuse

Participants were asked to select all recognized drugs. Cocaine was the most recognized drug by the participant 74 (56.9%) followed by Heroin 73 (56.2%). 59 (45.4%) selected Alcohol, while 42 participants (32.3%) were familiar with all mentioned options. 37 (28.5%) answered Khat, 35 (26.9%) answered Methamphetamine, 27 (20.8%) answered Cannabis, 14 (10.8%) answered Ecstasy. There was a statistically significant difference ($p < 0.001$).

Among the total number of participants, only 33 (25.4%) told that the substance use has oral manifestations, 55 (42.3%) gave a negative response, and 41 (31.5%) were unsure about the effect of the drugs on the oral cavity. 1 answer (0.8%) was missing. There was a statistically significant difference ($p < 0.001$) (Error! Reference source not found.).

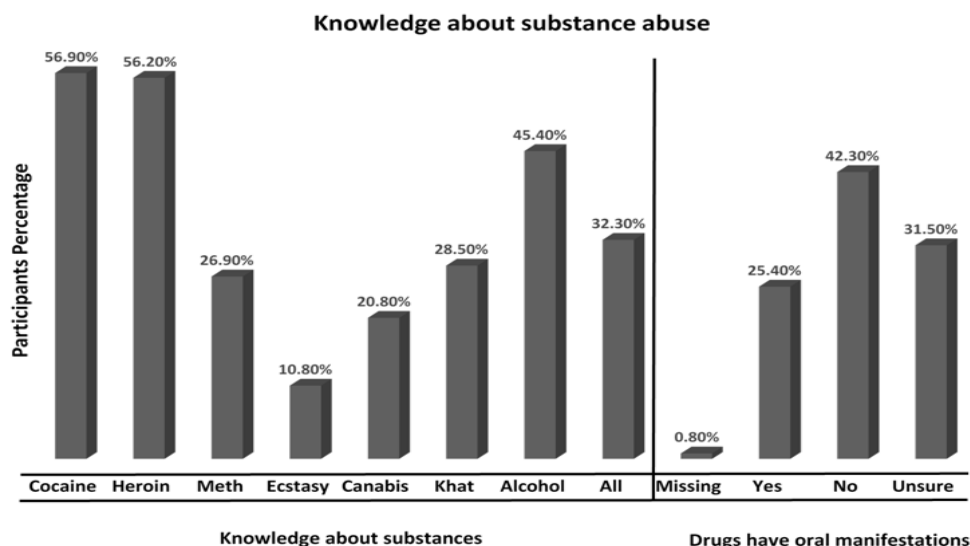


Figure 1. Knowledge about abusive substances and their oral manifestations.

Perception of substance abuse problem

Regarding substance abuse, most of the participants 113 (87.6%) considered it problematic in their region, with only 15 (11.6%) denying the problem and 1 (0.8%) was missing answers. There was a statistically significant difference ($p < 0.001$). Moreover, almost half of the study participants, 69 (53.1%), mentioned that the most age group at risk of SUD is 20 and above, while 64 (49.2%) thought that the age group 15-20 years old is vulnerable with statistically significant difference between the two groups ($p < 0.001$).

On the other hand, 76 (58.5%) of the study participants perceived individuals with SUD as criminals while, 41 (31.5%) of the participants denied that, and 7 (5.4%) were unsure. However, 86 (66.2%) participants considered them victims while 24 (18.5%) did not believe so and 15 (11.5%) answered by Unsure. On the other hand, when participants were asked if they believe the crimes are related to substance abuse in their region, 57 (44.5%) answered by Yes, 67 (52.3%) answered by No, while 4 (3.1%) was missing answers with statistically significant difference ($p < 0.001$). Regarding the substances, 58 (44.6%) of the participants denied that all drugs and substances are equally harmful and lead to addiction, 44 (33.8%) believed so and 21 (16.2%) were unsure. while 7 (5.4%) was missing answers, there was a statistically significant difference ($p < 0.001$) (Table 1).

Table 1. Perception of substance use problem among senior undergraduates

Perception of the substance use problem	Yes	No	Unsure	Missing
Do you believe substance use is problematic in your region?	87%	11.6%	0	0.8%
Do you believe patients with SUD are criminals?	58%	31.5%	5.4%	0
Do you believe patients with SUD are victims?	66.2%	18.5%	11.5%	0
Do you believe most crime in your region are related to substance use?	44.5%	52.3%	0	3.1%
All substances and drugs are equally harmful and lead to substance use disorder?	44.6%	33.8%	16.2%	5.4%

Perceived role of the general dentist towards SUD

Among the total number of participants, 25 (19.2%) answered by (Screening), 6 (4.6%) answered by (Treat and be aware), 14 (10.8%) answered by (Communicate), 21 (16.2%) answered by (Referral), 88 (67.7%) answered by (All), while 1 (0.8%) answered by (Others) with statistically significant difference ($p < 0.001$) (Error! Reference source not found.).

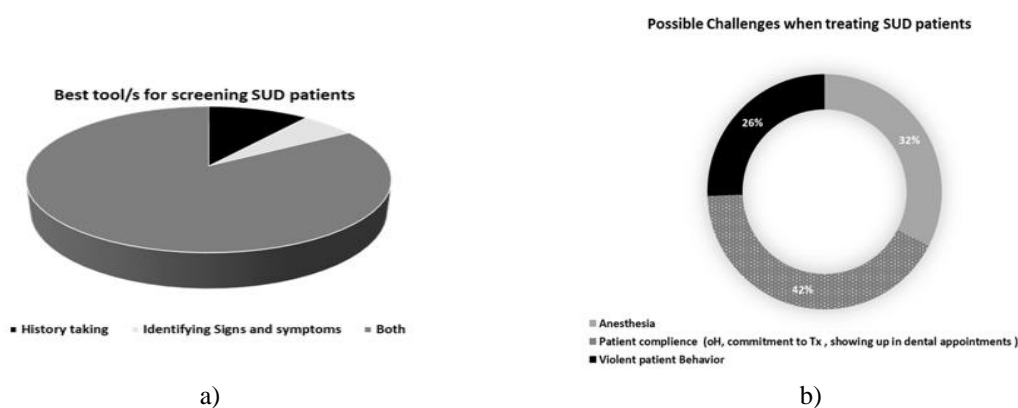


Figure 2. Role of a general dentist towards SUD patients.

Exposure to patients with SUD

Among the total number of participants, 44 (33.8%) believed they have been exposed to patients with SUD, 67 (51.5%) believed they did not. However, 4 (10.8%) were Unsure, while 5 (3.8%) was missing answers with statistically significant difference ($p < 0.001$).

Among those participants who believed they were exposed to SUD patients, 4 (9.1%) mentioned that they were exposed to them in private practice, while 30 (68.2%) said (KAU), 10 (22.5%) answered public practice.

Competency to identify and treat patients with SUD

Among the total number of participants, 117 (90%) thought they should be concerned about identifying SUD patients, 3 (2.3%) believed they should not, while 9 (6.9%) were unsure, and 1 (0.8%) missing answer ($p < 0.001$) (Table 2).

Table 2. Competency to identify patients with SUD

Competency to identify and treat patients with SUD:	Yes	No	Unsure	Missing
General Dentists should be concerned about identifying dental patients on drugs	90%	2.3 %	6.9%	0.8%
Are you confident in screening SUD patients through focused history taking	35.4%	30%	30.8%	3.8%
Does patients with SUD require any modification in the dental treatment planning	90%	4.6 %	4.6%	0.8%
Do you think there will be challenges during regular treatment of patients with SUD	81.5%	10%	8.5%	0
Are you confident to provide options for cutting down and cessation plan	32.3%	27.7%	35.4%	4.6%

The majority of the participants agreed that the best tools used by the dentists to identify patients with SUD are both: History taking and identifying SUD signs and symptoms 102 (78.5%). However, 13 (10%) answered (History taking) and 7 (5.4%) answered (Identifying the signs and symptoms) (Error! Reference source not found.). On the other hand, only 46 (35.4%) were confident in screening SUD patients through focused history taking, while 39 (30%) answered by Not confident, and another 40 (30.8%) were unsure. There were 5 (3.8%) missing answers, ($p < 0.001$) (Table 2).

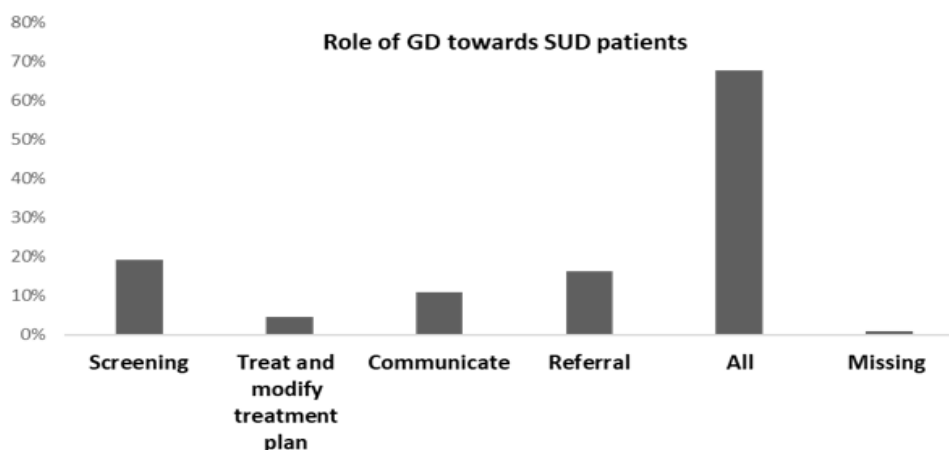


Figure 3. Best tools to be used by dentists for screening SUD patients and possible challenges while treating SUD patients.

A number of 117 (90%) of the participants agreed that SUD patients require modification in the treatment planning, 6 (4.6%) thought that no modifications were needed while other 6 (4.6%) answered unsurely, and 1 (0.8%) was missing answer ($p < 0.001$). However, 106 (81.5%) participants believed that treating SUD patients would be challenging, 13 (10%) did not believe so, and 11 (8.5%) were unsure ($p < 0.001$) (**Table 2**). Among 106 participants who believed that the treatment will be challenging, 43 (40.5%) gave the following expected challenges in treating patients with SUD:

Difficult with anesthesia and pain control (32%), compliance (OH and commitment to Tx and dental appointments) (42%), violent patient behavior (26%).

Among the total number of participants, only 42 (32.3%) were confident to provide options for cutting down and cessation plan, 36 (27.7%) were not confident, while 46 (35.4%) were unsure, and 6 (4.6%) were missing answers ($p < 0.001$) (**Table 2**).

Perceived importance of including SUD in undergraduate education

Among the total number of participants, 111 (85.4%) believed it is important to teach SUD to dental undergraduates, 14 (10.8%) answered by No, while 5 (3.8%) were missing answers ($p < 0.001$). 84 out of 111 participants who believed SUD should be included in undergraduate education mentioned under which topics it should be taught as follows: Oral medicine (30, 35.7%), Pharmacology (28, 33.3%), public health or behavioral management (18, 21.4%), Oral diagnosis (8, 9.5%). Those participants also thought that the best undergraduate level to teach SUD is as follows: 3rd preclinical year (11, 9.9%), 4th year (47, 42.3%), 5th year (32, 28.8%), 6th year/ Internship (21, 18.9%) (Error! Reference source not found.).

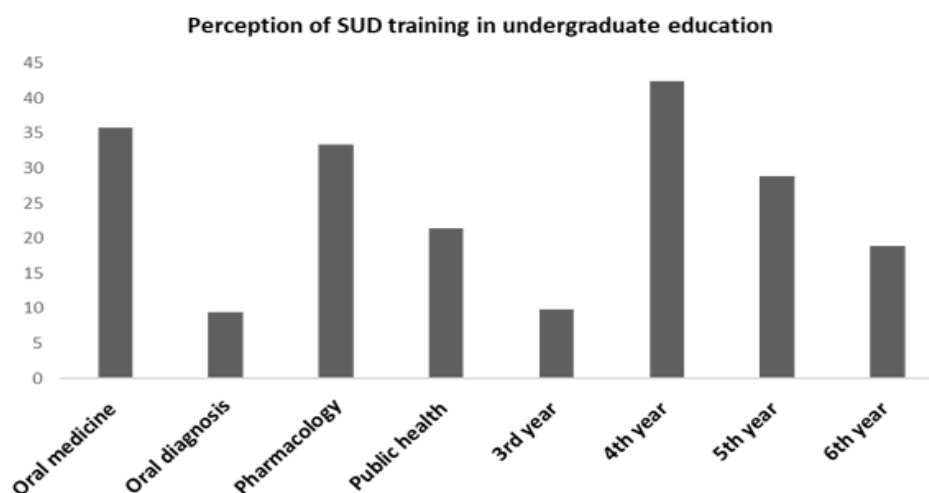


Figure 4. Perception of SUD training in undergraduate education

Competencies and training relevant to screening for substance misuse disorder among general dental practitioners remain primitive. Many studies and literature have mostly highlighted the oral manifestations relevant to drug use and indicated the importance of utilizing the dental setting as a screening opportunity. Oral health implications, treatment modalities, counseling, and motivational interviewing techniques are all tools that can be incorporated in their curriculum and during training general dental practitioners to be utilized during the sessions [14]. The current survey reflected the readiness of interns to develop competencies in screening patients with substance misuse disorder. Interns have expressed interest in learning about substance misuse disorder and know what screening methods can be utilized as well as referrals pathways made available.

In the current study, the participants were general dentists at their internship training with an average age of 24 years. This population was selected as it represents the majority of practicing dentists in Saudi Arabia. It has been reported that 16887 licensed dentists are operating in the kingdom, with the vast majority of them officially registered as general dentists (70.27%) [15]. Of those participants showed female predominance (70%), which also represents the population of general dentists in Saudi. It was found that female dentists have a much larger percentage of general dentists than male dentists (79.71 % vs. 64.80 %) [15]. However, there is a lack of evidence regarding the knowledge and perception of Saudi dentists regarding the screening and identification of SUD patients. The research results suggest that there is a need to develop specific training programs to help develop competencies and learn on how to implement methods of interventions and what pathways of referral are made available with patients with substance use disorder.

When asked about their knowledge of the most commonly abused illicit drugs it was found that cocaine was the most recognized drug followed by heroin. Cannabis and ecstasy were least known, this is not consistent with results indicating a high use of cannabis. Very little literature was published on the subject in Saudi and indicated that of the substances abused, cannabis and amphetamines are the most common ones used in Saudi, other substances are gradually emerging and slowly becoming popular, however trends of use change with time [16, 17]. Regarding exposure to SUD patients, only a few participants reported encountering those patients in their practice, and mainly in university dental hospitals. As the recent scientific findings suggest an increase in the prevalence of substance usage and the number of drug and alcohol treatment clinics in Saudi, this low exposure of SUD patients may indirectly reflect the lack of dentists' training on identifying the oral lesions and behavior associated with this disorder [18].

The findings also suggest that attitudes toward drug addicts are not exaggerated. Almost half of the participants believed that they are criminals with crimes being associated with drug abuse but they also believe addicts are victims of unpleasant social situations. The relation between criminal record and substance use disorder has been established in previous reports. The findings revealed that people with criminal records had significantly more occurrences of stimulants abuse, mainly alcohol, and milder substances like cannabis are frequently linked to a criminal record [19, 20]. However, a high percentage of participants agreed that substance abuse is considered problematic in Saudi Arabia. The results also showed that the perception of the age group at risk varied greatly between participants who reported that its either 20 years old and above or between 15-20 years old. This does not coincide with the latest trends in drug use disorder as reports showed that opioid and alcohol abuse were more common among older patients, but recently, opioid and alcohol use disorders were more common among younger patients [19].

Because several of these compounds might have life-threatening side effects, broad toxicology knowledge is useful in diagnosing acute intoxication and overdose; nevertheless, many of these substances do not elicit traditional overdose syndrome [21, 22]. However, drugs are associated with serious oral health problems including decay, regressive alterations of teeth, mucosal irritation, and dryness of the mouth [23]. Moreover, oral health care may be propagated for positive effects in recovery from drug abuse. Unfortunately, only a few participants in this study believed that drug abuse has oral manifestations which reflect the lack of knowledge regarding the connection between substance misuse and oral health. On the other hand, most of them were concerned about identifying SUD patients and believed they lack the training and knowledge about screening those patients. This indicates the potential of readiness to utilize the setting and screen for the patient given the right training and a clear referral route was indicated. Moreover, the majority knew that SUD patients require modifications in the dental treatments and referrals. It was reported that the main challenge would comply with dental care and attend appointments then pain control and management [5]. Pain management is a serious issue when providing dental treatment for substance abusers, as they usually relate the quality of dental care to the effectiveness of pain control. Administering regular local anaesthetic containing adrenaline to the patient who is "high" especially with methamphetamines could be lethal. If LA is administered within six hours of the last MA hit it could lead to

myocardial infarction, serious hypertensive emergencies, or cerebrovascular incidents [24]. Therefore, when a local anesthetic is required for dental treatment of substance abusers, a product that does not contain a vasoconstrictor should be utilized. Moreover, substance abusers, like those who use MA, cocaine, heroin, prescription pain relievers, and so on, may claim to be allergic to codeine to access a heavier narcotic like morphine, in this situation, NSAIDs should be prescribed [24]. Therefore, the responsibility of the dentist in identifying dental patients in order to avoid any potential contraindications during dental treatment, oral and craniofacial symptoms, and providing necessary dental treatment and referral to professionals for counseling is critical [1].

The participants identified common pathways that can be utilized as a means of recognizing the symptoms and signs, especially during history taking. This highlights the importance of tailored programs and short courses that can increase the confidence of the graduate to not only identify but also address the problem and manage cases in deciding with referrals and also prescribing the right dose and medication especially with pain management or not prescribing to these vulnerable population [2, 24]. Moreover, the majority of participants expressed the importance of receiving the education and training on the topic identifying the stages which include both basic and clinical years of their dental training. In earlier years, many dental schools established their programs on the outline provided by the Pharmacology and Therapeutics Section of the American Association of Dental schools where nicotine and tobacco, regulated substances, and illegal drugs were all covered in those programs. However, these principles are outdated with the current rise of novel psychoactive drugs and changes in use. For today's dentists, a more updated approach goes beyond covering knowledge about the topic but also reinforces to participate in a more active role in screening, prevention, intervention, and referral [25]. Training in the basic years can include identifying how these drugs work especially with pain, oral health manifestation, and oral pathology. Later training can focus on methods of screening and measures that are validated and published to be utilized for quick and easy screening in health care settings [26]. Other training can also be a focus on what routes of referral are made available and what dialogue can be used to talk to the patients about sensitive issues [2].

These findings underscore the significant importance of the opportunity to play a key role as a dentist and health care professionals to identify and assist help a vulnerable population and aid in facilitating the path for the best health care they need to receive. Internationally is found that only 10% of substance misusers can access available specialty substance use treatment programs, these findings are still not clear in regards to Saudi but dental settings can be a venue to join and help which will later save lives. Further studies and program development are highly needed in this area and further research is required to be able to articulate what needs to be provided to this population enable to provide them with the right support and the appropriate level of care.

CONCLUSION

In conclusion, the understanding of the drug of abuse as a problem is reflected among KAU dentists. The scope of addressing the importance of utilising screening in the dental office to introduce early interventions is still in early stages. However, developing training programs to ensure competencies of screening and referrals can be introduced at early stages. Also, the potential role of dentists among the health team with an active role in addressing drug of abuse can be supported by including a multidisplinary training as part of the curriculum and educating dental graduates and postgraduates on screening, referrals and basic interventions of patients with SUD.

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