

The knowledge of clinical dental students on the oral effects and consequences of cannabis use: implications for curricular modification

El conocimiento de los estudiantes de odontología clínica sobre los efectos orales y las consecuencias del consumo de cannabis: implicaciones para la modificación del plan de estudios

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Abstract

Background: This preliminary study aimed to assess the knowledge of clinical dental students and interns on the pathological and management consequences of cannabis use. Additionally, the study aimed to understand perceptions and current practices of clinical dental students with respect to offering cessation advice to patients using cannabis.

Methods: Data were collected from clinical dental students, with the use of a 17-item questionnaire developed de novo for use in this study at a dental school in the English-Speaking Caribbean. A target population, of 122 clinical students, was identified, and paper-based surveys were sent to all students.

Results: There was an overall response rate of 98% (n=120). Most students (70%) enquired about patients' cannabis use as part of medical history while only 84% of this percentage documented this information in the patients' notes. Reported knowledge on oral health consequences of cannabis was significantly lower in student year groups 3 and 4 (23%) compared to Year 5 students and interns (35%). Almost all students (97%) believed that dental practitioners should play a role in educating patients about the general health consequences of cannabis use. Most respondents (93%) believed that they did not have sufficient knowledge to give cannabis cessation advice. Most (88%) reported a lack of training with cannabis cessation advice.

Conclusion: The results of this study have implications for both pre-clinical and clinical curricular change related to the multi-disciplinary health care management of patients who use or abuse cannabis.

Key words: Cannabis, dental students, cessation advice, curricular change.

Resumen

Antecedentes: Este estudio preliminar tenía como objetivo evaluar los conocimientos de los estudiantes de odontología clínica y los internos sobre las consecuencias patológicas y de gestión del consumo de cannabis. Además, el estudio pretendía comprender las percepciones y las prácticas actuales de los estudiantes de odontología clínica con respecto a la oferta de consejos para dejar de consumir cannabis a los pacientes.

Métodos: Se recogieron datos de estudiantes de odontología clínica, con el uso de un cuestionario de 17 ítems desarrollado de novo para su uso en este estudio en una escuela de odontología en el Caribe de habla inglesa. Se identificó una población objetivo, de 122 estudiantes clínicos, y se enviaron encuestas en papel a todos los estudiantes.

Resultados: La tasa de respuesta global fue del 98% (n=120). La mayoría de los estudiantes (70%) preguntó sobre el consumo de cannabis de los pacientes como parte de la historia clínica, mientras que sólo el 84% de este porcentaje documentó esta información en las notas de los pacientes. Los conocimientos declarados sobre las consecuencias del cannabis para la salud bucodental fueron significativamente menores en los grupos de estudiantes de los años 3 y 4 (23%) en comparación con los estudiantes del año 5 y los internos (35%). Casi todos los estudiantes (97%) creían que los odontólogos deberían desempeñar un papel en la educación de los pacientes sobre las consecuencias del consumo de cannabis para la salud en general. La mayoría de los encuestados (93%) creía que no tenía conocimientos suficientes para aconsejar sobre el abandono del cannabis. La mayoría (88%) informó de la falta de formación para dar consejos sobre el abandono del cannabis.

Conclusión: Los resultados de este estudio tienen implicaciones para el cambio curricular tanto preclínico como clínico relacionado con el manejo sanitario multidisciplinar de los pacientes que usan o abusan del cannabis.

Palabras clave: Cannabis, estudiantes de odontología, consejo de cesación, cambio curricular.

Introduction

The Government of the Republic of Trinidad and Tobago, in 2019, decriminalized the use of cannabis¹. Specifically, individuals could possess up to 30 grams of cannabis for personal use. Furthermore, households could cultivate a limited number of cannabis plants for personal use. In the Trinidadian context, cannabis could be used both medicinally or recreationally, however, the act provides no distinction between these. While there is no current knowledge on the use of cannabis for medical purposes in Trinidad and Tobago, there is evidence of the prevalence of recreational cannabis use. A six-month prevalence rate of 13% for cannabis use was found in a cohort of undergraduate students of the Trinidadian campus of the University of the West Indies². A study on the attitudes of persons within a Port-of -Spain suburb on persons who abused drugs, found that 36.1% of respondents of the study had themselves used cannabis at least once³. Despite the recent legislative change, attitudes of persons in Trinidadian society remain one of negativity for those persons who use cannabis³. Change in the legislative framework regarding the use of cannabis could potentially increase the prevalence of recreational drug use in this jurisdiction that is not openly discussed with health care professionals.

In the dental setting, patients who use or abuse substances such as cannabis can complicate history taking, modify the presentation of disease, reduce the effectiveness of local anaesthesia, and interfere with compliance to treatment recommendations and instructions for oral care⁴. Just as dental professionals take an active role in providing tobacco cessation advice to patients, dentists as health care providers should be equipped with the knowledge to facilitate conversations with patients about cannabis use and its associated risks on both oral and general health⁵. Furthermore, patients at risk for addictive behaviours should be recognized and appropriate referrals made to medical personnel. In the United States, the Commission on Dental Accreditation includes as an educational standard (Standard 2-24e) for the training of dentists, management as it relates to the patients that use or abuse substances such as cannabis. No such standards are mentioned in the documentation of the Caribbean Accreditation Authority as it relates to educational standards for dental schools. A review of the curriculum of the sole dental school in the country, The University of the West Indies, School of Dentistry (SoD) does not explicitly cover the management of patients who may use cannabis in any form.

Current literature examines the knowledge, attitudes, and behaviours of health care workers in general as it relates to the use of medical cannabis use⁶. Very little is known about the perceptions of dental professionals towards patients who engage in recreational cannabis

use. Furthermore, research is lacking on the professional interactions between dental clinicians and patients as it relates to documentation of cannabis use and conversations on cessation. This study aims to primarily determine if dental students, at the UWI-SoD, have any knowledge on the oral and general health effects of cannabis usage. Secondly, the study aims to ascertain what, if any cessation advice is given to patients by dental students at any time during dental management or if modifications are made to treatment based on the knowledge of cannabis use by patients and what are the limitations perceived by students as barriers to giving cessation advice to patients who are users of cannabis.

Methods

Before the start of the study, ethical approval was granted by the St. Augustine Campus of The University of The West Indies, Research Ethics Committee. (Reference No. CREC-SA.0085/11/2019) and permission granted by the Registrar of the campus. A survey instrument was developed prior to the start of the study and subjected to face validity by graduate dentists and educational specialists. The questions on this de novo instrument were reviewed several times to ensure clarity in terms of language and content relevant to dental students. The 17-item, paper-based, survey instrument was administered to clinical students (Years 3 through 5 and dental interns) over a 2-month period in February and March 2020. At this research site internship is considered postgraduate training in general dentistry and interns have been classified as students for the purpose of this study.

The instrument contained 10 dichotomous closed-ended questions (yes/no), 3 open-ended questions, 1 multiple response question, with the remainder of the items eliciting demographic information, namely, age, gender, and year of study. The dichotomous closed-ended questions were intended to determine the students' knowledge of common oral problems associated with cannabis use and the perceptions and attitudes of the students on the role they could play in providing cessation and health advice related to cannabis use. All clinical students and interns of the school were approached directly by one author (MT).

Before deployment of the survey, an explanation of the aims of the research and the responsibility of research subjects was discussed with all potential respondents, and written informed consent was gained from those interested in taking part in the survey. Data was entered and analysed using Statistical Package for Social Sciences (SPSS) Version 28 (IBM, Chicago). Frequency distributions were used to analyse data. Cross tabulations and independent chi-squared tests were used to examine limitations to giving cannabis cessation advice to patients by students.

Results

There were 120 respondents (98% response rate) out of the target population of 122. The majority respondents (81%) were female, while the remaining (19%) were male. Most respondents (30.8%) came from the final year group (Year 5), while interns and Year 3 students each accounted for 25.8% of respondents. Students in the fourth year of training accounted for only 17.5% of total respondents.

Most (70%) of the respondents reported that they specifically enquire about a patient's cannabis history while 84% reported this information is then reported in the patient's clinical notes, either in the area dedicated to history taking or within a clinical note. A small percentage (7.5%) of students agreed they possessed sufficient knowledge and training to offer advice to patients on cessation of cannabis use or arrange for appropriate follow-up.

Only 24% of respondents in the lower clinical year groups (Year 3 and 4) were able to list at least one or more oral pathologies associated with cannabis use, versus 35% in the higher clinical years (Years 5 and interns). Most students (> 50%), across all clinical years, were unaware of any oral pathologies associated with cannabis use. Of those students that were aware of the use of cannabis causing oral pathologies, most of the pathologies described were: xerostomia, periodontal disease, oral cancer, pigmentation of the oral mucosa, and smoker's palate. Across all year groups, 40% of students did not attribute cannabis use to a reduction in the effectiveness of local anaesthesia, with Year 3 students (19.2%) contributing to most of this overall percentage.

In the context of patient education, dental students were more likely to communicate the oral consequences of cannabis use (60%) versus the general health consequences (12.5%). This aligns with the beliefs of clinical students that dental professionals should play a role in educating patients about the oral consequences of cannabis use (96.6%). Most students (88.3%) did offer cessation advice to users of cannabis despite 93% of all students stating that they had insufficient knowledge to give meaningful cannabis cessation advice. Of those that did offer advice, 11.7% of these students used strategies that are often used for tobacco cessation. When students were asked to identify limitations, other than knowledge or training, in providing cessation advice to patients the major limitations were offered: lack of time during the clinical session (65.8%), patients being only interested in dental treatment (59.2%), perceptions that patients will be not compliant (45.8%), lack of appropriate referral services (47.5%), lack of awareness that dental professionals should be giving such advice (38.3%).

When limitations to giving cessation advice were examined significant differences were found between the limitations of lack of training*lack of awareness that dentists could give this type of advice ($p=0.01$) and between the limitations in the lack of training*appropriate referral services($p=0.08$). When cross-tabulations and independent chi-squared tests were performed to determine differences between year group and stated limitations, there were insignificant differences between year group*patients not being receptive to such advice ($p=0.21$).

Discussion

Much of the research concerning the attitudes, knowledge, and belief of health care professionals regarding cannabis use amongst patients have examined cohorts of medical students, general medical practitioners, medical specialists, pharmacists, and nursing practitioners⁶⁻⁸. Research has also focused on the views of these professionals as it relates to the use of medical cannabis use⁹. This study is particularly timely since recent legislative change has the potential for an increase in the recreational use of cannabis in the general population with an associated increase in users of cannabis seeking dental care¹⁰.

As health care practitioners, dentists must be able to not only identify risk factors contributory to pathology within their specific specialty area but must be cognizant of general health effects of cannabis use, be confident to have conversations with patients about cannabis use and be able to make referrals to medical practitioners if they perceive that patients may benefit from such. Just as tobacco cessation counselling in dental settings is consistent with the shift from management of dental disease alone to holistic management of health with a focus on prevention, there is a role for dentists as part of interprofessional teams that assess substance abuse risk^{11,12}. The perceptions of dental students of such expanded role as health care professionals in this present study are ambiguous since 96.6% of students believed that they had a role to play in educating patients on the oral consequences of cannabis use but only 12.5% were likely to communicate the general health consequences of cannabis use.

Dentists must be able to offer specific and targeted patient counselling as it relates to diagnosed oral pathology associated with cannabis use. There is concern however that this studied group could adequately communicate risk associated with cannabis use to various oral pathologies since more than 50% of students were not aware of any pathologies associated with cannabis use. Dental professionals must also be aware of any modifications required during dental management of patients who use or abuse cannabis-related products¹³⁻¹⁵. While most surveyed students correctly attributed cannabis use with

potentially affecting the quality of local anaesthesia, 40% of students did not possess this knowledge. Specifically, improvements in curricula delivery are required for entry-level clinical students (Year 3) to ensure that modifications are made to dental management plans for patients who are cannabis users.

Central to the prevention of oral cancer, is tobacco cessation advice. Training in tobacco cessation forms part of the curricula of many dental schools^{16,17}. At the UWI-SoD tobacco cessation is covered in both the disciplines of preventive dentistry and oral medicine. Furthermore, topics on cannabis use in the form of marijuana are covered together with smoking and smokeless tobacco in discussing the etiology of oral cancer. Patients who smoke tobacco are more likely to use cannabis¹⁸. Such patients with concomitant tobacco and cannabis use are less compliant with tobacco cessation advice, possibly due to the addictive properties of cannabis¹⁸. Clinicians, such as dental professionals, who are trying to aid tobacco cessation should routinely and continuously assess cannabis use as part of tobacco cessation strategies¹⁸. While 70% of students enquired if patients used cannabis, what is unclear is if this was an isolated event associated with the medical history at an intake appointment, or if this question was asked at various times throughout patient management. This would have to be assessed with future research.

Time during clinical sessions as a limitation to discussing cannabis use aligns with the research of Clareboets et al who examined the barriers of clinical dental students in giving tobacco cessation advice¹⁹. In this current study, the limitation of time was indicated as a reason for not engaging in cessation conversations in 65.8% of students compared to 51% of students in the work of Clareboets et al who described time as a strong barrier in giving cessation advice¹⁹. Given the nature of clinical dental training and emphasis on the acquisition of psychomotor skills, students may prioritize wet-handed dentistry over the acquisition of what they perceive to be as less important non-clinical soft skills.

The literature also discusses patient disinterest as a barrier to tobacco smoking cessation^{11,19}. While tobacco cessation advice cannot be equated with cannabis cessation advice, the barriers that have been established in studies of dental students giving tobacco cessation advice. Globally, general dentists are not normally integrated into medical decision-making teams within hospitals or primary care settings and identification of medical personnel and resources can be challenging for appropriate referral of patients at risk for substance abuse such as cannabis¹². This is clearly demonstrated in the stated barrier of the lack of appropriate referral services, which 47.5% of students listed as a limitation to providing cessation advice. This barrier as well as

unawareness that dental professionals should be involved in giving cessation advice to cannabis users underscores the need for robust curricula that includes inter-professional clinical education amongst various cadres of medical and health professionals²⁰. In the context of the decriminalized cannabis legislation, health care workers should understand and be prepared to discuss the implications of recreational cannabis use.

Most students (93%) believed that they had insufficient knowledge to give meaningful cannabis cessation advice, however, most respondents claimed to give some sort of cessation advice. This may suggest that respondents are not comfortable discussing oral and general health implications of cannabis use with patients, possibly due to the sensitivity of the topic. Clareboets et al., in discussing barriers to students giving tobacco cessation advice, reported that broaching such sensitive topics could lead to a reduction in rapport with patients¹⁹. The same could be true of dental students trying to give cannabis cessation advice. Future research would have to ascertain exactly what advice is given to patients that students believe have problematic cannabis use, in the absence of established guidelines to manage such patients.

The strategy for tobacco cessation used by dental professionals of "Ask, Advise, Assess, Assist, Arrange" can be modified and used together with motivational interviewing as a starting point in the cannabis cessation conversation²¹. Such strategies can work in tandem since the motivation of persons with addictive behaviours has been identified as a factor for reducing cannabis use²². Dental professionals can play a pivotal role in providing cessation advice focussed on the known oral effects of cannabis use. While it is important for dental students to have a working knowledge of the oral effects, dental challenges, and general health consequences of cannabis use; it is also important that identification of such patients occur with screening, followed by appropriate documentation of a patient's cannabis history, cessation advice and arranging counselling for all patients with an identified problematic use. These described strategies once correctly implemented can ensure that graduate dentists can engage with patients in discussing such a sensitive topic as routine and improve patients' acceptance of such services²³.

What is apparent from the significance found between lack of training and appropriate referral services and the lack of training and lack of awareness that dentists can give such advice, is the fact that dental students lack confidence as health care professionals that could coordinate follow-up patient management related to cannabis use. Such issues can be addressed with robust cross-discipline interprofessional education including students of medicine, psychology, and specialists such as psychiatrists. Insignificant differences found between the year group and the perceptions that patients will

not be responsive to advice may be explained by a continued lack of confidence to have conversations related to cannabis even as students' progress through clinical training.

Conclusion

Knowledge on the oral health effects of cannabis and the implications of cannabis use on dental management of patients was poor amongst the surveyed clinical students at this teaching hospital. This is despite most students stating that dental professionals had a role to play in offering cessation advice to patients who used cannabis. Dental professionals in this locale need to be aware of the consequences of cannabis use given that its use can become more pervasive with the recent decriminalization of cannabis for personal use and in the context that cannabis could become more readily available to the general population. Curricular change would need to occur in both pre-clinical and clinical training where content on the effects of cannabis use in various forms is delivered in courses of oral pathology, oral medicine and public health. The effects of cannabis use on dental management should be discussed in courses related to local anaesthesia training and pharmacology and cessation and motivational interviewing technique included in courses of preventive dentistry. Students should be audited in the clinical setting to ensure that patients are identified through history taking and screening and arrangements made for either follow-up cessation activities or referral to medical personnel. Such curricular change can incorporate principles of interprofessional

learning with other students of health care sciences to ensure a holistic approach in dealing with patients prone to addictive behaviours. Educational activities must stress the importance of making clinical decisions for patients based on scientific evidence regarding the pathologic and pharmacologic effects of cannabis, and not on the societal stigma associated with drug use.

Statement of ethics

The study protocol was reviewed by the Ethics Committee of The University of the West Indies, St. Augustine and granted an exemption from requiring full ethical approval (CREC-SA.0085/11/2019). Written consent was gained from all respondents prior to participation in the study.

Conflict of interest statement

The authors have no conflicts of interest to declare.

Author contributions

This research was conceptualized by Author 1 and Author 3. Data collection was completed by Author 2, Data entry was completed by Author 2 and Author 3, and data analysis completed by Author 1 and Author 3. Author 1 was the primary author of the present manuscript. All authors reviewed, edited and approved the final draft of the manuscript.

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Data availability statement

The data that supports this work can be made available upon request.

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