



Challenges to be overcome: Current situation involving smoking cessation in Dental setting

Desafios a serem superados: situação atual envolvendo cessação do tabagismo no cenário odontológico

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ABSTRACT

Objective: Tobacco use is the leading cause of preventable illness in the world. The dental office represents an opportunity to smokers approach tobacco use control. Despite this well-known statement tobacco use cessation intervention delivered by dentists remain less explored than expected. This study evaluated published articles about interventions delivered by dentists and dental healthcare professionals on smoking cessation and discusses the barriers to be overcome to achieve this goal. **Material and Methods:** The Medline (PubMed), Scopus, Web of Science, Cochrane Reviews, LILACS and Google Scholar databases were searched for articles published in English between January 2010 and December 2016 using the following MeSH terms keywords: tobacco use cessation, smoking cessation, tobacco use disorder and dentistry. Complementary hand searching was done checking bibliographic references for potentially articles. **Results:** Seventy-two publications were eligible and the results were divided into eight categories: 1) the role of dentists in tobacco use control; 2) knowledge about tobacco use treatment and interventions; 3) characteristics of the dentist's approach to smokers; 4) barriers and facilitators; 5) future interventions for smoking cessation, 6) reimbursement for tobacco interventions, 7) surveys and 8) systematic reviews or guidelines **Conclusion:** Dentists play an important role in the prevention and control of smoking. Training in tobacco use cessation has been increased in the past few decades. Teaching how to deal with smoking in undergraduate courses should be a priority for the next few years, so that a new generation of dentists will incorporate into their

RESUMO

Objetivo: O uso do tabaco é a principal causa de doenças evitáveis no mundo. A consulta odontológica representa uma oportunidade de abordar os fumantes no controle do uso do tabaco. Embora esta conclusão seja bem conhecida, a intervenção para cessação tabágica entre dentistas permanece menos explorada do que o esperado. Este estudo avaliou artigos publicados sobre intervenções entre dentistas e profissionais de saúde dentária na cessação do tabagismo e discute as barreiras a serem superadas para atingir esse objetivo. **Material e Métodos:** As bases de dados Medline (PubMed), Scopus, Web of Science, Cochrane Reviews, LILACS e Google Scholar foram pesquisadas por artigos publicados em inglês entre janeiro de 2010 e dezembro de 2016 usando os seguintes termos MeSH: tobacco use cessation, smoking cessation, tobacco use disorder and dentistry. A busca manual complementar para potenciais artigos foi feita verificando-se referências bibliográficas. **Resultados:** setenta e duas publicações foram elegíveis e os resultados foram divididos em oito categorias: 1) o papel dos dentistas no controle do uso do tabaco; 2) conhecimento sobre tratamento e intervenções sobre uso do tabaco; 3) características da abordagem do dentista aos fumantes; 4) barreiras e facilitadores; 5) intervenções futuras para cessação do tabagismo, 6) reembolso de intervenções de tabaco, 7) pesquisas e 8) revisões sistemáticas e diretrizes. **Conclusão:** Os dentistas desempenham um papel importante na prevenção e controle do tabagismo. O treinamento na cessação do uso do tabaco tem aumentado nas últimas décadas. Ensinar a lidar com o tabagismo em cursos de graduação deve ser uma prioridade para os próximos anos, de modo que uma nova geração de dentistas incorpore

habitual activities a natural and efficient approach to smokers.

KEYWORDS

Dentistry; Tobacco use cessation; Tobacco use disorder.

em suas atividades habituais uma abordagem natural e eficiente para os fumantes.

PALAVRAS-CHAVE

Odontologia; Abandono do uso de tabaco; Tabagismo.

INTRODUCTION

According to the World Health Organization (WHO), tobacco use is a chronic and recurrent disease caused by nicotine dependence and is the leading cause of preventable death in the world. The prolonged use of tobacco and its derivatives alone is an important risk factor for more than 50 diseases, including cancer [1]. Tobacco and its derivatives were responsible for 100 million deaths in the 20th century and is estimated that approximately one billion deaths will occur until the end of this century [2]. One-third of the adult world population is exposed to passive smoking, which kills an additional 600,000 individuals every year [3,4].

Among doctors, nurses, dentists and other healthcare professionals, the contact with smokers is a practical and appropriate opportunity for tobacco use control. The minimum approach or intervention recommended by the WHO is based on the 5 A's intervention (ask, advise, assess, assist, and arrange). This method is indicated for all healthcare professionals and might be the starting up moment of contact with the patient, permitting the initial motivation on tobacco use cessation [5-7].

The systemic clinical manifestations of smoking are often recognized only after years of use. However, oral alterations can be detected early, especially on young users as teenagers. Regular visits to the dentist are therefore a great opportunity to identify oral diseases related to the use of tobacco and are appropriate to encourage the patient to stop smoking [8,9].

Nevertheless, these actions are still poorly explored and controversial. In the last years, several studies using questionnaires on tobacco cessation measures applied to dentists have been published [7,9-15]. These studies have shown that, although dentists agree that smoking is an important risk factor for oral diseases including oral cancer, they are not prepared to treat patients because of lack of knowledge or desire to do so and approaches could therefore be more efficient [7,9-16]. The arguments reported by dentists include the lack of training and time, the view that they would not be able to convince their patients to quit smoking, the fear of disturbing the patient who could be not interested on smoking cessation and the lack of reimbursement by the health system for more complex care.

In view of this scenario, it is important to revise the current key concepts of tobacco use cessation on dental setting and to highlight the value of the dentist as a professional that can markedly influence tobacco use cessation and control.

MATERIAL AND METHODS

In this study, we conducted a review of literature on the main aspects related to education provided and interventions delivered by dentists and dental healthcare professionals about smoking cessation. The databases Medline (PubMed), Scopus, Web of Science, Cochrane Reviews, LILACS and Google Scholar were searched for complete articles published in English between January 2010 and December 2016 using the following MeSH keywords: tobacco use cessation, smoking cessation,

tobacco use disorder and dentistry using the search strategy: (“Tobacco Use Cessation” OR “Smoking Cessation”) AND “Tobacco Use Disorder” AND “Dentistry”. Two authors analyzed the collected data independently. Discrepancies in extracted data were resolved by consensus.

Studies with different designs were included since they included undergraduate dental students, dentists, dental hygienists or dental faculty members. The studies should enclose any reference about tobacco cessation education offered in dental curriculum, models of tobacco use cessation delivered by dentists, including the approach to the smoker, evaluations of dentist’s knowledge and attitudes about conducting tobacco use cessation, evaluation of smoking profile and tobacco use therapy. Due to the focus of these review, case reports or clinical studies involving tobacco related oral diseases were excluded even if there mentioned tobacco cessation.

Firstly, all the titles and abstracts from selected articles were evaluated and publications that did not fit the inclusion criteria

were excluded. Out of 91 articles found, 19 were excluded given that they were not directly related to the topic or were duplicated. At the end, seventy-two studies met the inclusion criteria (Figure 1, Figure 2 and Table I).

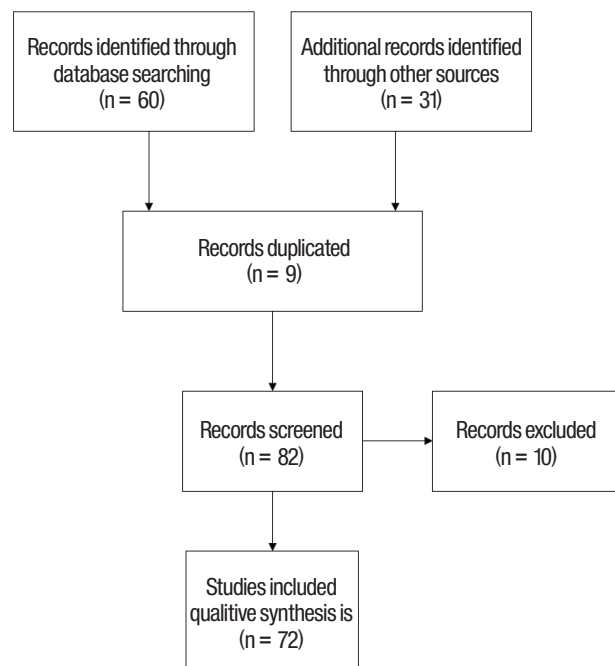


Figure 1 - Fluxogram of selected articles.

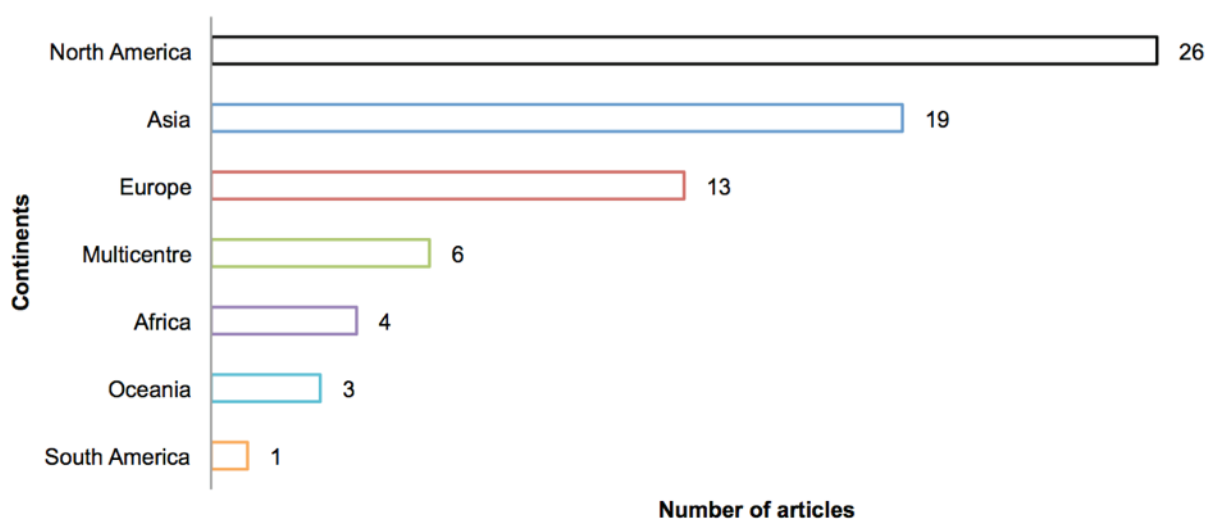


Figure 2 - Chart with the eligible articles classified based on continents.

Table I - Eligible articles classified per year and country

Year	Authors	Country
2010	Chestnutt IG	USA
2010	Davis et al.	Multicenter
2010	Gonseth et al.	Switzerland
2010	Gordon et al.	USA
2010	Gordon et al.	USA
2010	Hanioka et al.	Japan
2010	Needleman et al.	Multicenter
2010	O'Donnell et al.	USA
2010	Ramseier et al.	Multicenter
2010	Rankin et al.	USA
2010	Tong et al.	USA
2011	Amemori et al.	Finland
2011	Arnett et al.	USA
2011	Chandrashekar et al.	India
2011	Ehizele et al.	Nigeria
2011	Miller et al.	USA
2011	Morgan et al.	USA
2011	Nasser M	UK
2011	Patel et al.	USA
2011	Pau et al.	UK
2011	Rosa et al.	Brazil
2011	Rosseele et al.	The Netherlands
2011	Shelley et al.	USA
2011	Studts et al.	USA
2011	Uti et al.	Nigeria
2012	Albert and Ward	USA
2012	Andersson et al.	Sweden
2012	Arnett et al.	USA
2012	Carr and Ebbert	USA
2012	Carson et al.	UK
2012	Matias et al.	Multicenter
2012	Murugaboopathy et al.	India
2012	Pai and Prasad	India
2012	Shelley et al.	USA
2012	Sinha et al.	India
2012	Venkatesh and Sinha	India
2013	Antal et al.	Hungary
2013	Dawson et al.	Australia
2013	Kadanakuppe and Aradhya	India
2013	McNeely et al.	USA
2013	Montini et al.	USA

Year	Authors	Country
2013	Parakh et al.	India
2013	Pizzo et al.	Italy
2013	Prakash et al.	USA
2013	Ramseier et al.	Switzerland
2013	Rindal et al.	Multicenter
2014	Agaku and Ayo-Yusuf	South Africa
2014	Ahmady et al.	Islamic Republic of Iran
2014	Dable et al.	India
2014	Doucette et al.	Canada
2014	Jannat-Khah et al.	USA
2014	Nordin et al.	Malaysia
2014	Oberoi et al.	India
2014	Oberoi et al.	India
2014	Ostroff et al.	USA
2014	Raja et al.	India
2014	Romito et al.	USA
2014	Singla et al.	India
2014	Singleton et al.	USA
2014	Uti et al.	Nigeria
2015	Ajagannavar et al.	India
2015	Awan et al.	Saudi Arabia
2015	Ford et al.	Australia
2015	Ford et al.	Australia
2015	Mackie et al.	USA
2015	Ramseier et al.	Multicenter
2015	Shaheen et al.	India
2015	Stassen et al.	Ireland
2015	Sventanoff et al.	USA
2015	Tahani et al.	Iran
2015	Virtanen et al.	Sweden
2016	Omaña-Cepeda et al.	Spain

Due to the different aspects found in our search, the eligible articles were divided into eight categories: the role of dentists in tobacco use control; knowledge about tobacco use treatment and interventions; characteristics of the dentist's approach to smokers; barriers and facilitators; future interventions for smoking cessation, reimbursement for tobacco interventions, Surveys and Systematic reviews or guidelines.

RESULTS

The role of dentists in tobacco use control

Dentists are health professionals that are fully trained to educate patients about the harmful effects of smoking, promote counseling, and help those who want to quit smoking. During a visit to the dentist, it is possible to observe the effects of tobacco use even in patients who have smoked for a short period. Tobacco use is associated with several oral diseases such as periodontal disease, tooth loss, an unsatisfactory response to implants, gingivitis and oral cancer. However, the potential of these professionals in tobacco use control during daily clinical practice remains an unexplored field [7,17-21].

Given their position they can increase the chances of behavioral changes of patients in favor of trying to quit smoking. The demonstration of a cause-effect relationship between oral alterations and tobacco use and the benefits of dental treatment may encourage patients to quit smoking. Interventions performed by oral health professionals are effective and can improve the knowledge about the risks of smoking and increase tobacco abstinence rates [14,22-32].

Knowledge about tobacco use treatment and interventions

Tobacco use is a chronic recurrent disease of multifactorial etiology, in which the reward system of the brain plays a key role in the smoker's behavior [33]. Reports of multiple previous unsuccessful attempts of tobacco use cessation illustrate the addictive character of this disease. Knowledge of these aspects during tobacco therapy contributes to obtain satisfactory and long-lasting results [33].

Learning the definitions and concepts of different aspects of smoking cessation increases the confidence and self-efficacy of professionals

that deal with smokers. This training should also be included in the undergraduate course and education curriculum of dental students [32]. Some studies evaluating the impact of new training techniques on tobacco cessation interventions among dental students have reported satisfactory results [15,25,26,34-39].

The lack of previous knowledge of dentists about the topic is one of the main reasons for the few interventions aimed at smokers. In this respect, the possibility of tobacco-dependence education will extend the quality and quantity of interventions and monitoring [7,9-13,24,28,31,32,38-40].

General characteristics of the dentist's approach to smokers

Chestnutt [41] and Albert and Ward [42] have demonstrated the importance of dentists for tobacco use cessation in the world. Dentists can easily diagnose oral diseases caused by tobacco. These diseases justify an approach targeting smokers in order to obtain a satisfactory response [8]. Both short-term and structured interventions have shown positive effects on reducing tobacco consumption [17,23,25,26,38,40].

The expansion of the undergraduate curriculum, including a larger number of theoretical and practical classes on tobacco use, has proven effective and promising in increasing the number of smokers attended by oral health professionals [20,31,32,39,43-45].

Barriers and facilitators to tobacco use cessation in dentistry

Dentist's justifications for the small number of interventions involving smokers have been studied. They include the lack of time, fear of the patient's reaction or resistance in accepting the approach, fear that the patient will lose trust in the professional, difficulty in addressing the topic, also being a smoker, lack of knowledge about the topic, lack of

reimbursement, and fear of the reaction of colleagues [9,14,16,17,27,28,39,41-43,46-56]. Once receiving training on tobacco cessation the graduation students and dental health professionals perceive significantly reduction on the pointed barriers [43].

Factors facilitating the approach to smokers are the presence of electronic reports for the addition of information about tobacco use, identification of oral diseases related to smoking, use of questionnaires for the evaluation of smoking, use of support material, reimbursement for the interventions, and experience as an ex-smoker [9,16,17,46,57].

Future interventions for smoking cessation delivered by dentists

New studies to evaluate strategies that could increase tobacco cessation interventions by dentists are being conducted [5,20,24,57,58]. Amemori et al. [59] postulated that behavior change interventions should be implemented among dentists to increase adherence to current consensus, thus modifying existing beliefs and barriers. Similarly, Gonseth et al. [60] reported that multidisciplinary programs of tobacco cessation involving physicians and dentists could be suitable and productive.

Oberoi et al. [29] discuss the importance of new interventions on tobacco cessation delivered by oral health professionals such as setting up 24 hours quit-lines, providing nicotine replacement therapy, more certified courses and training on tobacco cessation, extending the tobacco cessation services to the rural community and develop mobile oral health services which includes tobacco related education and oral health.

Reimbursement of dentists for tobacco interventions

One of the barriers cited by dentists to improve tobacco control conducts is the lack of reimbursement by health plans for an intervention that demands time and material

[7,9,10,13,15,16,34,42,56]. Shelley et al. [61] in a study involving 11 American insurance company executives addressed this fact. The study showed that research and interventions for tobacco cessation are appropriate for routine dental practice. However, a larger number of studies are necessary to confirm the efficacy of these approaches in order to justify the investment in provider reimbursement.

Surveys

Most of the aspects of the education provided and interventions delivered by dentists and dental health care professionals were evaluated by surveys. Important aspects such awareness, attitude, practices, willingness and barriers were evaluated using hand-delivered, self-administered or via electronic contact were searched. Studies were conducted in many different clusters like dental universities [62], dental health professionals [7,9,12,13,17,32,46,48,50-52,55,56,63-65], dental insurance companies [61], students [15,21,28,31,32,38,39,45,47,49,51,53,55,66], dental patients who use tobacco [30,67,68] and dental teachers [44].

Systematic Reviews

Illustrating the awareness of the scientific community about this issue and the importance of the problem on oral health are described in the systematic reviews [5,11,19,22,27,69-72] and guidelines [18,42,58,73] published about tobacco use cessation in dental setting compelling the best evidences and giving advices about the needs in this area.

DISCUSSION

Dentists are in a favorable position to play an important role in the control of chronic tobacco dependence, particularly in pregnant women and young people [28]. Although the scope of these attitudes may have a positive impact on oral health and cancer prevention, much remains unexplored and needs to be improved.

Even though the global awareness about tobacco use has been worldwide discussed the health problem is still a big challenge for many countries. Although still represent a minor number of studies, tobacco cessation counseling has been considered an important theme into dental publications over the past decades [74]. Studies demonstrating the importance of dentists for the approach to smokers, support of tobacco use cessation or prevention of severe diseases such as oral cancer have been published in recent years. The beliefs of failure and incapacity to treat smokers are related to the lack of adequate undergraduate training [51]. The concept that tobacco education and cessation are not a responsibility for dental professional still remains a great barrier for the improvement in this area [51].

Many systematic reviews established that trained dental health professionals who had received training were more likely to execute task related to tobacco use cessation than untrained controls [22,69-71]. Recent publication from Cochrane has demonstrated that individual counseling was more effective than a minimal contact control (brief advice, usual care, or provision of self-help materials) and can assist smokers to quit. Thus, there are strong evidences that training can provide more self-confidence among dental health professional allowing them to deliver individual interventions for their smoking patients [75].

In view of the world panorama of tobacco consumption and its devastating health consequences, the WHO coordinates and supports global initiatives of tobacco control [76,77]. Guidelines on tobacco use have been available for more than a decade, but systematic reviews involving tobacco use cessation in the dental setting have only been published in recent years [22,27,69-71]. The inclusion of dentists in the guidelines for tobacco control is emphasized since the maintenance of oral health is directly related to the cessation of the use of tobacco and its derivatives. Furthermore, the training and commitment of dental professionals with

smokers is important. Evaluation of students' and dentists' knowledge about tobacco use treatment reveals a gap between the number of patients attended and the lack of tobacco-dependence education for the continuation of treatment. Studies evaluating different forms of student training showed an increase in approaches in addition to greater comfort and confidence in the interventions for smokers [20,34-37]. Thus, reassessment of the training of dental students regarding the study of tobacco use in the graduation curricula is necessary [28,44,45].

It is necessary that the concepts of such a complex disease be aligned with the progressive contact of the student with the smoking patient. The student will thus gain self-confidence and the capacity to satisfactorily attend the patient from the first contact, with the patient being prepared to quit smoking or not, until definitive abstinence. The healthcare professional is committed to the comprehensive evaluation of the individual. It would be correct to say that we should treat an individual and not the disease; thus, the approach to smokers in medicine and dentistry should be part of the treatment [73]. The smoker often wants to quit smoking, but the addictive nature of the disease makes it difficult to remain abstinent without support. More than the physician, the dentist frequently has recurring meetings with patients who smoke and misses the opportunity to support this cessation.

Oral diseases related to tobacco use are themselves a major incentive so that the dentist continuously encourages the patient to quit smoking since the success of treatment depends on it. Appropriate treatment of periodontal diseases, disorders with the potential of malignant transformation and cancer are concrete reasons for the dentist to support the patient to quit smoking. Similarly, aesthetic treatment will not have the expected effect if the patient does not stop smoking [8,42]. One important aspect to be considered is the cancer patient who remains smoking once this attitude may have a negative impact on their treatment and outcome. In a recent study

Tamí-Maury et al. [78] showed that, despite 91% of the dentists from Texas provide care to cancer patients, one third do not provide brief interventions or assist tobacco users to quit among those cancer patients and survivors.

For this reason, dentists are fundamental for the expansion of tobacco control measures in the world and their participation in multidisciplinary teams for smoker support is of paramount importance. Teaching how to deal with the main aspects of smoking in undergraduate courses should be a priority for the next few years, so that a new generation of dentists will incorporate into their habitual activities a natural and efficient approach to smokers. This attitude is important not only for dental treatment in general, but also for the wellbeing of the patient. Further studies addressing different aspects of tobacco use treatment in dental settings are necessary for the recognition and prevention of smoking.

ACKNOWLEDGEMENTS AND CONFLICT OF INTERESTS

All authors were active participants in the manuscript.

STATEMENT CONFLICT OF INTEREST:

There is no conflict of interest involving the authors of this paper.

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Date submitted: 2017 Jun 05

Accept submission: 2017 Sep 01