

Oral Health in Crack—Cocaine Users and Its Impact on Their Quality of Life: A Literature Review

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ABSTRACT

Background: Crack is the most addictive and potent derivative of cocaine. There is a scarcity of information regarding the oral health of crack users and also the impact this has on their quality of life. The aim of this literature review was to ascertain information regarding oral health and also its impact on the quality of life of crack users.

Methods: The keywords oral health, quality of life, crack cocaine and drug users were applied to the databases PubMed, Google Scholar and Scielo to obtain the articles. Articles used were published between 1992 and 2017.

Results: Crack cocaine users present poor oral health and are usually polydrug users or have a history of consuming other substances such as cannabis, alcohol, tobacco and opiates. The use of crack may individually impact oral health or may be attributed to the effect of polydrug usage, henceforth impacting their quality of life. In addition, socio-demographic and behavioural factors may also impact oral health-related quality of life.

Conclusion: Crack has an impact on the oral health of crack users, which also affects their quality of life. This demonstrates the importance of dental surgeons being included in multi-disciplinary teams responsible for the rehabilitation of crack addicts.

Keywords: Crack cocaine, drug users, oral health, quality of life

INTRODUCTION

Cocaine is an alkaloid derived from the coca plant (*Erythroxylum coca*) (1). It must be first converted into powder and mixed with sodium bicarbonate to produce a smokable form named crack. Crack is thought to be the most addictive and potent derivative of cocaine (2, 3). Crack cocaine dependence results in euphoria, psychotic effects, cognitive impairment, physical and mental health issues (4).

Globally, 0.3%–0.5% of the world's population aged between 15 and 64 years old are cocaine users. A substantial proportion of which, however imprecisely estimated, are crack-cocaine users (5). Cocaine is the main drug of concern in Latin American and Caribbean countries (6); it is also known that the use of crack is prevalent in the Americas (7). South American countries

like Brazil, for example, has been identified as one of the emerging nations where the use of intra-nasal cocaine as a powder or smoked (crack and other related forms) is increasing. Contrary however to the United States of America and the majority of the European countries, cocaine use has declined and stabilized (7). When compared to women, men have three times a greater chance than women to use such substances (6).

Drug addicts have far worse oral health when compared to the general population (8). Addicts tend to give lower priority to their oral hygiene, and their primary concern is to aliment their chemical dependence (9). The most common dental diseases associated with substance dependence are caries, enamel erosion and periodontal disease (10, 11).

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Dental diseases seen in addicts are attributable to local environmental factors combined with the systemic effects of the drug and are not directly related to the effect of the drug itself (12). Other authors mention that the direct physical effects of the substances provoke xerostomia due to an increase in hyposalivation, which causes higher rates of caries (13). Socio-demographic factors such as low access to dental care, poor oral hygiene and smoking also seem to influence oral health complications among addicts (14).

Moderate and high-level users of cocaine and crack have 2.2 times more chance of presenting a worse general quality of life (15). Crack cocaine users also present higher DMFT (decayed, missing, filled teeth) index values (15).

There is a scarcity of information regarding the oral health of crack users and also the impact this has on their quality of life. Therefore, the aim of this literature review was to ascertain information regarding the oral health of crack cocaine users and its impact on their quality of life.

Search method

PubMed, Google scholar and Scielo were the databases used to obtain the articles used in this literature review. The terms used to search for articles were 'oral health' AND 'quality of life' OR 'drug users' AND 'crack cocaine'. A total of 35 articles published between 1992 and 2017 were included in this review.

The impact of crack on oral health

Poor oral health is frequently seen in individuals with substance dependence; however, very little is known about how illicit drugs affect oral health (16). There is even far less information available about the effect of crack on oral health. Notwithstanding, crack is a derivative of cocaine, and it can be hypothesized that both drugs have similar effects on the oral cavity. The use of intra-nasal cocaine may cause nasal septum perforation, palatal perforation, bruxism, cervical abrasion (2), corrosion of gold restorations, occlusal wear, excessive haemorrhage after tooth extraction, increased rate of tooth decay, halitosis and periodontitis (3).

It is possible that these alterations also occur with crack cocaine use; however, the smoke generated from smoking crack may give rise to other alterations (17). Before getting to the lungs, crack smoke comes into contact with the oral mucosa. Crack smoke induced significant cellular alterations in tracheobronchial (17) and

oral mucosa smears (18). Chronic smoking of crack may induce inflammatory changes (18) and alterations in the proliferation pattern in the oral mucosa (19). Cocaine use may result in transient chorea, which also manifests itself in the mouth as buccolingual dyskinesia, commonly known as 'crack dancing' or 'twisted mouth' (12).

While some illicit substances cause xerostomia, which leads to an increase in caries (13), crack does not interfere with salivary flow rate nor buffer capacity (20). Though it does significantly decrease saliva pH, this change is not capable of altering the oral environment in favour of caries development and other dental alterations (20). Henceforth, if crack addicts have an increase in DMFT values or periodontitis, it cannot be attributed to salivary factors (20).

Crack cocaine users are usually polydrug users or have a history of consuming other substances such as cannabis, alcohol, tobacco and injection drug use of heroin and other opiates (21). Studies have shown that persistent alcohol abuse increases periodontitis (22). Additionally, crack and cocaine users were shown to have greater periodontal probing depths than non-users of these substances (23). Chronic use of cannabis increases DMFT scores and also causes xerostomia, which may increase the risk of caries (24). One study showed that crack and marijuana smokers smoked up to 18 tobacco cigarettes per day (25). Tobacco smoking has been shown to increase the risk of periodontitis (26) and oral cancer (27) over time. Opiates such as heroin and methamphetamine cause an increase in caries and enamel erosion (13, 28).

Polydrug users of cocaine and other substances showed significantly higher DMFT values, poor oral hygiene habits (9, 10) and a greater risk of developing caries when compared to non-users (10).

It is unclear whether these oral health consequences are caused by the use of specific substances, by substance dependence in general (11) or yet by the compound effect of these substances. Moreover, it is a difficult task to determine the long-term effect of specific drugs in polydrug users (9).

Other factors contributing to the poor oral health of drug addicts, which may also be true for crack addicts, include a cariogenic diet (13, 28); neglect of oral and general health as they are primarily concerned with the acquisition of drugs; low self-esteem due to their general appearance being deemed as unimportant compared to the problem of being substance dependent and low access to dental services (28).

Impact of crack on oral health-related quality of life (OHRQoL)

There is a dearth of investigations on the impact of oral health on the quality of life of users of illicit drugs and even less information regarding users of crack cocaine. One study showed that the use of crack had a statistically significant negative association on self-reported health status (29). When the frequency of crack usage was compared to the use of alcohol and tobacco, only the frequency of crack showed a negative association with self-reported health status (29). To further support this, another study showed that crack users reported poor OHRQoL when adjusted for factors like sex, age, schooling, income, smoking, dental caries and periodontal disease (30).

Oral health-related quality of life was evaluated in HIV-infected women and a similar group of at-risk HIV uninfected women. This study showed that the use of crack was a behavioural risk factor, significantly associated with a poorer OHRQoL (31). Hence if dental professionals were to discourage the use of crack in these patients, OHRQoL could possibly be improved.

Institutionalized juvenile law offenders in Brazil, in which 41% of the sample size were users of crack/cocaine, showed poor oral health conditions with high impact on their quality of life (32). The Oral Health Impact (OHIP-14) instrument was used to measure OHRQoL, in which scores among adolescents with higher DMFT values reflected higher levels of impact in the dimensions of psychological discomfort and disability (32). Subjects with decayed and untreated teeth reported the worst impact on quality of life and had the highest scores in the dimensions of psychological discomfort and physical disability (32).

The OHIP-14 instrument was also used to evaluate the influence of oral health on the quality of life of alcohol and drug addicts, who were being treated at a specialized dental centre in Amsterdam. The participants in this study scored the highest for the dimensions of physical pain, psychological discomfort and disability. Thus, poor oral health of the drug addicts had a relevant impact on daily functioning (33).

The low quality of life of alcoholics and drug addicts is related to high DMFT values, low income and the use of cocaine/crack. Moderate and high-level users of cocaine and crack had 2.2 greater chance of presenting the worse general quality of life than low-level users of these substances (15).

DISCUSSION

Crack users are a distinct and complex population (21). The use of crack cocaine is associated with unemployment, low levels of education, low annual income, history of legal and criminal problems, low levels of family satisfaction (34), gender, sex work and multiple drug use (21). Crack cocaine addicts reported significantly lower subjective health perception than persons without a history of crack use (29, 34). Henceforth, these socio-demographic factors have an impact on the general quality of life of crack addicts. Oral health is an important part of general health and well-being (14); it is therefore likely that these factors also influence OHRQoL.

Lifestyle factors, such as oral health behaviour were found to be associated with socio-economic and educational background factors (14). Unemployed and less educated drug addicts exhibited unfavourable oral health behaviour (14). Similarly, it was shown that low income and use of crack cocaine were related to low quality of life (15). Furthermore, the use of crack is related to socio-economic factors (34). More studies are needed to confirm this and to further confirm if this also applies to OHRQoL.

It is difficult to predict the exact outcomes of crack on oral health, due to polydrug use. In this regard, acute and chronic effects of their drug habits might be even greater than it is for people who use just one type of drug. Not many studies have been able to estimate these potential interactions, but it is likely to be of importance (1). Given the prevalence of crack cocaine use, more studies are needed in this aspect that will help the dental professional to understand the effects of crack cocaine and to better provide treatment.

There is very little information available in the literature about OHRQoL in crack addicts. This is due to the difficulty in recruiting study participants. Information available is based on institutionalized drug addicts in rehabilitation (15). More studies are needed that include all segments of the population to facilitate the development of preventative measures and treatment interventions (34). OHRQoL has the potential to better understand and ameliorate clinical practice, dental research, dental education and also populations. OHRQoL data is capable of providing important information necessary for the evaluation of oral healthcare and for the creation of public health policies for users of crack cocaine.

CONCLUSION

Based on the information presented, the use of crack has a negative impact on the oral health and OHRQOL of crack users. This demonstrates the importance of dental surgeons, inserted in multi-disciplinary teams responsible for the rehabilitation of crack users. Dentists will promote oral health, which also influences general health and facilitates social reintegration.

AUTHORS' NOTE

MA Brown was responsible for the conception and design, the research in databases to obtain the articles and for the drafting and critical revision of important intellectual content. MAN Machado was involved in the final revision and approval of the version for publication.

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