



Periodontal status of current methamphetamine users

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ABSTRACT

Background. Methamphetamine (MA) use is associated with extensive dental caries. The purpose of this study was to determine the prevalence and severity of periodontal disease in a convenience sample of MA users.

Methods. In this cross-sectional survey, MA users were recruited with a combination of snowball sampling and street outreach techniques. Three dentists, trained and calibrated to the oral assessments used in the National Health and Nutrition Survey, measured and recorded the participants' attachment loss, probing depth, and gingival recession. Concomitant interviews elicited psychological, substance use, medication, and dietary habits associated with MA use.

Results. Periodontal assessments were completed on 546 adults. More than 69% were cigarette smokers, and more than 55% were medium to high MA users. Classifying prevalence by means of the Centers for Disease Control and Prevention and the American Academy of Periodontology definitions, cigarette smokers and medium to high MA users had a high prevalence of periodontal disease. The defining features of the participants were being 30 years and older (average, 42.2 years) and having severe and moderate periodontitis.

Conclusion. This is the first study to the authors' knowledge to systematically examine periodontal disease in a large population of current MA users. MA users in a Los Angeles urban setting had a high prevalence and severity of destructive periodontal disease. The frequency of MA use had a minimal impact on the severity of periodontal disease.

Practical Implications. An MA user can be at high risk of developing periodontal disease. Knowing that behavioral factors, such as smoking and consuming sugary beverages, are more important than MA use will assist the clinician in managing the treatment of MA users.

Key Words. Epidemiology; dental public health; methamphetamine; periodontitis.

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The elevated rates and unusual patterns of dental disease observed in methamphetamine (MA) users have gained notoriety in recent years. Earlier reports, including one of our studies, focused on the unusual or extensive patterns of dental caries observed in MA users.¹⁻¹⁰ However, less is known about the impact of MA use on the periodontal status of MA users. A large body of dental literature documenting the high prevalence of dental caries in addicts suggested that the oral conditions existing in MA users are the same deleterious conditions that are conducive to destructive periodontal disease.¹¹⁻¹⁷

Some investigators who focused on the oral health of injectable drug users found elevated indicators of poor periodontal health such as elevated levels of plaque, gingivitis, or attachment loss (AL).¹⁸⁻²⁰ Overall, information in the dental literature documenting the high prevalence of periodontal disease among drug users suggested that MA use could be associated with increased periodontal disease.

In 2012, the National Survey on Drug Use and Health estimated that 0.4%, or 1.2 million people, reported using MA during the past year.²¹ Use starts as early as eighth grade, and by 12th grade 1.2% have used it over their young lifetimes. From the ages of 18 through 25 years, 3.3% are

lifetime users, increasing to 6.4% when older than 26 years.²² When these small percentages are translated into millions, the dental profession will be overwhelmed with adults needing extensive restorations and rehabilitation of the dentition and supporting periodontium.

The purpose of this study was to determine the prevalence and severity of periodontal disease in a convenience sample of MA users. We also wanted to explore the disease patterns or distribution in MA subgroups with regard to sociodemographic characteristics, MA use patterns, HIV status, smoking habits, and other behavioral variables. We hypothesize that the high-risk caries factors that exist in MA users are the high-risk oral conditions that contribute to destructive periodontal disease.

METHODS

This cross-sectional survey was conducted in Los Angeles County, a populous urban area with high rates of MA use.^{23,24} From February 9, 2011, through August 26, 2013, 571 MA users recruited from local communities underwent comprehensive oral examinations and psychosocial assessments. The examinations and assessments were conducted at dental clinics associated with 2 large community health centers: the AIDS Project Los Angeles center that primarily serves a sociodemographically diverse group of people with HIV and AIDS and the Mission Community Hospital in the San Fernando Valley that caters to a large, underserved migrant population. The study sites were chosen to provide access to a diverse cohort of Angelenos with a broad range of MA use behaviors.²⁵

Participants were recruited using a combination of snowball sampling and street outreach (for example, posting flyers within the community, distributing advertising matchboxes in bars and restaurants), Craigslist postings, newspaper advertisements, referrals from local drug treatment centers, and word of mouth.²⁶ Inclusion criteria were being 18 years or older, speaking either English or Spanish, having used MA in the past 30 days, able to undergo a detailed dental examination and psychosocial assessments, and willing to provide a urine sample. Of the 1,793 potential participants who contacted the research team, 1,120 passed the initial phone screening for MA use, 576 met the eligibility criteria for MA use in the past 30 days and enrolled in the study, and 571 completed all the eligibility criteria. Nineteen of the 571 participants were completely edentulous and 6 more were excluded because they were edentulous in randomly selected quadrants for their half-mouth examination, resulting in a sample size of 546 dentate participants with periodontal assessments. Priority was given to medium and high MA users to reach the required sample size while controlling for confounding variables (age, sex, drug use) through matching or other statistical adjustments. The informed consent process and the assessments were accomplished according to procedures reviewed and approved by the University of California Los Angeles Institutional Review Board (10-000976). A Federal Certificate of Confidentiality ensured unconditional confidentiality to the interviews, thus minimizing participant concerns about the disclosure of sensitive drug-use behaviors. All participants consented in writing before their psychosocial interview and dental examination. Each participant received \$60 as recompense for taking part in the study.²⁵

Before the periodontal assessment, a soft-tissue examination was conducted, and any lesions or abnormalities were noted. To maximize comparability with national data sets, periodontal assessments adhered to the National Health and Nutrition Examinations Survey (NHANES) examination protocols, described in greater detail elsewhere.²⁷ Gingival recession (GR) was measured in millimeters from the free gingival margin to the cementoenamel junction. Probing depth (PD) was measured from the free gingival margin to the base of the gingival sulcus. AL was calculated as the difference in PD and GR or from the cementoenamel junction to the base of the sulcus. Any measurements between the gradations on the periodontal probe were rounded down to avoid overestimation. Bleeding on probing (BOP) was also recorded. GR and PD measures were made at 4 sites per tooth (third molars excluded), specifically the distofacial, midfacial, mesiofacial, and the distolingual aspects in randomly selected half-mouth examinations. An algorithm calculated AL from the information on GR and PD. All of the examinations were conducted in a dental operator with adequate light and air with the use of appropriate protective barriers.

All periodontal assessments were conducted by 3 trained and calibrated dentists. The training and calibration sessions were conducted by the national reference examiner for the NHANES (B.A.D.). A resident dental epidemiologist (V.W.S.) provided ongoing quality assurance, monitoring the dentists on a monthly basis, evaluating their assessments by performing duplicate assessments in approximately 9% of the participants ($n = 49$), and remediating any drift from the

ABBREVIATION KEY

AAP:	American Academy of Periodontology.
AL:	Attachment loss.
BOP:	Bleeding on probing.
CDC:	Centers for Disease Control and Prevention.
GR:	Gingival recession.
MA:	Methamphetamine.
NHANES:	National Health and Nutrition Examinations Survey.
PD:	Probing depth.

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