

# Dental Attendance and Self-Assessment of Dental Status by Israeli Military Personnel According to Gender, Education, and Smoking Status, 1998–2006

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**ABSTRACT** Objective: The goal of the study was to analyze dental attendance and self-assessment of dental status among Israeli military personnel, according to gender, education, and smoking status. Methods: Data were analyzed from a computerized questionnaire on dental attendance and dental status, completed by military personnel who attended one medical clinic for the required periodic medical examination between 1998 and 2006. Results: For 60% of the respondents, the last dental visit was within the previous 12 months. The last dental visit was for scheduled treatment for 49.8%, a dental examination for 21.5%, and emergency dental treatment for 12.2%. College graduates rated their dental self-care higher than non-college graduates, and nonsmokers rated their self-care higher than smokers. Of the participants, 50.9% considered their own dental status good or excellent and 7.2% considered their oral health status poor. No significant differences were found according to gender. Conclusions: The findings indicated high dental attendance but low self-perception of dental status in Israeli military personnel in comparison with the Israeli general population and low attendance in comparison with U.S. Army personnel. A compulsory periodic dental examination among Israeli military personnel, similar to the required periodic medical examination, is recommended.

## INTRODUCTION

The objective of the present, large-scale, long-term survey was to analyze the dental attendance and self-perception of dental status of Israeli military personnel. Several research studies investigated dental attendance in various populations. In most Western countries studied, 59% to 69% of adults had visited a dentist in the preceding 12 months.<sup>1–3</sup>

Periodic dental examinations serve several purposes, including early diagnosis and treatment, risk factor reduction, evaluation, and prevention. A routine annual or semiannual dental examination is the accepted standard of care for adults for detection of dental caries and periodontal inflammation, although this standard is not evidence-based.<sup>4,5</sup> Routine dental check-up visits had a positive effect on maintaining healthy teeth and gums.<sup>6</sup> A periodic oral examination (once in 3 years) was shown to be effective in reducing the mortality rate for oral cancer in high-risk populations (smokers and alcohol consumers)<sup>7</sup> but not in other populations.<sup>8</sup>

Cost is a determining factor in dental status and dental visits.<sup>2,9–11</sup> Lack of dental insurance coverage for 108 million individuals is a major cause of oral health disparities in the United States. The uninsured rate among poor U.S. adults was found to be 1.4 times greater than that among nonpoor adults.<sup>10</sup> The prevalence of at least one untreated decayed tooth among poor

people was 3 times greater than the prevalence among nonpoor U.S. adults.<sup>11</sup> Nonpoor adults were twice as likely to be regular users of dental care (at least one dental visit in the past year) as were poor adults. Forty-eight percent of poor U.S. adults self-estimated their dental status as poor, compared with 26% of nonpoor adults.<sup>10</sup>

A national survey of the Israeli adult population found that the prevalence of at least one dental visit in the past year among poor adults was 47%, compared with 59% among nonpoor adults.<sup>2</sup> More poor adults (34%) than nonpoor adults (20%) had not visited a dental clinic in the previous 2 years. Fifty-eight percent of poor Israeli adults reported the fee as the major reason for avoiding dental treatment, compared with 19% of nonpoor Israeli adults. Twenty-five percent of poor Israeli adults self-estimated their dental health status as poor, whereas only 9% of nonpoor Israeli adults did. Only 3% of poor Israeli adults have dental insurance coverage, compared with 9% of nonpoor Israeli adults.<sup>2</sup>

## METHODS

Israel Defense Forces (IDF) personnel have to undergo a periodic comprehensive medical screening examination from age 25. However, the regulations do not require a similar periodic dental examination. During the periodic medical examination, personnel must complete a computerized questionnaire, detailing their full medical history. The questionnaire contains 200 questions on family history, habits, symptoms, and chronic diseases. Each examinee sits in front of a touch screen at a station, separated from the other examinees. This setting allows the examinee to answer the questions in a discreet manner.

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This manuscript was received for review in November 2007. The revised manuscript was accepted for publication in August 2008.

**TABLE I.** Characteristics of the Participants

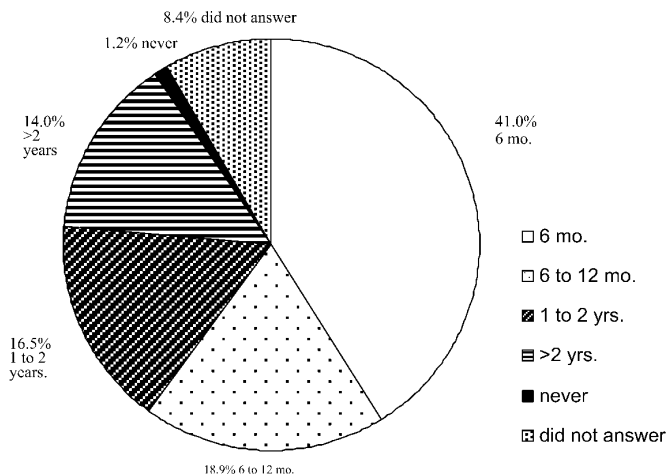
Gender (%)	
Male	88.5
Female	11.5
Age (years)	
Range	25–56
Mean ± SD	39.5 ± 6.7
Military dental clinic location (%)	
Near duty station	51.7
≤ 60 minutes of driving	32.0
61–90 minutes of driving	16.3

Data were analyzed for IDF personnel ≥ 25 years of age who attended one military medical institute for the required periodic medical examination between 1998 and 2006. Questions regarding dental attendance included the date of the last dental visit, the objective of the last dental visit, and the frequency of routine dental examinations. Participants self-assessed their dental health status on a Likert-type scale from 1 to 4 (with 1 = poor, 2 = fair, 3 = good, and 4 = excellent).

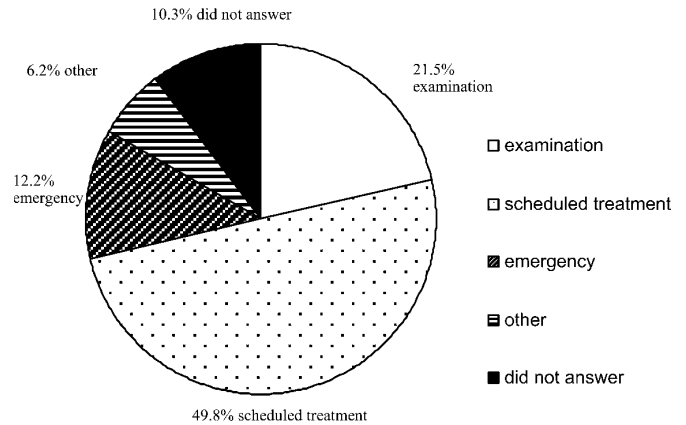
Data were analyzed by using SPSS 10.0 (SPSS, Chicago, Illinois). Using one-way analysis of variance, we evaluated the statistical differences according to gender, college (or higher) education, and smoking habits. Statistical significance was accepted at the probability level of  $p < 0.05$ .

**RESULTS**

Table I summarizes characteristics of the participants. The responses for each question are presented in the figures. Figure 1 presents the distribution of time since the participants' last dental visit. For 60% of the participants, the last dental visit was within the past 12 months. Among the participants who answered this question, more women than men visited a dental clinic in the past year (not significant,  $p = 0.097$ ), more nonsmokers than smokers attended (approaching significance,  $p = 0.057$ ), and significantly more college



**FIGURE 1.** Time since the last dental visit.

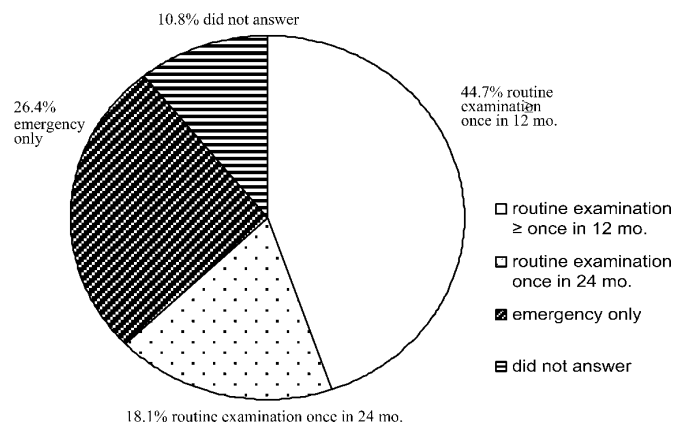


**FIGURE 2.** Participants' objectives for their last dental visit.

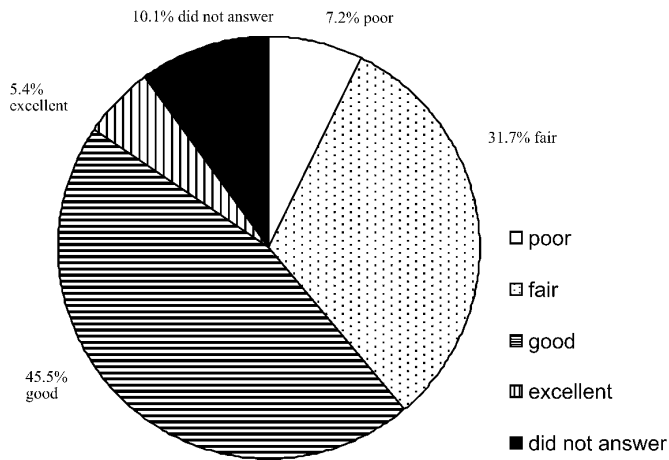
graduates than non-college graduates visited a dental clinic in the previous year ( $p = 0.027$ ).

For participants who did not answer never in the first question, the objectives for their last dental visit are presented in Figure 2. For more women than men, the objective of the last dental visit was a periodic examination (not significant,  $p = 0.10$ ). For significantly more college graduates than non-college graduates ( $p < 0.0001$ ) and for more nonsmokers than smokers ( $p < 0.0001$ ), the objective was a periodic examination. Although 44.7% of participants obtained a routine dental examination at least once per year and 18.1% of participants reported such examinations once in two years, more than one-fourth of the participants stated that they visited a dental clinic only in case of dental emergency (Fig. 3).

More men than women (not significant,  $p = 0.133$ ), more non-college graduates than college graduates ( $p < 0.0001$ ), and more smokers than nonsmokers ( $p < 0.0001$ ) stated that they visited a dental clinic only in case of dental emergency. Overall, 50.9% defined their dental health status as good or excellent (Fig. 4). More women than men (not significant,  $p = 0.272$ ), more college graduates than non-college graduates



**FIGURE 3.** Frequency of routine dental visits.



**FIGURE 4.** Participants' self-assessment of dental health status.

(not significant,  $p = 0.164$ ), and more nonsmokers than smokers ( $p < 0.0001$ ) self-assessed their status as good or excellent.

## DISCUSSION

The military treatment environment is unique in that it eliminates the cost of dental attendance; all IDF permanent personnel have free full coverage for dental care, including restorative, prosthetic (implants), periodontal, and orthodontic treatments. In addition, military personnel are freely allowed to visit dental clinics during daytime hours. The geographic distribution of military dental clinics makes accessibility convenient for personnel (as demonstrated by the characteristics in Table I).

Hyman et al.<sup>12</sup> described the U.S. military oral health care system as a model for eliminating disparities in oral health between Caucasian and African American adults (compared with the civilian population), regarding the frequency of annual dental visits and the rate of at least one untreated dental decay lesion. Moreover, disparities that existed at the time of recruitment were partly or completely eliminated during the service period.

In this group, 66% reported visiting a dental clinic during the past year, 19% between 1 and 2 years, 15% at  $\geq 2$  years, and 1% never. In the general Israeli adult population, Berg et al.<sup>13</sup> and Horev et al.<sup>2</sup> found that 59% of Israeli adults had visited a dental clinic during the past year, 16% between 1 and 2 years, 21% at  $\geq 2$  years, and 5% never. The proportion of subjects who had dental visits during the past 2 years in the free military dental system (85%) was greater than that in the general Israeli adult population (75%); the opposite was true regarding the proportion of subjects who had their last dental visit  $\geq 2$  years before or never (16% vs. 26%).

The 66% rate of recent yearly visits in the present study is lower than that found by Hyman et al.<sup>12</sup> (i.e., 80–90% of U.S. military personnel had had a dental visit in the preceding 12 months). One possible explanation for the difference between the two populations is that an annual dental visit and

receipt of a minimal standard of care are strongly encouraged, and in some cases compulsory, in the U.S. military system,<sup>12</sup> whereas there is no compulsory dental treatment in the Israeli Army.

College graduates were found to have better dental attendance than non-college graduates. In contrast to other studies,<sup>14</sup> no difference was found in the dental visit rates between men and women in a military environment in the present study. The present findings are in agreement with previous reports of lower dental visit rates among smokers than nonsmokers.<sup>3,15,16</sup> In the U.S. population, the likelihood of a yearly examination decreased with increasing smoking duration and the number of cigarettes smoked per day.<sup>15</sup> Sixty-one percent of current cigarette smokers visited a dental clinic in the past 12 months, compared with 72% of adult former smokers and never smokers. This difference cannot be explained only according to differences in dental insurance coverage rates between the groups (50.6%, 52.9%, and 54.1%, respectively).<sup>3</sup> Moreover, in the present study, all subjects (smokers as well as nonsmokers) had free dental insurance. Apparently, the difference was related to personal attitudes regarding health maintenance.

A strength of this data analysis was the number of responses available to us, representing a cross-section of military personnel. One limitation was the self-reporting of military personnel during their required periodic medical examination in one institute. The findings indicated that, even among personnel with full coverage dental care, there was not full attendance at dental clinics. Besides cost, the reasons most commonly cited in the literature for not regularly seeing a dentist were no perceived reason to go and fear.<sup>17,18</sup> However, the respondents were not asked their reasons for not attending.

Others have established an association between socioeconomic status and self-perception of oral health.<sup>2,13,19</sup> Of the present respondents, 50.9% self-perceived their oral health status as good or excellent. This number was low, in comparison with the general population in Israel, where 64% self-perceived their oral health as good or excellent, using the same scale. Although their dental attendance was higher and they had free full coverage, the present self-perception of military personnel was similar to that of poor Israeli adults (46%).<sup>7</sup>

## CONCLUSIONS

A large-scale survey of Israeli military personnel revealed high dental attendance but low self-perception of oral health status in comparison with the Israeli general adult population and low attendance in comparison with U.S. Army personnel. Compulsory periodic dental examinations, similar to the compulsory periodic medical examinations among Israeli military personnel, are advised.

## ACKNOWLEDGMENTS

We thank Dorit Steinberg (Tel Hashomer, Israel) for statistical evaluation and Steve Manch (Rehovot, Israel) for editorial assistance.

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