

Contrasting Patterns for Missing Third Molars in the United States and Sweden

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Purpose: The purpose of this study was to compare the prevalence of third molars from the US National Health and Nutrition Examination Survey (NHANES) and the Swedish survey.

Materials and Methods: This cross-sectional study involved the comparison of the only published data on third molar prevalence. The number of visible third molars in the NHANES of 2011 through 2012 were assessed in nonclinical settings by trained, calibrated dental hygienists and reported by age decade (approximately 5,000 patients). Similar data were reported for the Swedish population with data collected in clinical settings (approximately 700 patients). The primary outcome variable was the number of third molars (0 to 4); the predictor variables were age cohorts (20 to 29 through 70 to 79 yr). Outcome data were reported with descriptive statistics.

Results: In the youngest cohort (20 to 29 yr), having no visible third molars was more likely in the US population than in the Swedish population (47 vs 2%, respectively). By 50 to 59 years, outcomes for no third molars were similar in the United States and Sweden (53 and 57%, respectively).

Conclusion: The presence or absence of third molars reported from the US and Swedish populations presented contrasting patterns, particularly in the younger cohorts. More comprehensive and detailed data are required in future surveys as population studies on third molars become more important for clinicians and other stakeholders.

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Although data on population-based third molar prevalence would be useful to many, few data from developed nations have been reported in the literature. As a result, clinicians and other stakeholders cannot make comparisons among different populations. Having third molar prevalence data from a population is

fundamental to the design of public health policy and the development of health programs and clinical services. Currently, the only reported population data documenting the presence or absence of third molars are from representative patients in Sweden reported by Hugoson and Kugelberg¹ in 1988 and

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patients representative of the US population reported by Magraw et al² in 2015.

The National Health and Nutrition Examination Survey (NHANES) is a “program of studies designed to assess the health and nutritional status of adults and children in the United States” that combines interviews and physical examinations. The program was described in the report by Magraw et al.² The program was initiated in the 1960s and each survey has focused on different population groups and health topics. NHANES examiners have collected data over a 2-year time frame on various oral conditions. Data reported by Magraw et al² suggested that treatment patterns for third molars have been similar in the United States over the first decade of the 21st century. The Swedish study, the only one reported from a Scandinavian country or a European nation to date, was from the community of Jonkoping, Sweden.¹

The purpose of this report was to compare the prevalence of third molars from the US NHANES of 2011 through 2012 and the Swedish survey. The authors hypothesized that the 2 developed nations would have similar third molar prevalence data. The specific aims of the study were the comparison by decade of age of the presence or absence of third molars in 2 populations and the possible reasons for the detected differences.

Materials and Methods

STUDY DESIGN

To address the research purpose, the authors designed and implemented a cross-sectional study. The study population included all patients in the NHANES of 2011 through 2012 and Swedish patients in 1988 reported by Hugoson and Kugelberg.^{1,2} These surveys reported the only published population-based data assessing all third molars. The NHANES of 2011 through 2012 included a representative population sample of approximately 5,000 US patients with data collected in nonclinical settings.² The Swedish population consisted of approximately 700 representative patients and the survey was originally published by Hugoson and Kugelberg¹ with data collected in clinical settings.

DATA COLLECTION AND ANALYSIS

Oral health data collection protocols for the NHANES were approved by the Centers for Disease Control and Prevention and the National Center for Health Statistics ethics review board (an institutional review board equivalent).² All patients completed a written, informed consent. Data for Sweden were abstracted from the study by Hugoson and Kugelberg.¹ The primary outcome variable was the number of third molars (0 to 4). Predictor variables were the age cohorts by decade (20 to 29 through 70 to 79 yr). Data

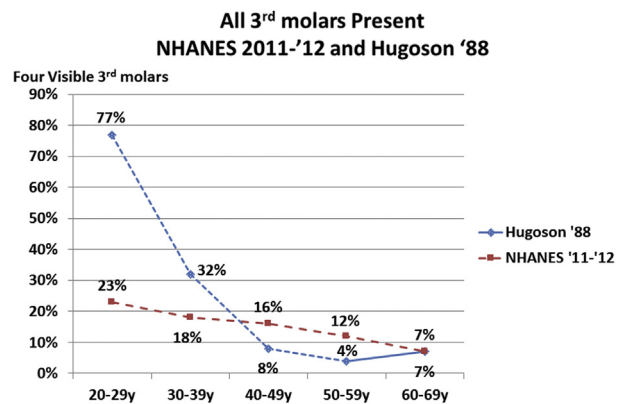


FIGURE 1. Patients with 4 third molars in the NHANES of 2011 through 2012 (N = 4,562) and the study by Hugoson and Kugelberg¹ (N = 693). NHANES, National Health and Nutrition Examination Survey.

Magraw et al. *US vs Swedish Patterns of Missing Third Molars. J Oral Maxillofac Surg* 2017.

on numbers of third molars were compared by age decade. Outcome data were reported with descriptive statistics. No other potentially useful data on confounding variables, such as gender, ethnicity, education, socioeconomic status, or insurance coverage or its equivalent, were available from the 2 surveys.

Results

Different patterns for present or missing third molars by age cohort were evident after comparing the reported data from the US and Swedish populations.^{1,3} Only one fourth of 20- to 29-year-old patients in the NHANES had all 4 third molars compared with three fourths of Swedish patients in the same age cohort (Fig 1). The percentage of patients in the 2011 to 2012 NHANES with 4 visible third molars decreased progressively from 20 to 29 years to 60 to 69 years. For the Swedish population, 77% of the 20- to 29-year-old cohort had 4 third molars. The number of patients with 4 third molars in Sweden decreased dramatically by 40 to 49 years of age and differed only minimally from the outcome data for 4 visible third molars from the US population for that age cohort (Sweden, 8%; NHANES, 16%). Few patients 60 to 69 years old had 4 third molars in the NHANES and Swedish survey (7% for the 2 groups; Fig 1).

No visible third molars were observed in almost half the 20- to 29-year-old patients in the NHANES compared with almost two thirds of 60- to 69-year-old patients (Fig 2). Contrasting outcomes were reported for the younger Swedish patients. Only 2% of 20- to 29-year-old patients had no third molars detected. However, by 50 to 59 years of age, outcomes for Sweden and the United States were similar (57 and 53%, respectively, had no third molars detected; Fig 2).

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