Section 12

TOBACCO

The use of tobacco products has been strongly linked to the development of numerous oral diseases, including oral and pharyngeal cancers and periodontal diseases. About 90% of oral cancer deaths are linked to cigarette smoking (Shopland, 1995). Cigar and pipe smoking and the use of smokeless or "spit" tobacco products have also been connected to oral disease. For instance, smokeless tobacco users have four to six times the oral cancer risk of non-users (Blot et al., 1988). Cigar smokers have 2 to 22 times the risk of oral and pharyngeal cancers compared to non-users (US DHHS, 1998). In one study, about 60% of adolescent males who used spit tobacco experienced gingival recession, compared with 14% of non-users (Offenbacher & Weathers, 1985).

The use of smokeless tobacco (snuff and chewing tobacco) has been found to be associated with oral lesions in both young people and adults (Poulson et al., 1984; Holmstrup & Pindborg, 1988; Tomar et al., 1997). The presence of smokeless-tobacco-type lesions among school-aged adolescents may be an early indicator of increased risk for future oral cancers (US DHHS, 1986).

This section examines the following indicators: smokeless tobacco lesions and trends in tobacco use.

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12.1 Smokeless tobacco lesions

The use of oral tobacco (moist snuff and chewing tobacco) causes oral lesions in both young people and adults (Poulson et al., 1984). Histologically, these smokeless tobacco lesions (STLs) are characterized by hyperkeratinization and vacuolization of the epithelium, acanthosis, and proliferation of inflammatory cells (Axell et al., 1976). Clinically, STLs appear as changes in the color and texture of the oral mucosa (Greer & Poulson, 1983). The highly addictive nature of the nicotine in oral tobacco products makes it difficult for many users to quit (CDC, 1994). In addition STLs in school-aged adolescents may be an early indicator of increased risk for future oral cancers.

STLs are among the most prevalent oral soft-tissue lesions among adolescents in the United States (Kleinman et al., 1994). A study of STL prevalence in a nationally representative sample of adolescents in the United States found that in the 1986-7 period 1.5% of students aged 12 to 17 years had STLs. The prevalence was highest among older, non-Hispanic and white male adolescents (Tomar et al., 1997). The prevalence of STLs among oral tobacco users ranged from 23% to 59%, compared to less than 5% in individuals who did not report oral tobacco use.

SOURCES OF DATA

Analyses reported here are based on data from the 1986-1987 National Survey of Oral Health in U.S. School Children, National Institute of Dental and Craniofacial Research, National Institutes of Health (children analyses) as reported by Tomar et al. (1997) and from the Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention (adult analyses). NHANES III includes data on STLs for persons under 18; however, the sample size was too small for analysis. Data earlier than NHANES III were not available for adults. Thus, it is currently not possible to examine national trends in STLs for either adolescents or adults.

- **Children and Adolescents (12-17 years old) (Figure 12.1.1)**
  - The percentage of school-aged children with STLs was higher among:
    - older children.
    - non-Hispanic white adolescents compared to non-Hispanic black adolescents.
    - males compared to females.
- **Adults (aged 18 and older) (Figure 12.1.2)**
  - The percentage of adults (aged 18 and older) with STLs was higher among:
    - persons 18- to 34-years-old and was dramatically lower among age groups older than 34.
    - non-Hispanic whites and non-Hispanic blacks compared to Mexican Americans.
    - males compared to females, with the percentage of males with STLs at least 15 times that of females.

Bullets reference data that can be found in Tables 12.1.1 and 12.1.2.

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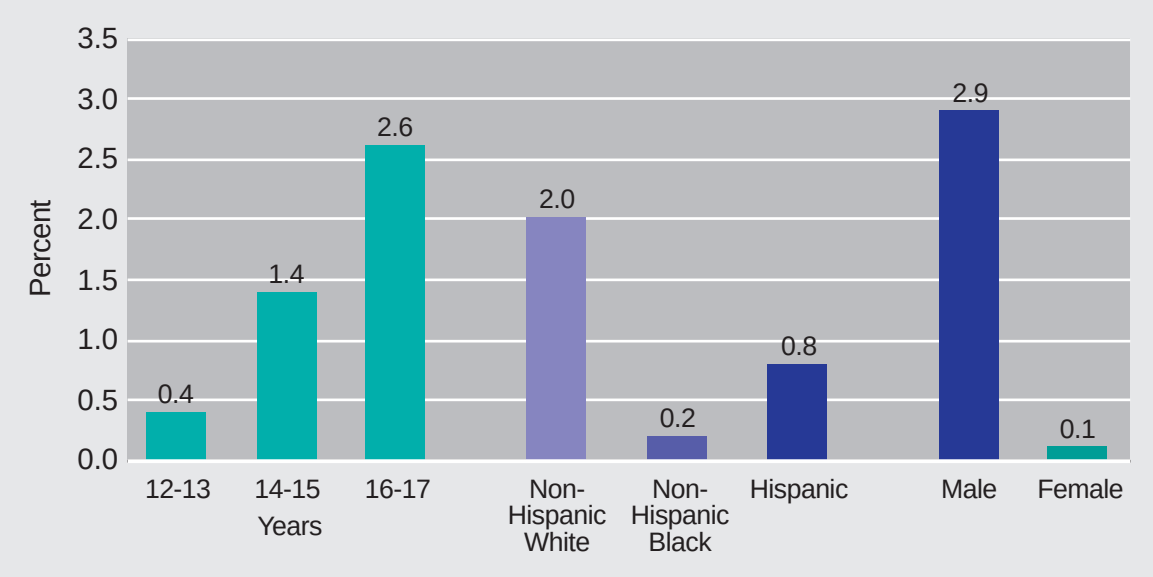
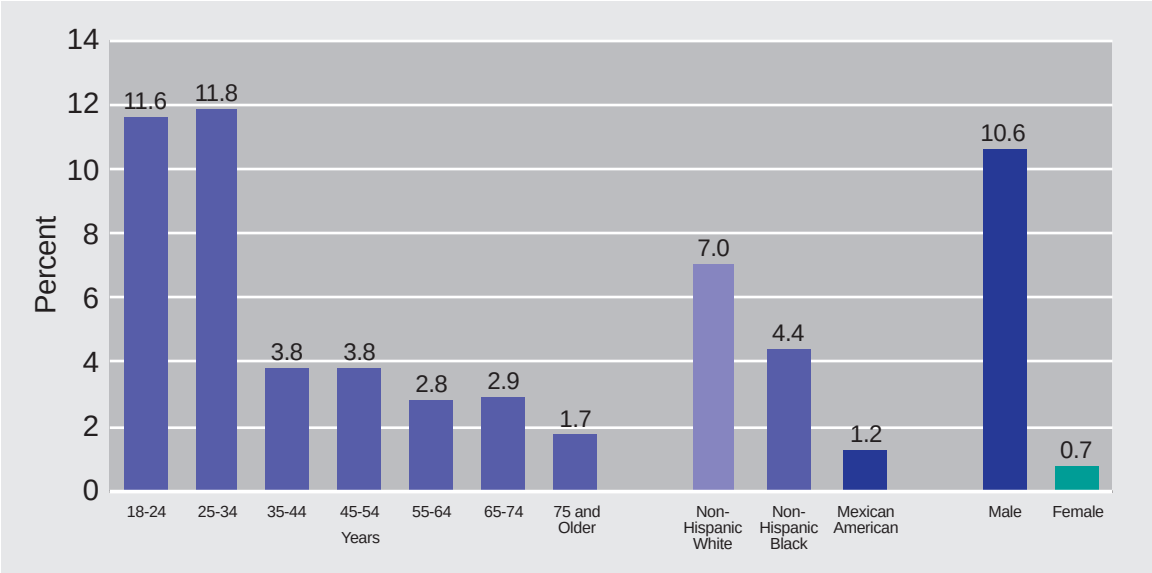
Figure 12.1.1. Smokeless tobacco lesions among 12- to 17-year-olds by selected demographic characteristics



Source: The 1986-1987 National Survey of Oral Health in U.S. School Children, National Institute of Dental and Craniofacial Research, National Institutes of Health via Tomar SL, Winn DM, Swango PA, Giovino GA, Kleinman DV. Oral mucosal smokeless tobacco lesions among adolescents in the United States. J Dent Res 1997;76:1277-86, reprinted with permission from the *Journal of Dental Research*.

Figure 12.1.2. Smokeless tobacco lesions among adults aged 18 and older by selected demographic characteristics



Data source: The Third National Health and Nutrition Examination Survey (NHANES III) 1988-1994, National Center for Health Statistics, Centers for Disease Control and Prevention.

12.2 Trends in tobacco use

Despite extensive antitobacco public health campaigns, tobacco use continues and in 2000 was reported to be increasing among adolescents (US DHHS, 2000). The percentage of high school students reporting cigarette use increased between 1993 (30.5%) and 1999 (34.8%) (CDC, 1995; CDC, 2000a). The increase was seen in both males and females and in all racial/ethnic groups. In the 1998-1999 National Youth Tobacco Survey, 12.8% of U.S. middle school students and 34.8% of U.S. high school students reported being current users of tobacco products (CDC, 2000b). Cigarettes were the most prevalent form of tobacco used for both groups, followed by cigars. In contrast, the prevalence of cigarette smoking among adults declined from 25.0% to 23.5% between 1993 and 1999 (CDC, 2001).

Smokeless tobacco use among high school students decreased between 1993 and 1999. In 1993, 11.5% of high school students reported using smokeless tobacco products, compared with 7.8% in 1999 (CDC, 1995; CDC, 2000a). This decrease was reported by both males and females and by all racial/ethnic groups. However, its use by young men aged 18 to 24 years increased dramatically over the past two decades from 2.2% in 1970 to 8.9% in 1991 (Giovino et al., 1994). In 1991, 2.9% of U.S. adults were current smokeless tobacco users (CDC, 1993). Usage was higher among males and persons with lower levels of education.

Cigar use increased nearly 50% between 1993 and 1997 (Gerlach et al., 1998). Data from the Youth Risk Behavior Surveillance System indicate that 17.7% of all adolescents reported cigar use as did over one-quarter (25.4%) of all adolescent males in 1999 (CDC, 2000).

SOURCES OF DATA

Analyses reported here are based on MMWR Surveillance Summaries from the 1993, 1995, 1997, and 1999 Youth Risk Behavior Surveillance System, Centers for Disease Control and Prevention (see references) and data from the 1996 and 1999 Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention.

Adolescents

- All three race/ethnicity groups of high school students display an increased prevalence of current cigarette smoking between 1993 and 1997 and a slight decrease in prevalence from 1997 to 1999 (Figure 12.2.1).
- The percentage of male current smokers increased between 1993 and 1997 then decreased in 1999. Among females, current smoking increased sharply between 1993 and 1995 (Figure 12.2.2).

Adults

- Trends in current cigarette smoking from 1993 to 1999 are shown in Figure 12.2.3. The level of current cigarette smoking in 1999 is significantly decreased when compared with that in 1993. Other differences are not statistically significant.
- Hispanics report lower current smoking levels than non-Hispanic blacks or whites from 1993 to 1999.
- Females have lower current smoking levels than males from 1993 to 1999.
- Those with more than a high school education have lower current smoking levels than those with lower educational levels from 1993 to 1999.

Bullets reference data that can be found in Tables 12.2.1 and 12.2.2.

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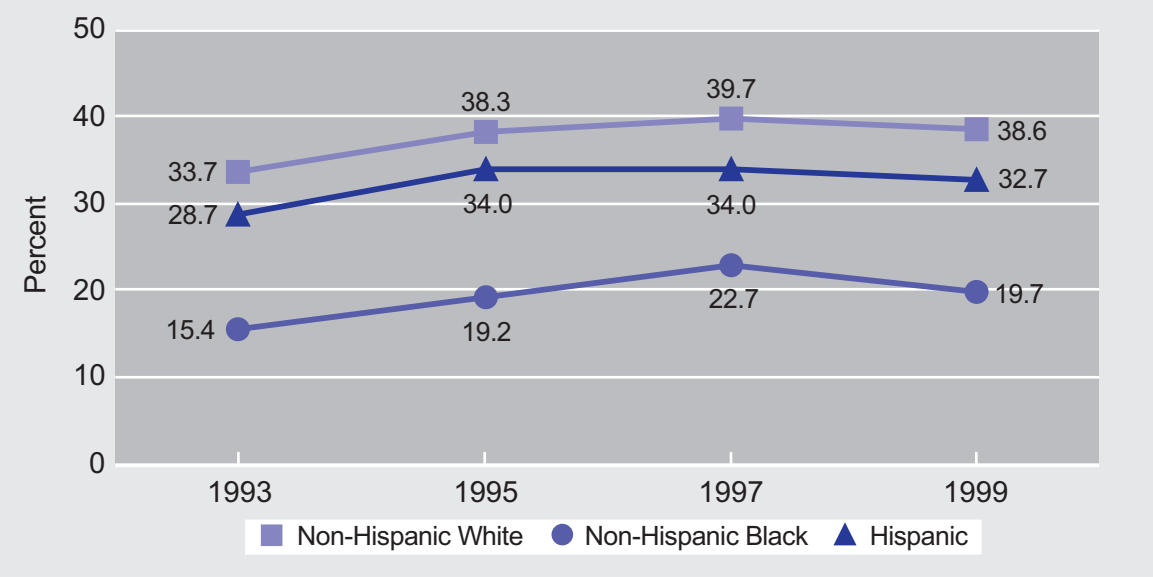
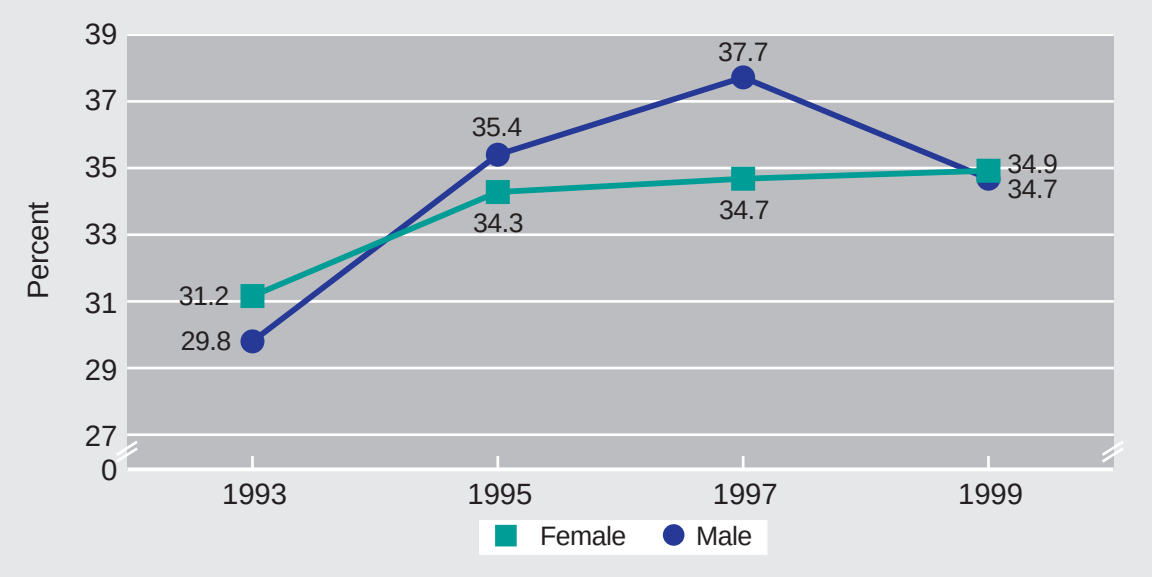
Figure 12.2.1. Trends in prevalence of current cigarette smoking among U.S. high school students by race/ethnicity



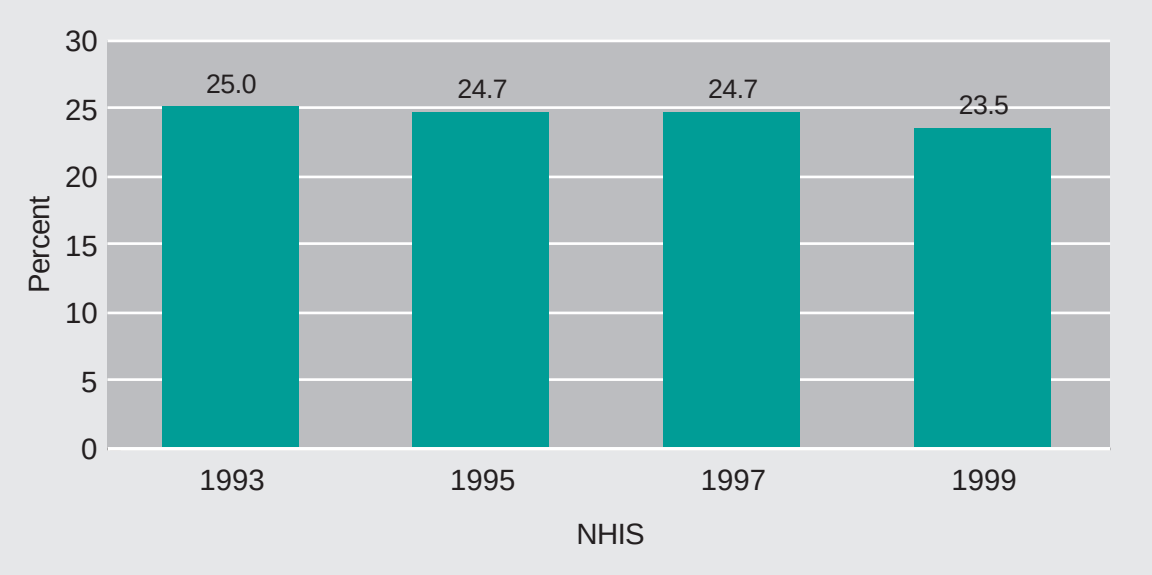
Data sources: 1993, 1995, 1997, and 1999 Youth Risk Behavior Surveillance System, Centers for Disease Control and Prevention.

Figure 12.2.2. Trends in prevalence of current cigarette smoking among U.S. high school students by gender



Data sources: 1993, 1995, 1997, and 1999 Youth Risk Behavior Surveillance System, Centers for Disease Control and Prevention.

Figure 12.2.3. Trends in prevalence of current cigarette smoking among U.S. adults



Data sources: 1993, 1995, 1997, and 1999 National Health Interview Surveys, National Center for Health Statistics, Centers for Disease Control and Prevention.