

Section 14

XEROSTOMIA

14.1 Xerostomia

Xerostomia, the perception of dryness in the mouth, is a significant health issue in elderly populations when associated with reduced salivary function. It affects the ability to chew, swallow, and speak and can reduce quality of life. Numerous studies have shown a lack of relation between xerostomia and decreased salivary flow or hyposalivation (SGH). In cases where xerostomia is accompanied by SGH or where SGH is found without xerostomia, substantial oral health problems follow in the absence of rigorous preventive action. Reasons for the lack of association between xerostomia and hyposalivation are not clear but may relate to changes in the constituents rather than the quantity of saliva or other complex physiologic factors.

Saliva serves several functions in the mouth. Saliva and salivary flow help prevent the accumulation of microorganisms in the mouth (Nederfors et al., 1997). Saliva is necessary for effective remineralization of teeth (Narhi et al., 1999). Salivary flow and constituents, such as amylase, initiate digestion of foods and help dissolve and remove food particles from the mouth. Saliva also lubricates the mucosa of the mouth, facilitating speech, eating, and swallowing and preventing mechanical injury to the surfaces of the mouth. Salivary components, including some glycoproteins and enzymes, have antibacterial, antifungal, and antiviral properties (Astor et al., 1999).

A substantially decreased salivary flow makes communication (speech), nutrition (digestion, chewing, swallowing), and sleep difficult and dramatically increases the risk of rampant, destructive caries. This is seen in patients with salivary gland destruction due to treatment with radiation for head and neck cancers.

Data currently being collected by the Fourth National Health and Nutrition Examination Survey (NHANES IV) will provide the first nationally representative estimates of prevalence of xerostomia. Currently there are no nationally representative data on hyposalivation. Most published studies on prevalence of xerostomia and/or SGH focus on the elderly. This group has the highest percentage of individuals with xerostomia.

Data on hyposalivation are obtained by measurement of unstimulated and stimulated salivary flow. The definition of SGH is complicated by the normal variation in salivary flow during the day, different collection protocols, a broad normal range, and the use of various criteria to define SGH in different studies. Xerostomia is determined by self-report. Fox et al. (1987) formulated a group of four questions that help to identify dry mouth patients with SGH.

Xerostomia is more common among older people and among women (Hochberg et al., 1998; Nederfors et al., 1997). Estimates of the percentage of older individuals with xerostomia range from 10% to 40%. Medications are believed to be responsible for a significant proportion of cases of xerostomia, particularly in the elderly (Nederfors et al., 1997). The list of drugs that are believed to affect saliva levels includes more than 400 agents (Narhi et al., 1999). Several studies indicate that the risk of xerostomia increases with increasing numbers of medications used.

Data discussed below come from a number of publications. Sample designs, populations, and sample sizes vary substantially.

■ Prevalence of xerostomia

- Was higher among older individuals (Table 14.1.1).
- Although the prevalence was higher among older individuals, in one large study the total number of affected individuals in the underlying population (N= 6,048 men and 6,063 women) at different ages showed substantially less variation (Table 14.1.2).
- Was higher among women than men at all ages (Table 14.1.2).
- Was higher among medicated individuals (Table 14.1.2).
- Increased with increasing numbers of medications (Figure 14.1.1).

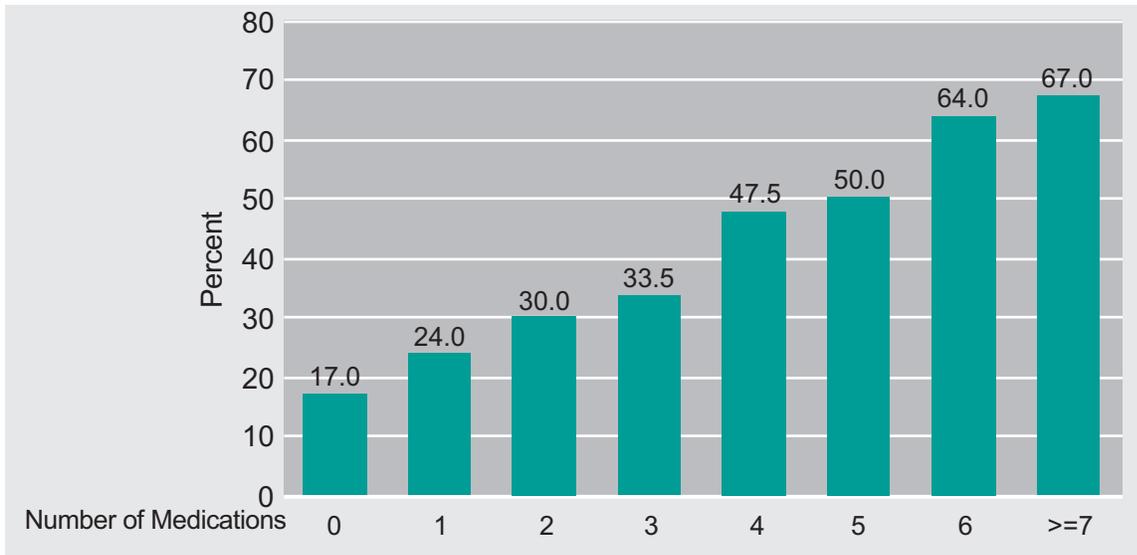
■ Associations between xerostomia and SGH

- In one study the prevalence of SGH was 22.1% and the prevalence of xerostomia was 20.5%. However, only 5.7% (n=39) of participants had both conditions (Thomson et al., 1999).

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Figure 14.1.1. Prevalence of reported xerostomia among subjects aged 20 to 80 years by number of medications taken



Source: Nederfors T, Isaksson R, Mornstad H, Dahlof C. Prevalence of perceived symptoms of dry mouth in an adult Swedish population—relation to age, sex and pharmacotherapy. *Community Dent Oral Epidemiol* 1997;25:211-6. Materials used with the permission of Blackwell Publishing.

Table 14.1.1. Proportion of subjects reporting dry mouth symptoms often or all the time by age

	Age Group: Percent (N)			
	65-69	70-74	75-79	80-84
Number	774	824	540	344
Does your mouth feel dry?	7.6 (59)	10.9 (90)	12.6 (68)	14.2 (49)*
Do you wake at night feeling so dry in your mouth that you need to drink fluids?	11.0 (85)	11.4 (94)	11.1 (60)	13.4 (46)
Either one of the above	14.1 (109)	17.6 (145)	18.3 (99)	21.5 (64)**

Source: Hochberg MC, Tielsch J, Munoz B, et al. Prevalence of symptoms of dry mouth and their relationship to saliva production in community dwelling elderly: the SEE project. *J Rheumatol* 1998;25:486-91. Materials used with the permission of the *Journal of Rheumatology*.

* p < 0.001, chi-squared test for trend.

** p = 0.002, chi-squared test for trend.

Table 14.1.2. Percentage distribution of the prevalence of symptoms of dry mouth (DM) among men (M) and women (W) of different age groups (20-80 years), and number of responders (n) in each age group in the whole population sample and separately for the nonmedicated and the medicated subgroup

Age group	20		30		40		50		60		70		80	
	M	W	M	W	M	W	M	W	M	W	M	W	M	W
Population sample														
DM	17.4	20.9	14.2	21.0	17.5	22.4	19.0	25.2	28.3	35.9	31.9	34.9	32.3	39.3
n	207	234	232	243	240	259	232	242	244	265	251	238	220	206
Nonmedicated subgroup														
DM	14.6	19.6	10.1	20.4	12.5	11.2	13.7	17.8	14.0	18.4	28.0	20.0	20.6	38.5
n	130	97	139	98	135	107	131	90	100	87	93	80	63	39
Medicated subgroup														
DM	22.1	21.9	20.4	21.4	24.0	30.3	25.7	29.6	38.2	44.4	34.2	42.4	36.9	39.5
n	77	137	93	145	105	152	101	152	144	178	158	158	157	167

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