

Chapter 4—Non-Dietary Ingestion Factors

monthly use of a pacifier several 6-year olds were reported to use pacifiers, which altered the age-declining pattern for the daily and more than weekly reported pacifier use. A pattern similar to pacifier use existed with reported mouthing of teething toys, with highest reported use for 1-year olds, a decline with age until age 6 when reported use for daily, more than weekly, and more than monthly use of teething toys increased.

The authors developed an outdoor mouthing rate for each child as the sum of rates for responses to four questions on mouthing specific outdoor objects. Survey responses were converted to mouthing rates per week, using values of 0, 0.25, 1, and 7 for responses of never, monthly, weekly, and daily ingestion. Reported outdoor soil mouthing behavior prevalence was found to be higher than reported indoor dust mouthing prevalence, but both behaviors had the highest reported prevalence among 1-year old children and decreased for children 2 years and older. The investigators conducted principal component analyses on responses to four questions relating to ingestion/mouthing of outdoor objects in an attempt to characterize variability. Outdoor ingestion/mouthing rates constructed from the survey responses were that children 1-year old were reported to mouth or ingest outdoor objects 4.73 times per week while 2- to 6-year olds were reported to mouth or ingest outdoor objects 0.44 times per week. The authors developed regression models to identify factors related to high outdoor mouthing rates. The authors found that children who were reported to play in sand or dirt had higher outdoor object ingestion/mouthing rates.

A strength of this study is that it was a large sample obtained in an area with urban and semi-urban residents within various socioeconomic categories and with varying racial and ethnic identities. However, difficulties with parents' recall of past events may have caused either over-estimates or under-estimates of the behaviors studied.

4.5.2. Warren et al. (2000)—Non-Nutritive Sucking Behaviors in Preschool Children: A Longitudinal Study

Warren et al. (2000) conducted a survey response study of a non-random cohort of children born in certain Iowa hospitals from early 1992 to early 1995 as part of a study of children's fluoride exposure. For this longitudinal study of children's non-nutritive sucking behaviors, 1,374 mothers were recruited at the time of their newborns' birth, and more than 600 were active in the study until the children were at least 3 years old. Survey questions

on non-nutritive sucking behaviors were administered to the mothers when the children were 6 weeks, and 3, 6, 9, 12, 16, and 24 months old, and then yearly after age 24 months. Questions were posed regarding the child's sucking behavior during the previous 3 to 12 months.

The authors reported that nearly all children sucked non-nutritive items, including pacifiers, thumbs or other fingers, and/or other objects, at some point in their early years. The parent-reported sucking behavior prevalence peaked at 91% for 3 month old children. At 2 years of age, a majority (53%) retained a sucking habit, while 29% retained the habit at age 3 years and 21% at age 4 years. Parent-reported pacifier use was 28% for 1-year olds, 25% for 2-year olds, and 10% for 3-year olds. The authors cautioned against generalizing the results to other children because of study design limitations.

Strengths of this study were its longitudinal design and the large sample size. A limitation is that the non-random selection of original study participants and the self-selected nature of the cohort of survey respondents who participated over time means that the results may not be representative of other U.S. children of these ages.

4.6. REFERENCES FOR CHAPTER 4

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