

The AAPD Foundation and Oral-B Checkup on Children's Oral Health Study

RESEARCH REPORT

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I. EXECUTIVE SUMMARY

A research study was conducted among mothers and/or primary caretakers to evaluate the awareness, attitudes, perceptions and behaviors related to oral health and oral care of children up to 12 years of age.

The study was conducted among 1,000 respondents on a national basis. The sample included mothers and/or primary caretakers of children up to 12 years of age, as well as prenatal women. Additionally, respondents were screened to reflect the US population in terms of geographic region, annual household income, and ethnic origin.

A telephone survey was conducted using commercially purchased sample lists. Five sub-groups based on the age of the child are included. Each sub-group comprises of 200 respondents: the first includes 148 expectant mothers and 52 mothers/caregivers of children 1-3 months of age, and the remaining groups each include 200 mothers/caretakers of children four months to one year, two to four years, five to seven years and eight to ten years of age, respectively.

Results show that:

Personal Hygiene: Gum Care, Brushing, Flossing

- Just over half the mothers/caregivers in the sample cleaned their child's gums before he/she had teeth.
- Over seven out of ten children begin to have their teeth brushed with a toothbrush by one year of age, and more than two-thirds of the mothers/guardians whose children brush their teeth on their own say that the child began brushing his/her teeth unsupervised at the age of five or after.
- The two most popular ways for the parent/guardian to ensure that the child's teeth are brushed is to brush with the child (28%), or by reminding the child to brush (23%).
- One half of the mothers/guardians in the sample say that a pea-size amount of toothpaste is used to brush the child's teeth. The amount of toothpaste used gradually increases with the age of the child.
- A manual toothbrush for children is used by two-thirds of the respondent's children. As children get older, other types of toothbrushes get used as well.
- The majority (85%) of mothers/caretakers replaces her child's toothbrush up to every six months, with most doing it every three to four months. Toothbrushes for younger children are less often replaced than for older children.
- About 44% of the mothers/guardians say that the child has not yet begun to have his/her teeth flossed. Most children start to have their teeth flossed after the age of 2 years, and children typically start to floss on their own after the age of five.

Professional Dental Care

- About two-thirds of the mothers/caregivers (65%) say that their child has visited a dentist. Among those who have visited a dentist, starting at about 20% for children up to 3 months of age, by the time children are 12 years of age, all have visited a dentist.
- Among dentist goers, more than seven out of ten parents/guardians say that the child first went to the dentist between the ages of 2 to 4, and most have regularly scheduled visits (89%), mostly at a frequency of twice a year (77%). About half of those who see a dentist report seeing a pediatric dentist.

Early Sucking and Snacking Behavior

- An overwhelming majority of mothers/caretakers (87%) claims that she did/does not put the child to bed with a bottle containing milk, formula, or juice.
- About 12% of mothers report that their child never used a bottle. Another 14% have children still using one. Among the remaining sample, most say they weaned their child off of a bottle after the child was 12 months of age with the highest level doing so between the ages of 12 to 17 months.
- About 40% of the children have never used a pacifier or similar objects for simply sucking pleasure, while 12% in the sample still do so. Very few continued to use these devices after the age of two to three years.
- A majority of the children have two (45%) or three (21%) individual snacks per day besides the three main meals. Frequency of eating snacks increases with the age of the child.

Cavity & Sealant Issues

- Less than three out of ten mothers/guardians say that their child has had a cavity. As expected, the likelihood of a child having a cavity increases as the child gets older.
- Just over one in five mothers/guardians say that their child has had sealants in her/his teeth.

Perceived Satisfaction with Child's Oral Hygiene Habits

- There is a high level of satisfaction among mothers/caregivers regarding some of the oral hygiene behaviors of their children. Based on behaviors that apply to their child (removing "does not apply" responses), results show that high levels of women report that their child eats nutritiously, and among those who brush, uses the correct amount of toothpaste (90% each), toothbrushes are replaced when the bristles no longer stand up (90%), their child brushes properly and often enough (77% each) and has the coordination to brush properly (73%). The levels are somewhat lower for brushing long enough (68%) and flossing properly (59%), and about 34% report their child swallows toothpaste.

Oral Care Concerns, Information, and Knowledge

Results show that while respondents show concern about oral care and the adequacy of oral care information for their child, they also report feeling that they do generally have information about most issues and are knowledgeable about how to care for their child's oral health.

- When asked about their top concern for their child's or expectant child's oral care, about one in four women mention cavities/tooth decay (24%). Other top concerns are proper brushing/flossing (18%) and maintenance of healthy teeth/gums (15%).
- Mothers and caretakers are very/somewhat concerned about getting adequate information about oral care for their children. The highest concern is seen related to the adequacy of information on proper nutrition for healthy teeth and gums (77%) and whether their child's oral hygiene is adequate (73%). Also of high concern is the adequacy of information on the right amount of fluoride (70%), on the child knowing how to brush and being able to do so (70%), and having enough information to ensure that the child has the best oral care (68%). The lowest concern about the adequacy of information is about their child going to the dentist frequently enough at 63%.
- The majority of respondents (prenatal and mothers/caregivers), however, also say that they do have adequate information about most other oral health related issues such as when their child should start brushing (84%) and about selecting the appropriate dental products for the child (83%). Information about diet and nutrition behaviors harmful to the child's dental health is also at a strong 83%. About eight out of ten respondents say that they feel they have adequate information on proper brushing techniques for their child and also on the number of dental visits their child should have. Adequacy of information on motivating the child to brush is at 77%, closely followed by when the child should first go to the dentist (76%).
- Women are substantially more likely to look to a general dentist as a source for information about their child's oral hygiene than any other source (52%). Other means of getting information about the children's oral hygiene are through magazines and books (26% and 17%, respectively) as well as pediatric dentists or doctors (21% and 17%, respectively).
- Agreement levels about child's oral health issues show high level of knowledge about these issues among the respondents. Most respondents are aware that "baby" teeth can decay (98%), and do require care (only 4% feel they don't), drinking a bottle at bedtime can harm teeth (95%), oral health is related to overall health (94%), physical dexterity affects a child's brushing ability (87%), as well as that there is such a thing as too much fluoride (81%). The two areas where there is some confusion relate to children having some oral care regardless of age (59%), and whether a child and adult have the same oral care needs (36%).
- Respondents are generally highly aware about many of the oral hygiene guidelines related to protection offered by fluoride (93%), that fruits, vegetable, peanut butter and cheese make the best snacks (92%), bedtime bottles should contain only water (90%), and children should start to brush teeth as soon as they appear (85%). There is least awareness about gum disease being associated with premature births and low birth weight (13%) and regular visits to pediatric dentist should start when the first tooth appears and no later than 12 months (34%).

- There is a moderate to moderately high awareness on remaining guidelines such as only a pea-sized amount of toothpaste is necessary when child learns to spit after brushing (78%), children should be weaned off a bottle by 12 months, and pregnant women should see a dentist regularly (73% each), that children should start brushing his/her own teeth at age 3 and continue to be helped to brush until age 6 (65% each), and that sugar and starch should be served only at mealtimes (62%).
- Generally, income levels did not significantly influence results and few differences in ethnic origins were seen as noted in the pages below.

The above results show that mothers and/or primary caretakers and prenatal women are aware of many of the important issues in oral care and undertake appropriate behaviors overall, in general.

Nevertheless, respondents do report having many concerns about their child's oral health, and feel they do not have adequate information about a number of issues even as they report high levels of knowledge on a number of issues. This is more true of younger mothers with children under five and of prenatal women, and ethnic groups for some specific issues.

There are gaps in information and awareness levels with regard to issues such as those related to fluoride benefits and limitations, gum disease, flossing, dentist visits and appropriate age to start specific health care behaviors. Providing information about these oral health and care issues and validating their knowledge about these issues would seem to be helpful overall.

II. INTRODUCTION

Background & Study Purpose

Gallup & Robinson Inc. was commissioned by Jordan Associates for the American Academy of Pediatric Dentistry (AAPD) and Oral-B, to conduct a study among mothers and/or primary caretakers to evaluate their awareness, attitudes, perceptions and behaviors related to oral health and oral care of children up to 12 years of age.

The study was conducted among 1,000 respondents on a national basis. The sample included mothers and/or primary caretakers of children up to 12 years of age, as well as prenatal women. Additionally, respondents were screened so as to reflect US population in terms of geographic region, income, and ethnic origin.

Research Objectives

The study objective was to evaluate the awareness, attitudes, knowledge levels and behavioral patterns related to oral health and a variety of specific oral care issues among prenatal women and mothers/primary caretakers of children up to 12 years of age.

More specifically areas of inquiry were:

- To assess the attitudinal and behavioral patterns of mothers and/or primary caretakers related to the oral health and oral care issues such as personal hygiene, professional care, early sucking behavior and snacking behaviors;
- To evaluate oral care problems as well as perceived satisfaction with oral care behaviors of children up to 12 years of age;
- To identify the major concerns of mothers and/or primary caretakers as well as prenatal women related to their children's oral health and care;
- To assess the adequacy of information and information sources concerning matters of oral hygiene and care for children among the full sample;
- To evaluate the knowledge levels related to the oral care issues and guidelines for oral health among all respondents, and
- To identify whether there are any differences in oral care behaviors and/or attitudinal and knowledge levels among mothers/primary caretakers as well as prenatal women of different income levels and ethnic origin.

III. METHODOLOGY

Research Design & Sampling

In order to accomplish the objectives for this study, a national telephone survey was conducted. The sample consisted of 1,000 completed interviews of qualified respondents. Quotas were set to achieve nationwide representation of:

- Geographic dispersion
- Income levels
- Ethnic origins

Respondents qualified by being pregnant or mothers and/or primary caretakers of children up to 12 years of age. To ensure sufficient sample sizes among sub-groups of interest, the sample was divided into five equal groups of women with children in the age ranges as follows:

- Prenatal & 1-3 months of age
- 4 months to 1 year of age
- 2 to 4 years of age
- 5 to 7 years of age
- 8 to 12 years of age

Respondents with multiple children in this age range were classed into the oldest child age range category. Children with siblings older than 12 years of age were included in the group where the oldest child under 12 belonged.

In order to achieve the objectives of the study in a cost-efficient way, commercial lists were purchased and used for sample recruitment. The sample was obtained via random digit dial (RDD) within these sample lists using the CATI system. The telephone interviewing was conducted in January 2002, and was completed over a three-week period.

Analysis Plan

This research report represents a summary of the major findings. Detailed tables have been provided earlier that show data for all the questions asked.

Results are presented here for the total sample, as well as the following sub-segments of interest:

- Age of child: Prenatal to 1-3 months of age
4 months to 1 year of age
2 to 4 years of age
5 to 7 years of age
8 to 12 years of age

- Annual household income: Under \$25,000
\$25,000 to \$49,999
\$50,000 or more
- Ethnic Background: Caucasian
African-American
Hispanic
Asian

Statistical analyses have been conducted among sub-groups as necessary and presented in this report. Analyses were conducted using the 90% confidence level. The t-test analysis was used, and any observed probability values for difference between sub-groups of interest below this level have been reported as a “significant” difference. The analysis shows that the odds are 9:1 that such a difference between the two examined sub-groups exists and is not due to sampling or measurement error. The following notations have been used in the report to show this significance difference in response wherever appropriate among the five age groups of children for the 90% confidence level:

- a: Significantly higher than prenatal/1-3 months sub-group
- b: Significantly higher than 4 months-1 year sub-group
- c: Significantly higher than 2-4 years sub-group
- d: Significantly higher than 5-7 years sub-group
- e: Significantly higher than 8-12 years sub-group

IV. RESEARCH RESULTS

The following pages set out the major findings of this study, and as outlined above, discuss the results in terms of the total sample as well as the sub-groups related to the age of the child, annual household income and ethnic origin of the respondents.

Section A deals with results related to the personal hygiene habits of the children, professional care and dentist visits, early sucking behavior including nutritive and non-nutritive sucking, and snacking behaviors.

Section B relates to the oral care problems such as cavities and sealants for children and the perceived satisfaction of the child's oral hygiene behaviors among their caretakers.

Section C deals with the oral care concerns, information sources and adequacy of information related to children's oral care, and the knowledge and awareness levels regarding guidelines for these issues.

Section D portrays the sample profile and characteristics in terms of demographics and related issues.

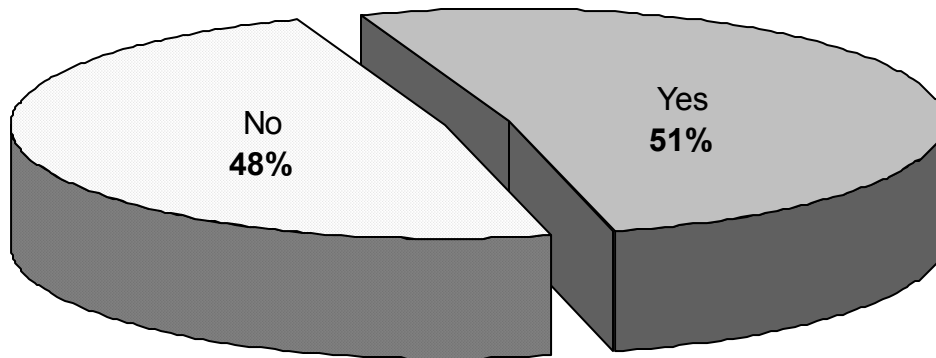
Section A

Personal Hygiene: Gum Care, Brushing, Flossing

Gum Care

- More than half of the mothers/guardians in the sample said that they regularly cleaned their child's gums before the child had teeth.

Regular Cleaning of Child's Gums

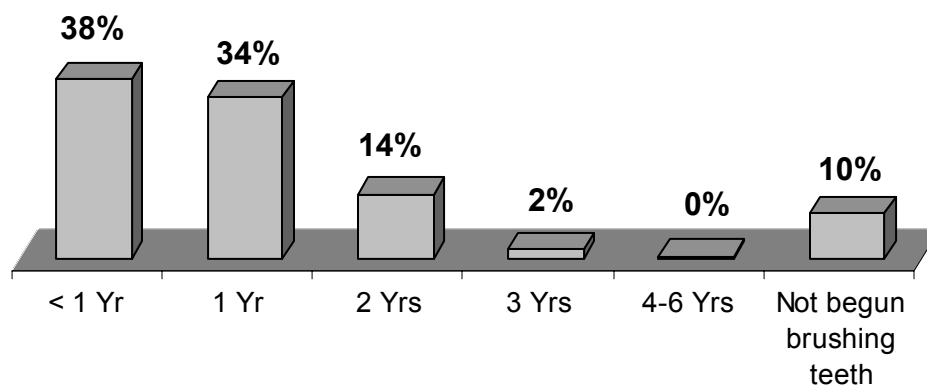


- Lower income parents/caretakers are more likely than higher income ones to clean the child's gums before the child has teeth (62% among those with annual income of less than \$25K as compared to 48% among those with annual income of \$50K+).
- While there is an almost equal split among Caucasian mothers/guardians who cleaned the child's gums regularly before the child had teeth and those who did not, more than six out of ten African-American and Hispanic women clean their child's gums before the child has teeth. On the contrary, less than four out of ten Asian women are likely to do so.

Age when Teeth Brushing Begins

- An overwhelming majority of the children, over seven out of ten children, begin to have his/her teeth brushed with a toothbrush by one year of age. Another 14% of the children started to have their teeth brushed at the age of two. The remaining few started later as outlined below.

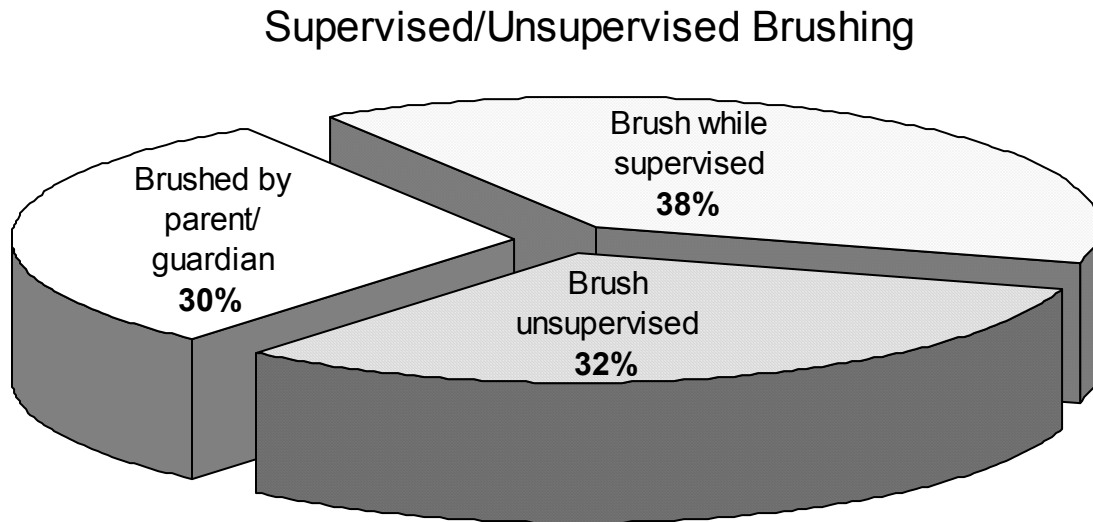
Age when Teeth Brushing Begins



- Income levels do not show significant differences in the age when the child begins to have his/her teeth brushed with a toothbrush.
- Similarly, ethnic origin did not influence the age when children begin to have their teeth brushed with a toothbrush.

Supervised/Unsupervised Brushing

- About three out of ten children currently have their teeth brushed by a parent or caregiver; a similar proportion of children are reported to brush on their own unsupervised while the remaining brush while being supervised.



- As expected, the younger the child the more likely he/she is to have his/her teeth brushed by a parent or caregiver, or to brush on his/her own while supervised. Consequently, the older the child gets, the more likely he/she is to brush on his/her own unsupervised.

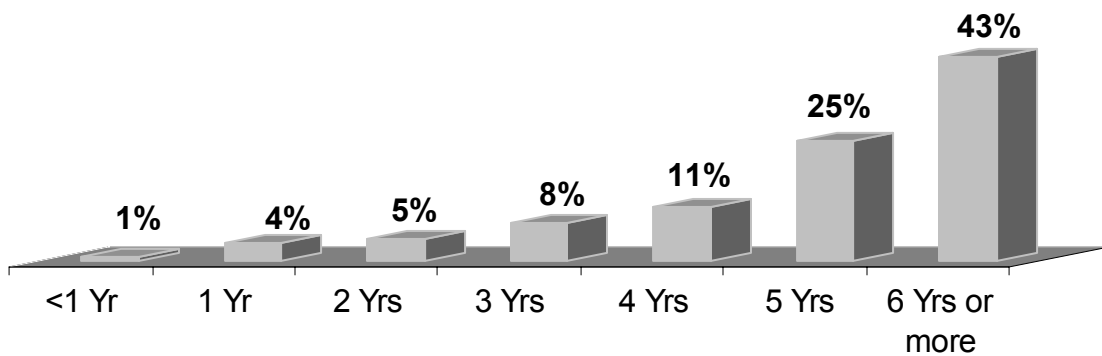
Brushing Supervision by Age of Child

Currently, this child...	1 to 3 Mo. %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Has his/her teeth brushed by a parent or caregiver	57de	57cde	48de	17e	1
Brush on his/her own while supervised	40e	27	45be	56abce	22
Brush on his/her own unsupervised	0	15ac	6a	27abc	78abcd
(Base #)	(30)	(142)	(199)	(200)	(200)

Unsupervised Teeth Brushing Age

- Among those who have children brushing unsupervised, more than two-thirds of the mothers/guardians say that the child began brushing his/her teeth unsupervised at the age of five or after. Significantly fewer child did so at younger ages of four or three.

Unsupervised Teeth Brushing Age

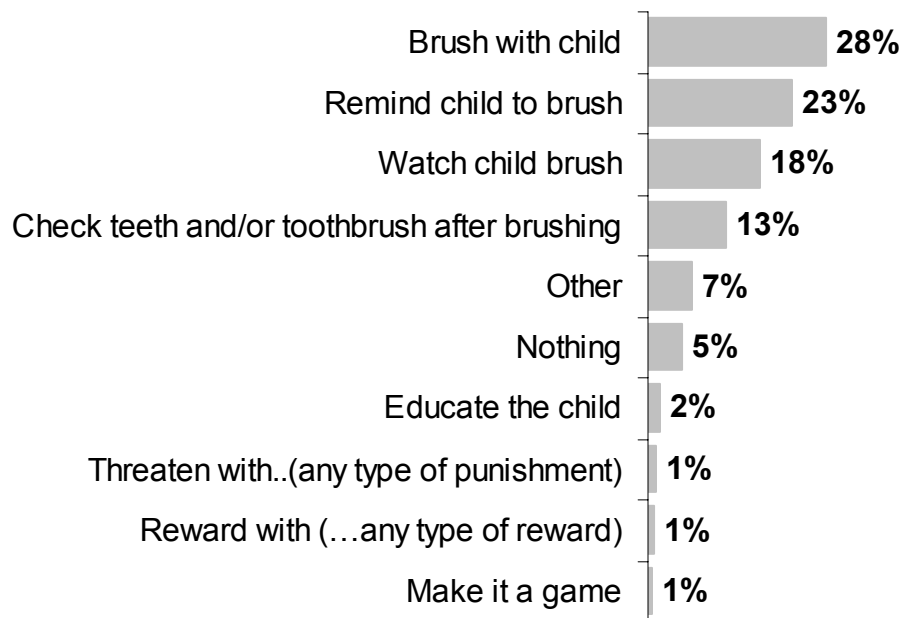


- No systematic ethnic or income influences are seen on age of brushing unsupervised.

Ensuring Child's Teeth are Brushed

- Although there is no single method used by most respondents to ensure that the child's teeth are brushed, the most popular way for the parents/guardians to ensure that the child's teeth are brushed is to brush with the child (about one in three parents do so), closely followed by reminding the child to brush (about one in four parents do so). Other methods used are to watch the child brush, and check teeth and/or toothbrush after brushing. About 5% said they do not do anything to ensure that the child's teeth are brushed.

Ensuring Child's Teeth are Brushed



- Brushing with the child is mostly popular among parents/guardians of children that are up to 4 years of age. For children 5 to 7 years of age, watching the child brush is more often used (26%), followed by reminding the child to brush (24%). Brushing with the child is still used by more than one out of five parent/guardians of children 5 to 7 years of age, but it becomes a less frequent way to ensure that children's teeth are brushed in the 8 to 12 years of age category. Older children's parents/guardians primarily remind the child to brush (43%). Over one in five respondents check teeth/toothbrush after brushing, while less than that watch the child brush.

Ensuring Brushing by Age of Child

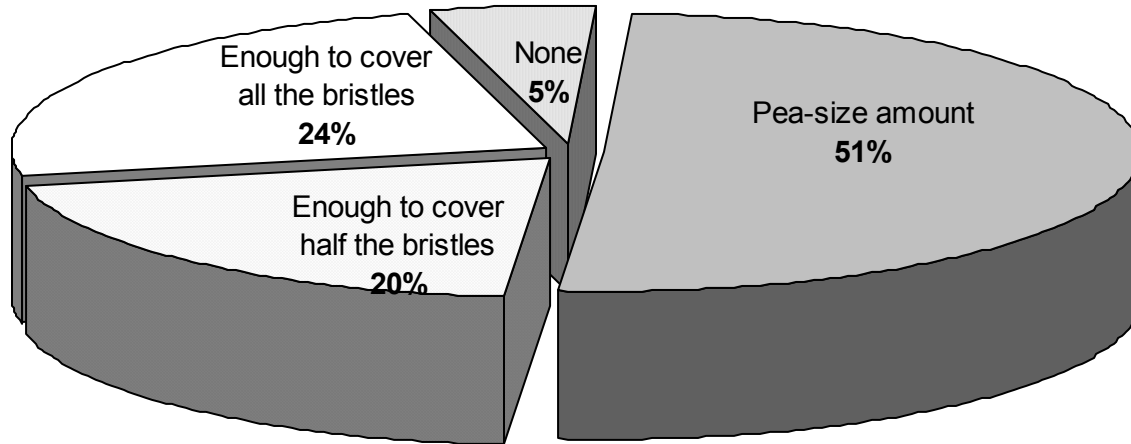
Methods to ensure child's teeth are brushed	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Brush with child (parent and child brush own teeth side-by-side)	50de	39de	48bde	22e	5
Watch child brush	20	9	17b	26bce	18b
Remind child to brush	13	14	11	24bc	43abcd
Check teeth/toothbrush after brushing	3	6	5	17abc	22abc
Educate the child	0	2	2a	2a	2a
Other	10	14de	10de	5e	1
Nothing	3	11acd	4	3	7d
(Base #)	(30)	(142)	(199)	(200)	(200)

- There is no significant difference across ethnic origin or income levels as to the ways used by parents/guardians to ensure that children's teeth are brushed.

Toothpaste Amount Used

- One half of the mothers/guardians say that a pea-size amount of toothpaste is used to brush the child's teeth. About one out of five respondent says enough toothpaste is used to cover half the bristles while roughly one out of four says enough toothpaste is used to cover all the bristles.

Toothpaste Amount Used



- A low 5% of mothers/guardians who say they are not using toothpaste to brush the child's teeth are primarily mothers/guardians of children up to 1 year of age.
- As seen from the table below, the younger children tend to use a lower amount of toothpaste, and there is a gradual increase in the amount of toothpaste used as the child grows up.

Amount of Toothpaste Used by Age of Child

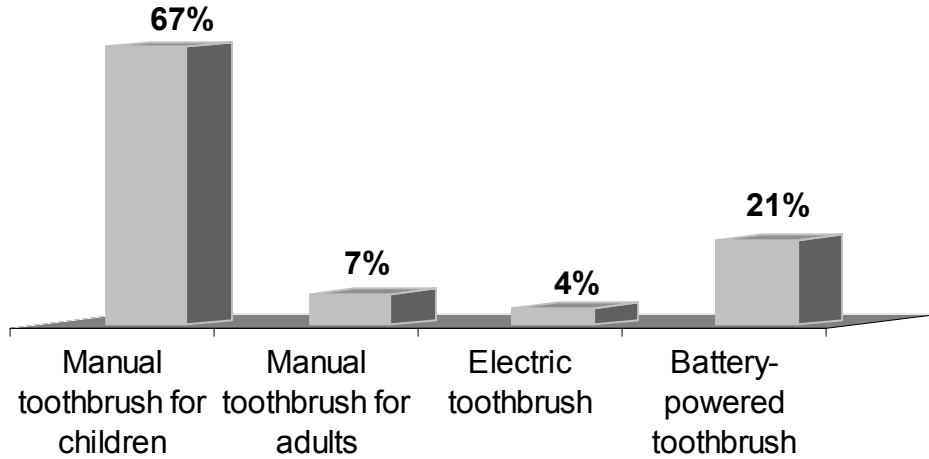
Amount of toothpaste used to brush child's teeth	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Pea-size amount	73bde	58e	64de	52e	27
None	17cde	17cde	5de	1	0
Enough to cover half the bristles	7	11	17a	25abc	29abc
Enough to cover all the bristles	3	14a	15a	23abc	45abcd
(Base #)	(30)	(142)	(199)	(200)	(200)

- Income levels do not generally signify differences in the amount of toothpaste used to brush children's teeth .
- Overall, among ethnic groups, African-Americans tend to use significantly more toothpaste (47% use enough to cover bristles) than Caucasians and Hispanics (23% and 22%, respectively, use enough to cover bristles).

Type of Toothbrush Used

- Manual toothbrush for children is used by two-thirds of the respondent's children. Battery-powered toothbrush is the next popular type of toothbrush and used by more than one out of five children, while manual toothbrush for adults and electric toothbrush are at low levels of usage among the children at this point.

Type of Toothbrush Used



- Manual toothbrush for children, although the most popular way of brushing, is used less frequently as children grow up and they start to use the manual toothbrush for adults more frequently. Similarly, the electric toothbrush is used more by children that are older in age, although it is the least used way of brushing. Battery-powered toothbrush is also more popular among children that are ages 5 or older as shown below.

Type of Toothbrush Used by Age of Child

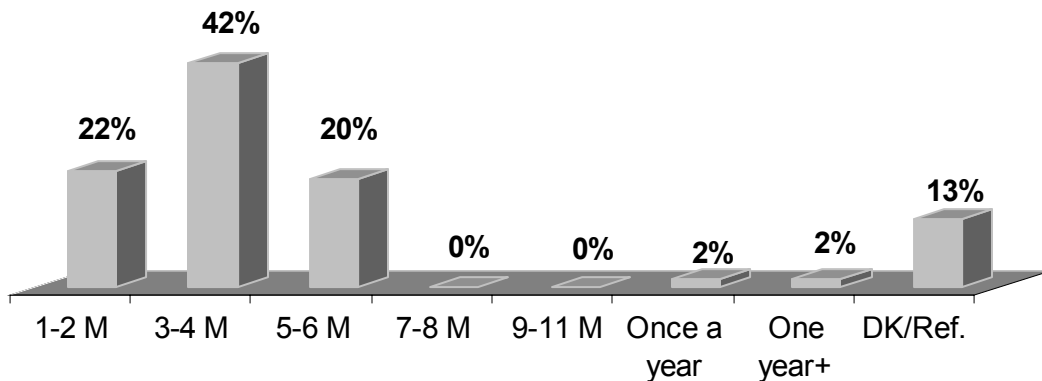
Type of toothbrush used by child	1 to 3 Mo. %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Manual toothbrush for children	83de	80de	77de	66e	46
Battery-powered toothbrush	17	10	16b	28bc	27bc
Manual toothbrush for adults	0	4a	4a	2a	20abcd
Electric toothbrush	0	2	2a	5a	8abc
(Base #)	(30)	(142)	(199)	(200)	(200)

- Income levels are not associated with differences in the type of toothbrush that the child uses.
- Manual toothbrush for children is equally preferred by mothers/guardians of all ethnic origin; but battery-powered toothbrush is more used by Caucasians (24%) and African-Americans (10%), while Hispanics prefer the manual toothbrush for adults (12% as compared to 7% to 8% among other groups) over the battery-powered toothbrush (used by only 7% Hispanics).

Replacing child's toothbrush

- The majority (85%) of mothers/caretakers replaces their child's toothbrush up to every six months, with most doing it every three to four months. About 4% do so less frequently than every six months.

Replacement of Child's Toothbrush



As seen across different age groups below, very young children's toothbrushes are replaced less often than older children's: The frequency of replacing the child's toothbrush within every six months is at similar levels (more than 90%) for children ages 2 to 12 years, and significantly higher than for children of younger ages (at 50% to 60%).

Toothbrush Replacement by Age of Child

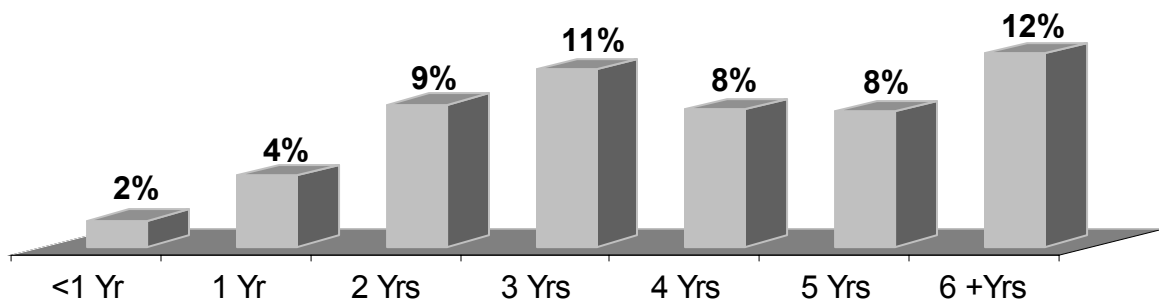
Frequency of replacing child's toothbrush	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Every 1 to 2 months	14	18	30abe	26abe	18
Every 3 to 4 months	23	29	49ab	50ab	47ab
Every 5 to 6 months	15	13	20b	22b	29abc
Every 7 to 8 months	0	1	0	0	1
Every 9 to 11 months	0	0	0	0	0
Once a year	4	1	0	1	4bd
After more than one year	0	1	1	1	1
(Base #)	(52)	(200)	(200)	(200)	(200)

- Household income does not influence the frequency of replacing the child's toothbrush.
- About 87% of Caucasian mothers/guardians are likely to replace the child's toothbrush up to every 6 months, versus 74% of African-Americans and 78% of Hispanics.

Flossing Teeth: Starting Age

- About four out of ten mothers/guardians say that the child has not begun to have his/her teeth flossed yet. Most children start to have their teeth flossed after the age of 2 years.

Flossing Teeth: Starting Age

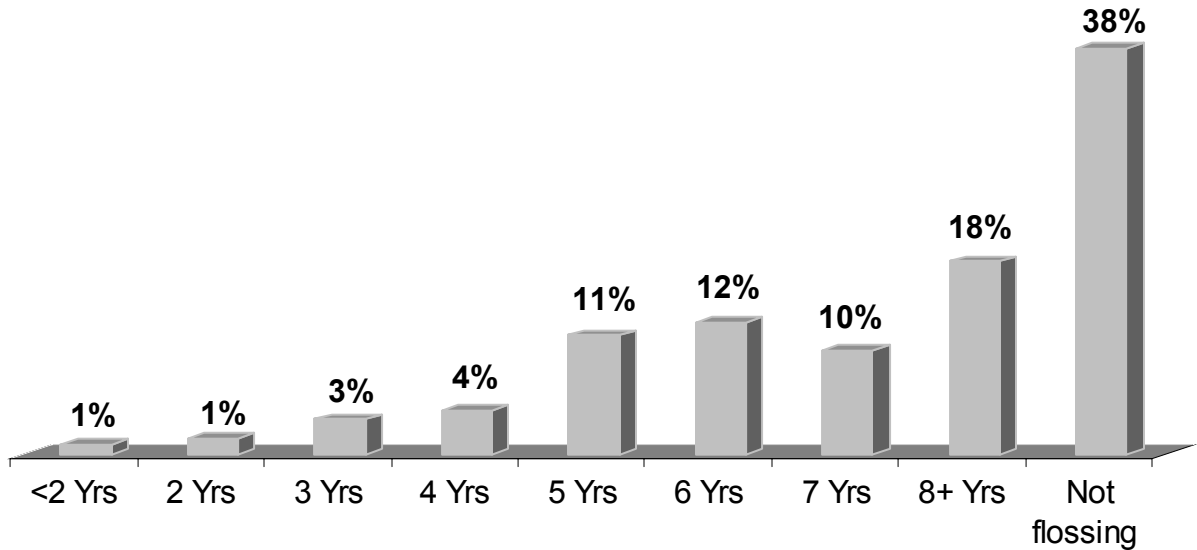


- There is no significant variation across income levels or ethnic origin in age of flossing.

Flossing Teeth by Self

- Overall, children begin to floss their own teeth as they grow much older: Roughly one out of ten children begins flossing his/her own teeth at the ages of five, six, and seven, respectively (see below). Children who begun flossing their own teeth at the age of 8 or more are at even higher levels. Few children under four begin to floss their own teeth.

Flossing Teeth by Self



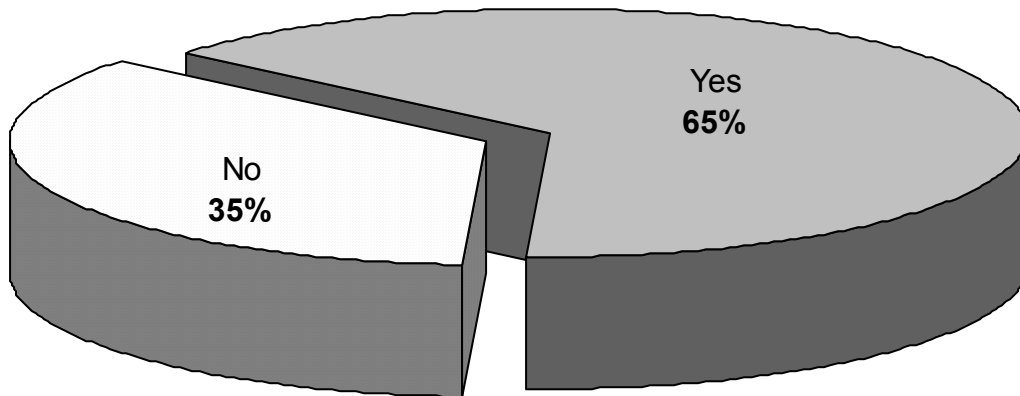
- There is no significant variation across income levels or ethnic origin with respect to age of flossing by self.

Section A Professional Dental Care

Dentist Visits

- About two-thirds of the mothers/caregivers say that their child has visited a dentist.

Child Visited Dentist (ever)



- Starting at about 20% for children up to three months of age, by the time children are five years of age, 96% of the children have visited a dentist. Half of the children aged two to four have visited a dentist while more than nine out of ten children that are between five and seven years of age and all eight to 12 year-olds have done so.

Dentist Visit by Age of Child

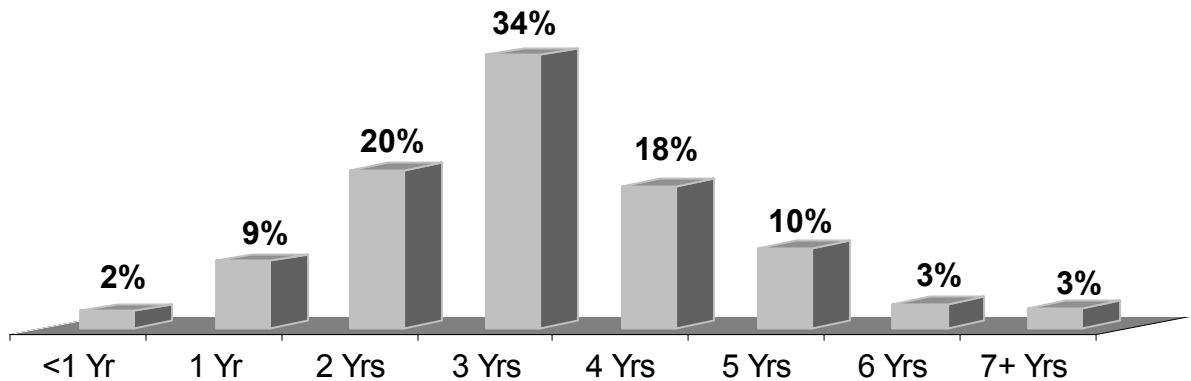
Ever visited a dentist	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Yes	21	29	50 ab	93 abc	100 abcd
(Base #)	(52)	(200)	(200)	(200)	(200)

- Difference in household income is not shown to affect behavior of visiting a dentist for the child.

Age of First Dentist Visit

- Among those who have visited a dentist, more than seven out of ten parents/guardians say that the child first went to the dentist between the ages of 2 to 4. Children up to one year of age are less likely to start visiting the dentist. A similar small proportion of children visited the dentist for the first time at the age of 5, while children who visited the dentist for the first time at the age of 6 or older are even fewer.

Age of First Dentist Visit

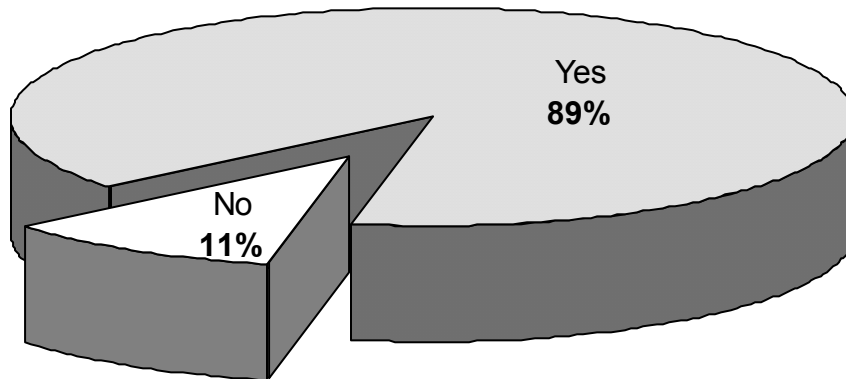


- Household income does not show significant differences when first dentist visits were made.

Regular Dentist Visits

- Again, among those who have visited a dentist, the majority (89%) of parents/guardians say that the child has regularly scheduled dentist visits.

Regular Dentist Visits



- Regularly scheduled dentist visits are generally high across all ages of children who visit dentists keeping in mind younger children visit dentist less often than older children.

Regular Visits to Dentist by Age of Child

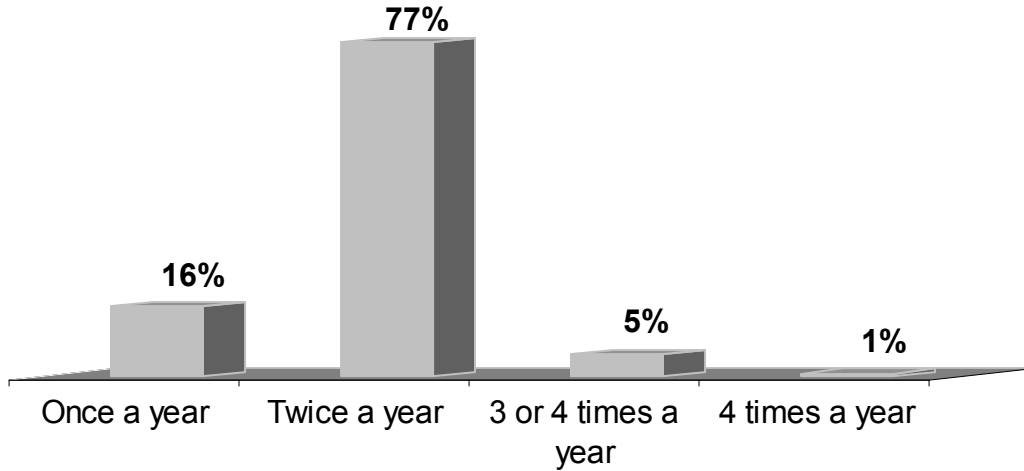
Regularly scheduled dentist visits for child	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Yes	91	90c	80	91c	92c
(Base #)	(11)	(57)	(99)	(186)	(199)

- Among those who do visit the dentist, parents/guardians of all ethnic groups show similarly high levels of scheduling regular dentist visits for their children although African-Americans are directionally lower (83%) than Caucasians (90%) and Hispanics (91%) and Asians (100%).
- Higher income parents/guardians show a gradual increase in scheduling regular visits of the child to the dentist although all levels are high (83% to 94%).

Frequency of Dentist Visits

- Among dentist goers, the majority, almost 8 out of 10 respondents, say that their child has regularly scheduled dentist visits twice a year. More than 15% said that the child has regularly scheduled dentist visits once a year.

Frequency of Regular Dentist Visits



- Children up to 3 months and 2 to 4 years of age are more likely to have three or four times a year regularly scheduled dentist visits than other children; Children up to 1 year of age as well as those between the ages of 5 and 7 are more likely to have regularly scheduled visits twice a year as shown below.

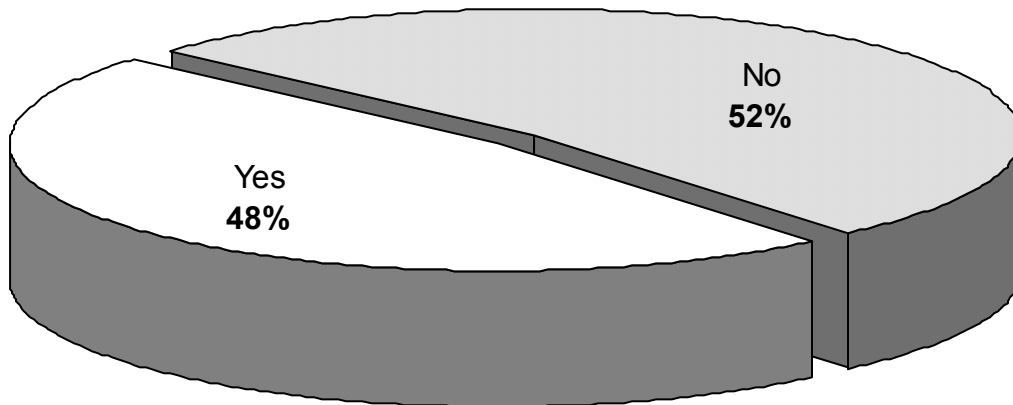
Frequency of Regular Dentist Visits by Age of Child

Frequency of regularly scheduled dentist visits	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Once a year	10	12	15	15	20
Twice a year	80ce	84ce	72	82ce	73
3 or 4 times a year	10	4	11d	2	5
More often than 4 times a year	0	0	0	1	1
(Base #)	(10)	(51)	(79)	(170)	(183)

Pediatric Dentist

- About half of the parents/guardians who visit dentists for their child say that the child sees a dentist that specializes in pediatric dentistry.

Child Sees a Pediatric Dentist



- Some small differences are seen among age groups of children and pediatric dentist use as shown below.

Pediatric Dentist Visit by Age of Child

Child sees a dentist that specializes in pediatric dentistry	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Yes	46	53e	56e	46	41
(Base #)	(11)	(57)	(99)	(186)	(199)

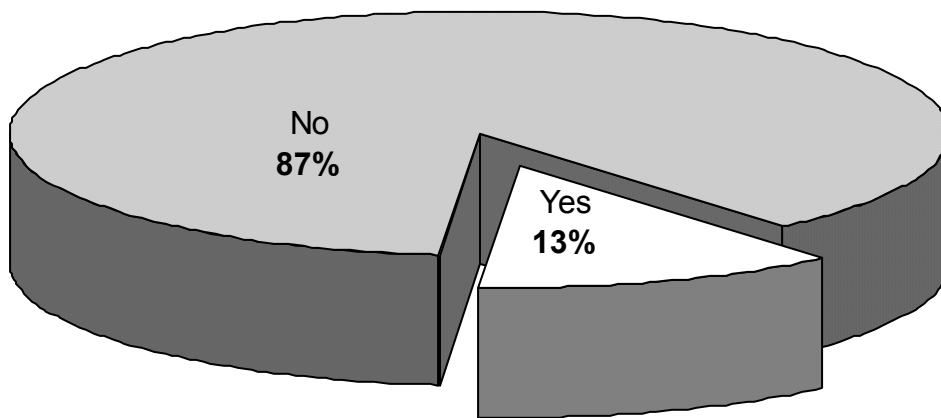
- Parents/guardians coming from households with an annual income up to \$25K are more likely to prefer a dentist that specializes in pediatric dentistry (58%) than higher income household parents/guardians (43% and 45% for households \$25K-\$49K, and \$50K+, respectively).
- Also, African-American (69%) and Hispanic (74%) mothers/guardians are significantly more likely to prefer a dentist that specializes in pediatric dentistry than Caucasians (43%).

Section A
Early Sucking & Snacking Behavior

Nutritive Sucking

- The majority of mothers/caretakers (87%) says that she does not put the child to bed with a bottle containing milk, formula, or juice.

Bedtime Nutritive Sucking



- Among those who do use nutritive sucking at bedtime, mothers/guardians of children that are older than 4 months of age are more likely to have done/do so than younger mothers.

Bedtime Nutritive Sucking by Age of Child

Child put to bed with a bottle containing milk, formula, or juice	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Yes	6	13a	12	13a	16a
(Base #)	(52)	(200)	(200)	(200)	(200)

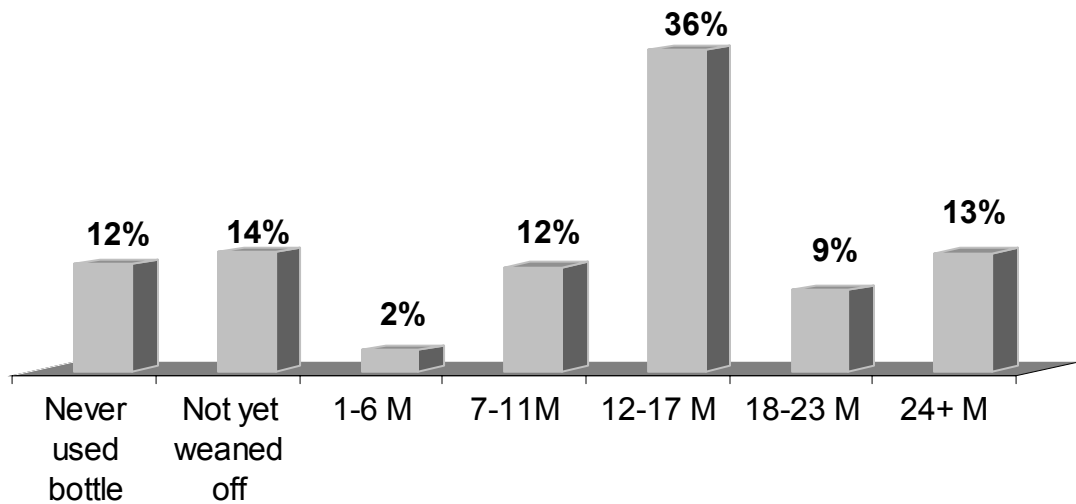
- Similarly, there are no significant differences among mothers/guardians of different income groups for use of bottle containing milk, formula, or juice at bedtime.

- There is no behavioral difference for nutritive sucking among mothers/guardians of different ethnic origins.

Age When Weaned from Bottle

- Almost three-quarters of the women who have weaned who have weaned their child off of a bottle did so after the child was 12 months of age with the majority doing so between the ages of 12 to 17 months.
- About 12% say that the child never used a bottle; 13% percent of the mothers/caregivers have children still on the bottle.

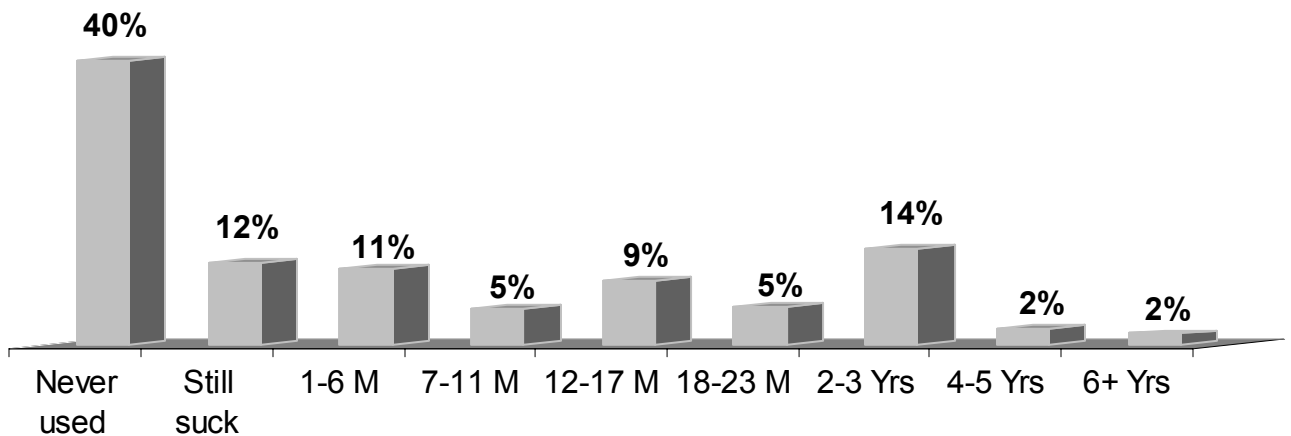
Age When Weaned from Bottle



Non-Nutritive Sucking

- Four out of ten mothers/guardians say that the child has never used a pacifier or other sucking object, simply for the enjoyment of sucking (as opposed to drinking milk, juice or formula).
- About 12% of ten mother/caregivers say that the child is still sucking one of these devices.
- About three out of ten respondents say that the child sucked on a pacifier for up to 23 months of age, and about another 14% said that the child did so up to the age of two to three years old. Nonetheless, only a low 4% reported on the child sucking after the age of 4.

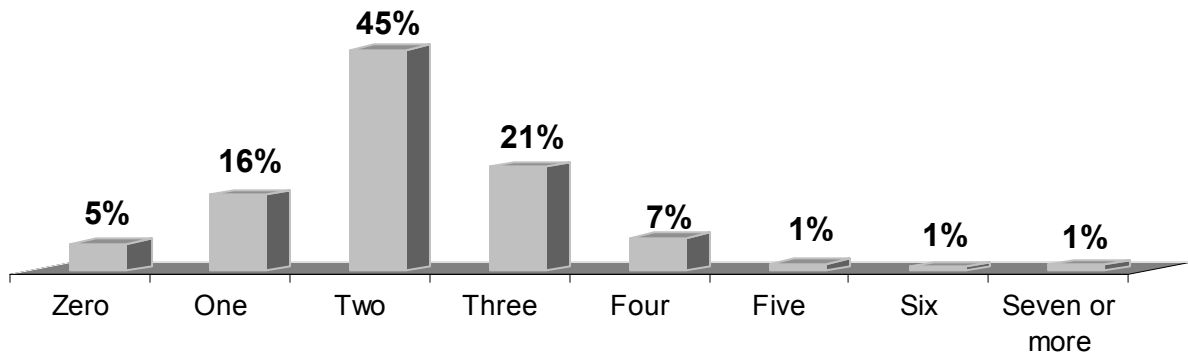
Non-Nutritive Sucking



Snacking Behavior

- Roughly two out of three children of up to 12 years of age eat two to three individual snacks per day besides breakfast, lunch and dinner:

Number of individual snacks per day the child eats besides breakfast, lunch, and dinner



- Most children who do not eat snacks between meals are very young, up to 1 year of age, while children aged 2 to 12 consume more individual snacks besides the main meals.

Snacks Eaten by Age of Child

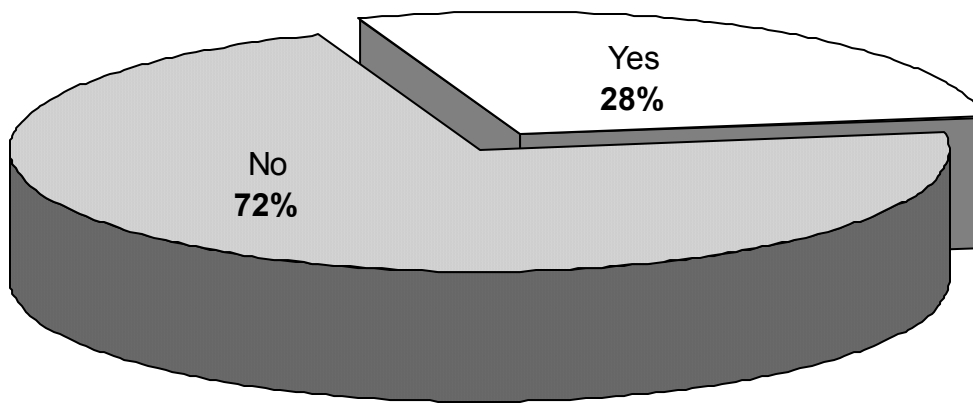
Number of individual snacks per day besides breakfast, lunch, and dinner	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Zero (no snacks between meals)	27bcde	13cde	1	2	1
One	15	12	13	20bc	19bc
Two	23	43a	50a	46a	48a
Three	10	18	27abe	25ab	19a
Four	6	7	7	6	8
Five +	8	6	2	2	5
(Base #)	(52)	(200)	(200)	(200)	(200)

Section B Cavity & Sealant Issues

Cavity

- Less than three out of ten mothers/guardians say that the child ever has had a cavity.

Child ever had Cavity



- As expected, the likelihood of a child having a cavity increases as he/she gets older.

Cavity by Age of Child

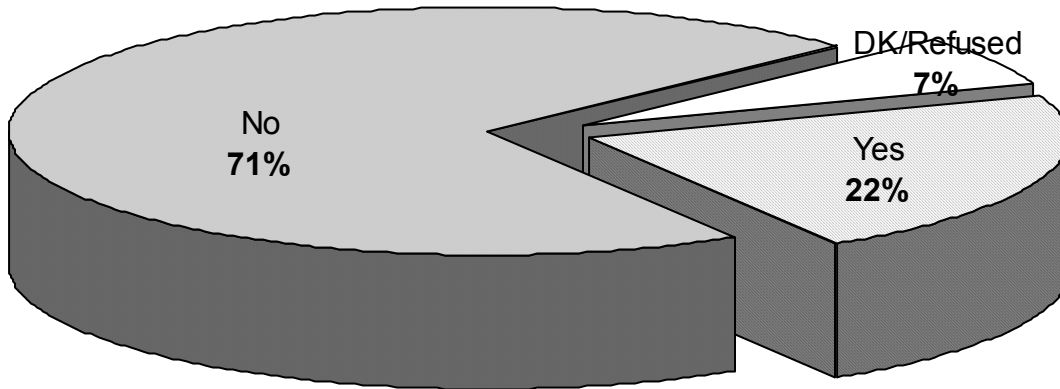
Child has had a cavity	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Yes	8	13	10	35abc	59abcd
(Base #)	(52)	(200)	(200)	(200)	(200)

- Higher income groups tend to show somewhat lower levels of cavities (23%) compared to other income groups (32%).
- While 30% of Caucasians and 24% of Hispanics reported on their child having a cavity, African-Americans were significantly below at 14%.

Sealants

- Just over one in five mothers/guardians say that their child has had sealants.

Child ever had Sealants



- As expected, there are significant differences across the different age groups with generally older in age children being more likely to have sealants.

Sealants by Age of Child

Child has had sealants	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Yes	2	12ac	4	23abc	55abcd
(Base #)	(52)	(200)	(200)	(200)	(200)

- While no income influence is seen for having sealants,
- Caucasians tend to have sealants more often (24%) compared to other ethnic groups (5% to 16%).

Section B

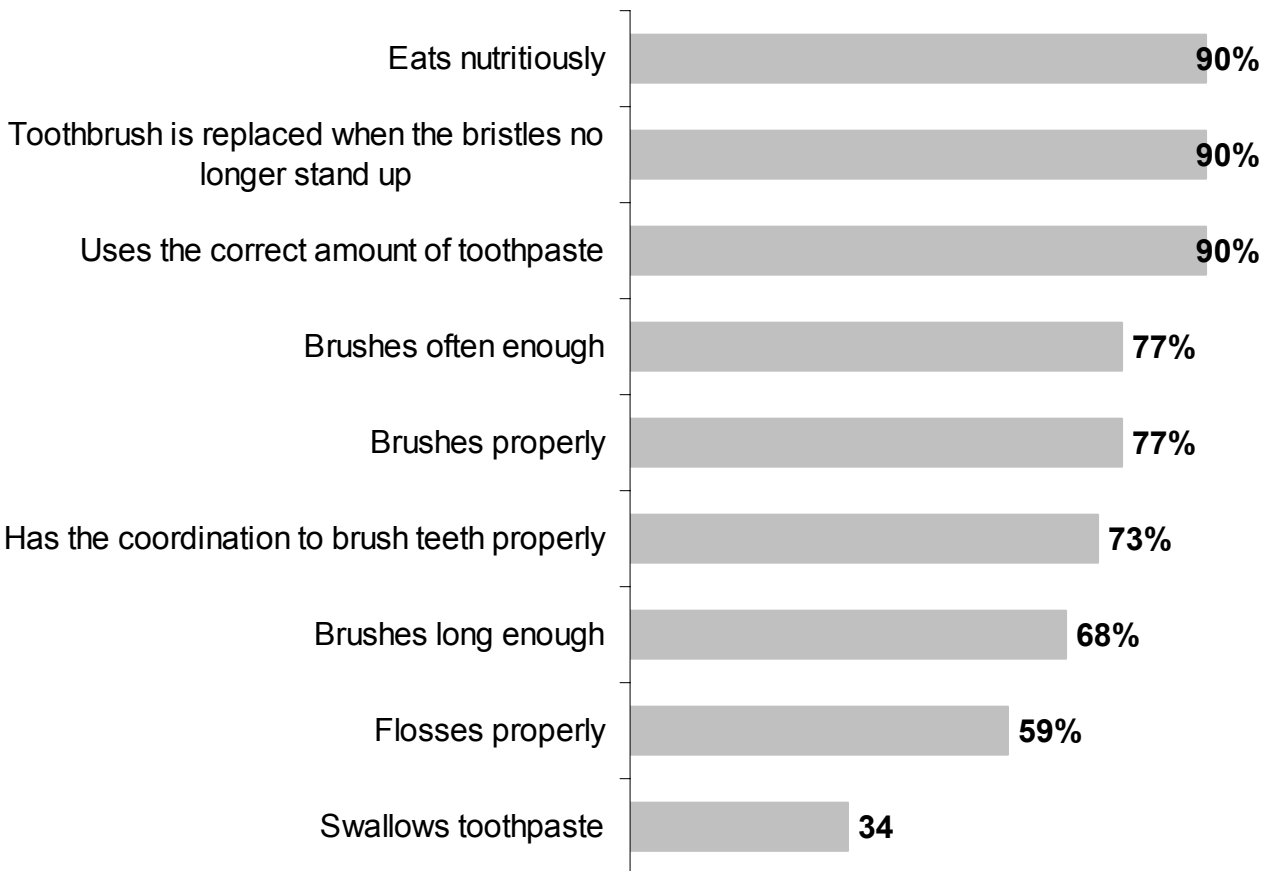
Perceived Satisfaction with Oral Care

Oral Care Perceived Satisfaction

Respondents were asked about how well they perceived their child completed a variety of oral care behaviors. Based on the behaviors that applied to their child after removing “does not apply” responses from the data, results are as follows:

- There is a high level of satisfaction among mothers/caregivers regarding some of the oral hygiene behaviors of their children such as the child eats nutritiously and the correct amount of toothpaste used (90% each), replacement of the toothbrush when the bristles no longer stand up (89%), the child brushes properly and often enough (77% each) and has the coordination to brush properly (73%). The levels are somewhat lower for brushing long enough (68%) and flossing properly (59%), and about 34% report their child swallows toothpaste.

Perceived Satisfaction with Oral Care (True...)



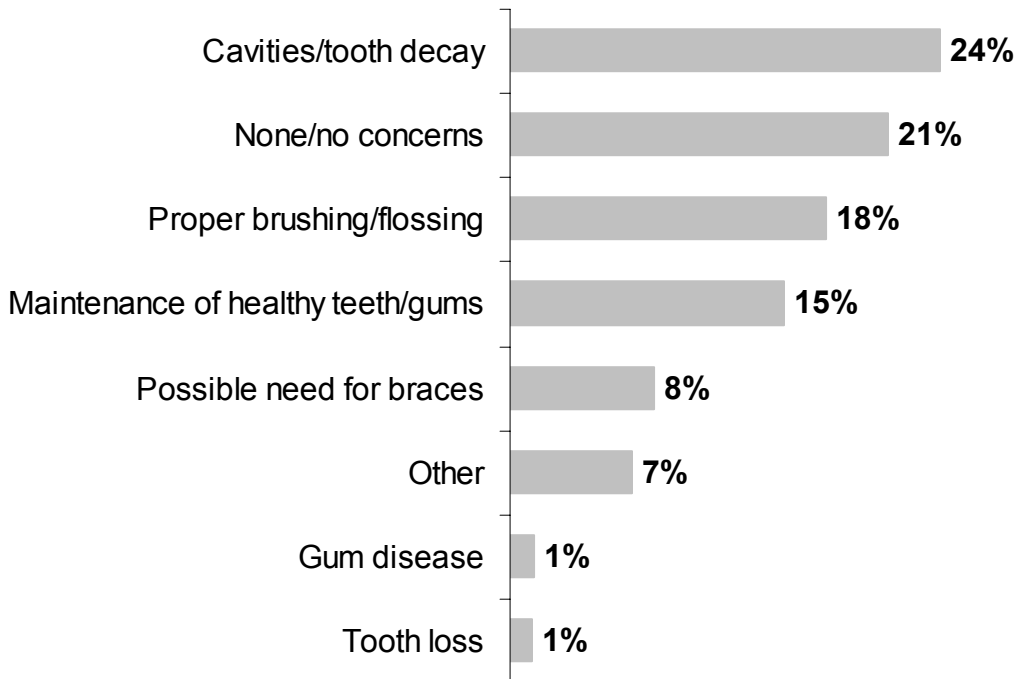
Section C

Oral Care Concerns, Information, and Knowledge

Top Oral Care Concern

- When asked about their top concern for their child's or expectant child's oral care, about one in four women mention cavities/tooth decay. Other top concerns are proper brushing/flossing at 18% and maintenance of healthy teeth/gums at 15%. Fewer than one in ten respondents mention the possibility of braces while only 1% mention gum disease and tooth loss. Twenty-one percent (21%) mention they have no major oral care concerns about their child.

Top Concerns About Child's Oral Health



- Results vary significantly by the age of the child as shown below. Prenatal women and mothers of children from 1 to 3 months have two main concerns: first, cavities and tooth decay and second, the maintenance of healthy teeth and gums. Mothers of children 4 months to 7 years are primarily concerned with cavities and tooth decay, and secondarily with proper brushing and flossing, although proper brushing and flossing is almost as important as cavities and tooth decay for mothers with children 5 to 7 years. The concern with proper brushing and flossing becomes the top concern for mothers of children 8 to 12 years followed closely by a concern for the possibility of braces.

Top Dental Concern by Age of Child

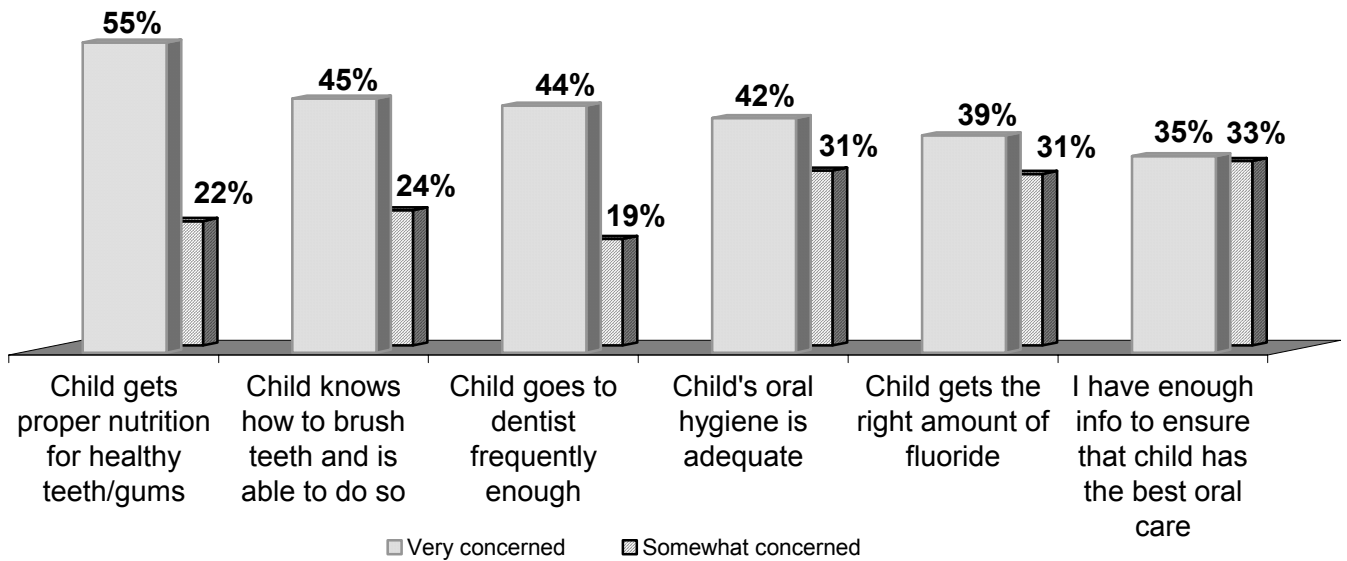
Top Dental Concern	Prenatal & 1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Cavities/tooth decay	27e	28e	27e	24e	14
Maintenance of healthy teeth/gums	24bcde	13	12	14	13
None/no concerns	13	26a	26a	21a	20a
Proper brushing/flossing	8	16a	17a	20a	28abcd
Possible need for braces	6	4	6	6	20abcd
Gum disease	2	1	1	3e	1
Tooth loss	2	2	1	2	1
Other	7e	7e	9e	10e	3
(Base #)	(200)	(200)	(200)	(200)	(200)

- Lower income respondents (<\$25K) tend to have the highest level of no concerns for their child's oral care while the other income groups are most concerned about cavities and tooth decay.
- Caucasian and Hispanic respondents are primarily concerned with cavities and tooth decay, with one in five women claiming to have no concerns (20%). Most African-American women claim to have no top concerns (29%) although some do mention maintenance of healthy teeth/gums as their top concern (20%).

Concern about Oral Care Issues

- Mothers and caretakers are concerned most about the adequacy of information on proper nutrition for healthy teeth and gums (77% very/somewhat concerned) and whether their child's oral hygiene is adequate (73%). Also of high concern is the adequacy of information on the right amount of fluoride, on the child knowing how to brush and being able to brush his/her teeth at, and having enough information to ensure that the child has the best oral care. The lowest concern about the adequacy of information is on their child going to the dentist frequently enough at 63%.

Oral Care Concern



- Again, mothers show differences in attitudes by the age of their child. Mothers of children up to 3 months of age are more concerned than mothers of older children about their child getting proper nutrition for healthy teeth and gums, and the child knowing how, and being able to brush his or her teeth (except for mothers of children 5 to 7 years). These same mothers are also more concerned about having enough information to ensure that their child has the best oral care. Mothers of children 8 to 12 years exhibit fewer concerns than mothers with children between 1 month to 1 year.

**Oral Care Concern by Age of Child
(Very/Somewhat Concerned)**

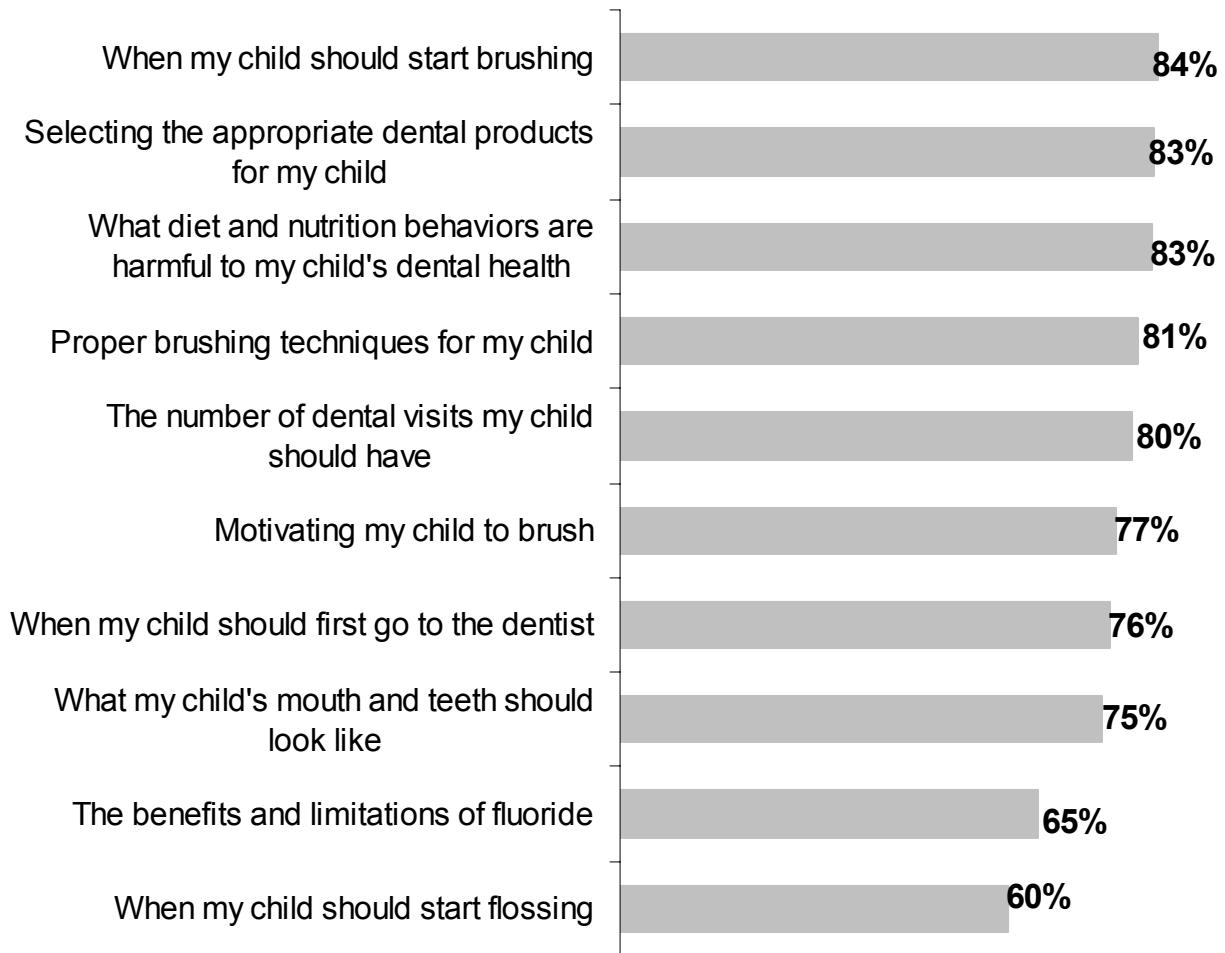
Oral Care Concerns	1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
My child gets proper nutrition for healthy teeth/gums	92bcde	80e	77	78	72
I have enough information to ensure my child has the best oral care	81bcde	72e	69	66	63
My child knows how to brush his/her teeth and is able to do so	79bce	65	69	77bce	65
My child's oral hygiene is adequate	73	68	75	74	76b
My child gets the right amount of fluoride	73	74e	67	70	66
My child goes to the dentist frequently enough	65	63	60	64	67
(Base #)	(52)	(200)	(200)	(200)	(200)

- Ethnic groups tend to show somewhat higher levels of concern about some of the oral care issues in comparison to Caucasians, as do the lower and middle income groups compared to the higher income group.

Adequacy of Information about Oral Health

- The majority of respondents, prenatal women and mothers/caregivers, say that they feel they have adequate information about most oral health related issues as shown below. Specifically, levels are high about when their child should start brushing (84%) and about selecting the appropriate dental products for the child (83%). Information about diet and nutrition behaviors harmful to the child's dental health is also at a strong 83%. About eight out of ten respondents say that they feel they have adequate information on proper brushing techniques for their child and also on the number of dental visits their child should have. Adequacy of information on motivating the child to brush is at 77%, closely followed by when the child should first go to the dentist.
- Three out of four respondents say that they feel they have adequate information on what their child's mouth and teeth should look like. Relative to other issues, information is least adequate on the benefits and limitations of fluoride at 65% and when my child should start flossing at 60%.

Adequacy of information about Oral Care



- Age of child influences how adequate women feel about the information they have related to oral health issues. Overall, primary caregivers/guardians of children 5 to 12 years are more likely to feel that they have adequate information on almost all matters concerning their child’s oral health than mothers of children under 5 years or expectant mothers.

Adequacy of Information by Age of Child
(% “Yes”)

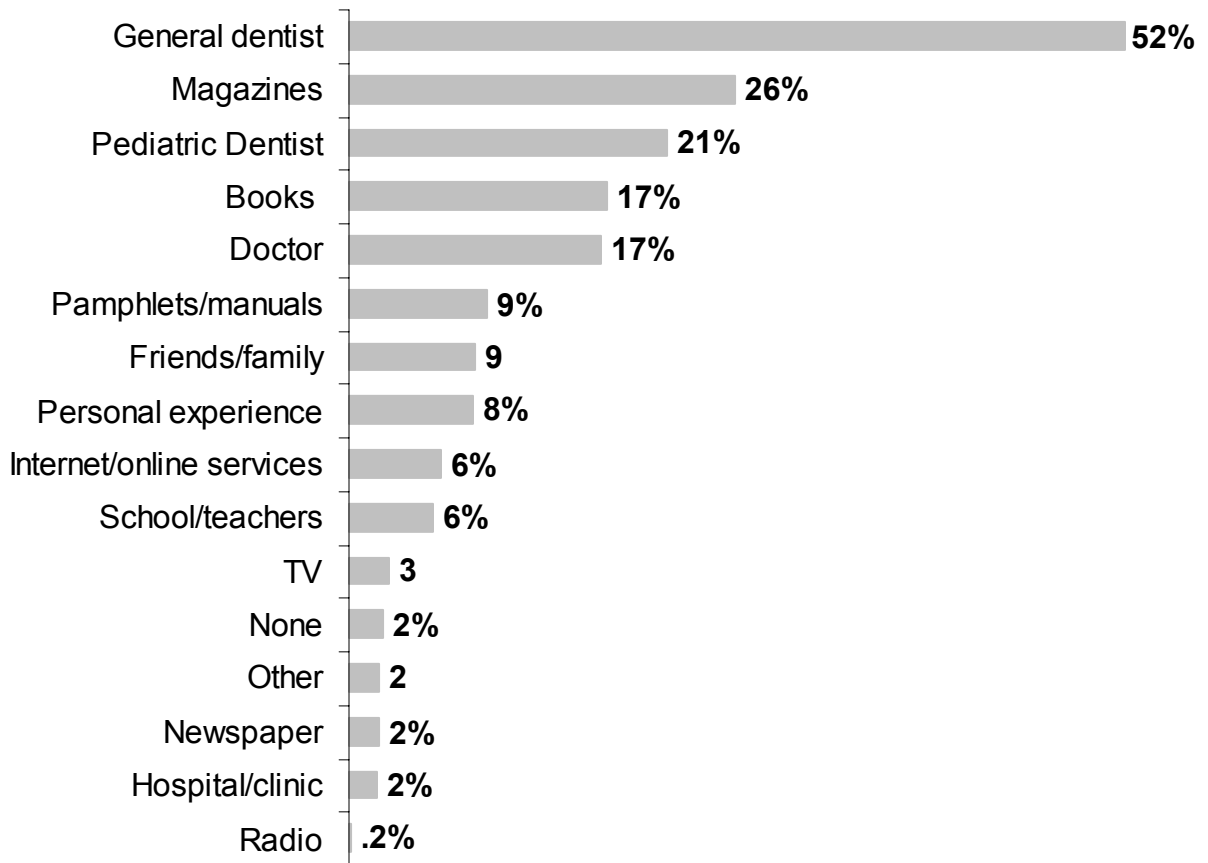
Adequacy of Information about . .	Prenatal & 1 to 3 M	4 M to 1 Yr	2 to 4 Yrs	5 to 7 Yrs	8 to 12 Yrs
	%	%	%	%	%
	(a)	(b)	(c)	(d)	(e)
Proper brushing techniques for my child	82	75	75	89abc	84bc
What diet and nutrition behaviors are harmful to my child’s dental health	82	80	79	90abc	85
Selecting the appropriate dental products for my child	77	77	82	89abc	92abc
When my child should start brushing	76	76	84	93abc	91abc
What my child’s mouth and teeth should look like	75c	72	67	80bc	83abc
Motivating my child to brush	72	73	73	87abc	82abc
The number of dental visits my child should have	69	75	72	89abc	95abcd
When my child should first go to the dentist	67	69	74	88abc	85abc
The benefits and limitations of fluoride	63	62	61	68	73abc
When my child should start flossing	55c	56c	47	71abc	75abc
(Base #)	(200)	(200)	(200)	(200)	(200)

- Ethnic groups tend to feel they have less adequate information about some of the oral care issues regarding children as compared to Caucasians with regard to appropriate dental products, when to start brushing, number of dental visits, and when to first go to dentists.
- Income levels did not seem to influence these responses.

Sources of Information Used for Child's Oral Hygiene

- Women are substantially more likely to look to a general dentist as a source for information about their child's oral hygiene than any other source (52%).
- Other means of getting information about the children's oral hygiene are through magazines and books (26% and 17%, respectively) as well as pediatric dentists or doctors (21% and 17%). Less frequent ways of finding information are through pamphlets and manuals, friends and family or personal experience (8% to 9% each). Internet/online services and schoolteachers are used by relatively few respondents and the broadcast mass media is used even less for this purpose.

Sources of Information about Oral Hygiene



- The source of dental health information varies significantly by the age of the child. All women look to the general dentist most frequently for information about dental care, however reliance on that source increases as the child gets older.
- As secondary sources, prenatal women and mothers with infants between 1 to 3 months use magazines and books. Somewhat less frequently they rely on a doctor, a pediatric dentist, and friends and family. Mothers with children 4 months to 4 years rely on four secondary sources with about the same amount of frequency: magazines, books, a pediatric dentist, and a doctor.
- Mothers with children 5 to 7 years show more reliance on the general dentist than mothers with younger children. As a secondary source, these mothers look to pediatric dentists and magazines for information and thirdly to a doctor. Books become less important for these mothers.
- Mothers with the oldest children between 8 and 12 years rely most heavily of all on the general dentist and secondarily on magazines, although magazines are much less frequently relied on than the general dentist. As a third source, these mothers look to schools and teachers to convey information.

Sources of Information by Age of Child

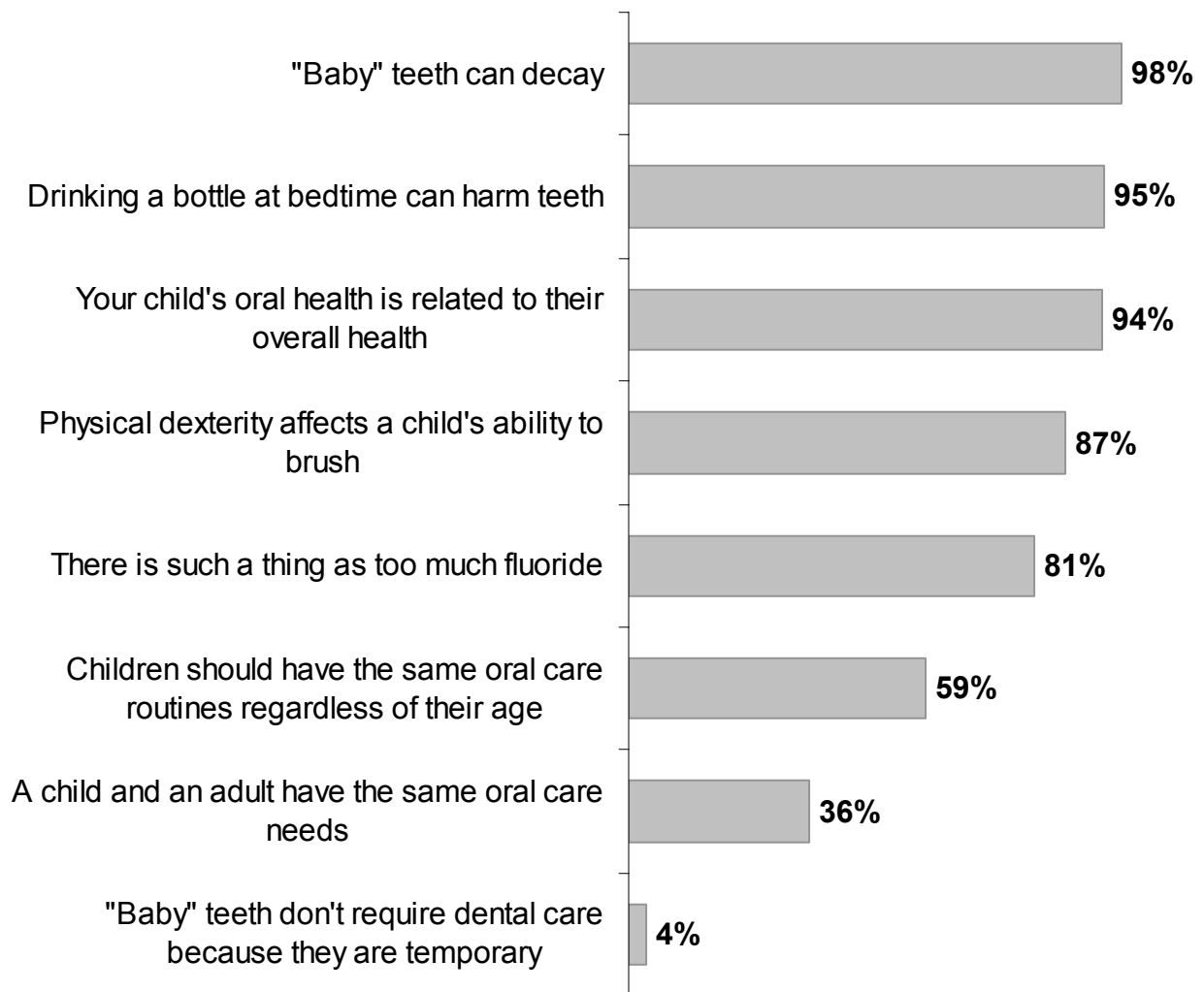
Sources of Information for Oral Hygiene	Prenatal & 1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
General Dentist	37	43	46a	63abc	72abcd
Magazines	24	26	29	21	30d
Books	22de	22de	20de	12	12
Doctor	17e	18e	25ade	15	11
Pediatric Dentist	15	24ae	25ae	28ae	16
Friends/family	13e	8	9	6	8
Personal experience	11c	8	6	7	10
Pamphlets/manuals	9	7	10	10	12b
TV	4d	2	4d	1	4d
School/teachers	3	5	2	7ac	13abcd
Hospital/clinic	2	3	3	1	2
Newspaper	2b	0	2	2	5bd
Radio	1	0	1	0	0
Other	3	1	4bd	1	2
None	4ce	4ce	1	2	1
(Base #)	(200)	(200)	(200)	(200)	(200)

- Similar sources are used across all income levels and ethnic groups, although there are some differences in the levels reported for each source among different ethnic groups.

Knowledge Levels about Oral Care for Children

- Agreement levels about child's oral health show high level of knowledge about these issues among the respondents. As shown below, most respondents are aware that "baby" teeth can decay, do require care, drinking a bottle at bedtime can harm teeth, oral health is related to overall health, and physical dexterity affects a child's brushing ability. The two areas where there is some confusion relates to children should have some oral care regardless of age, and whether a child and adult have the same oral care needs.

Knowledge Level about Oral Care (Agree)



- There is general agreement about most of the facts about oral hygiene across age groups. There is some disagreement on two issues: between prenatal women and mothers with children 1 to 3 months versus all other mothers on the issue that drinking a bottle at bedtime can harm teeth, and between prenatal women and mothers with children up to 1 year who are less likely to agree that physical dexterity affects a child's ability to brush.

Agreement with Oral Hygiene Facts

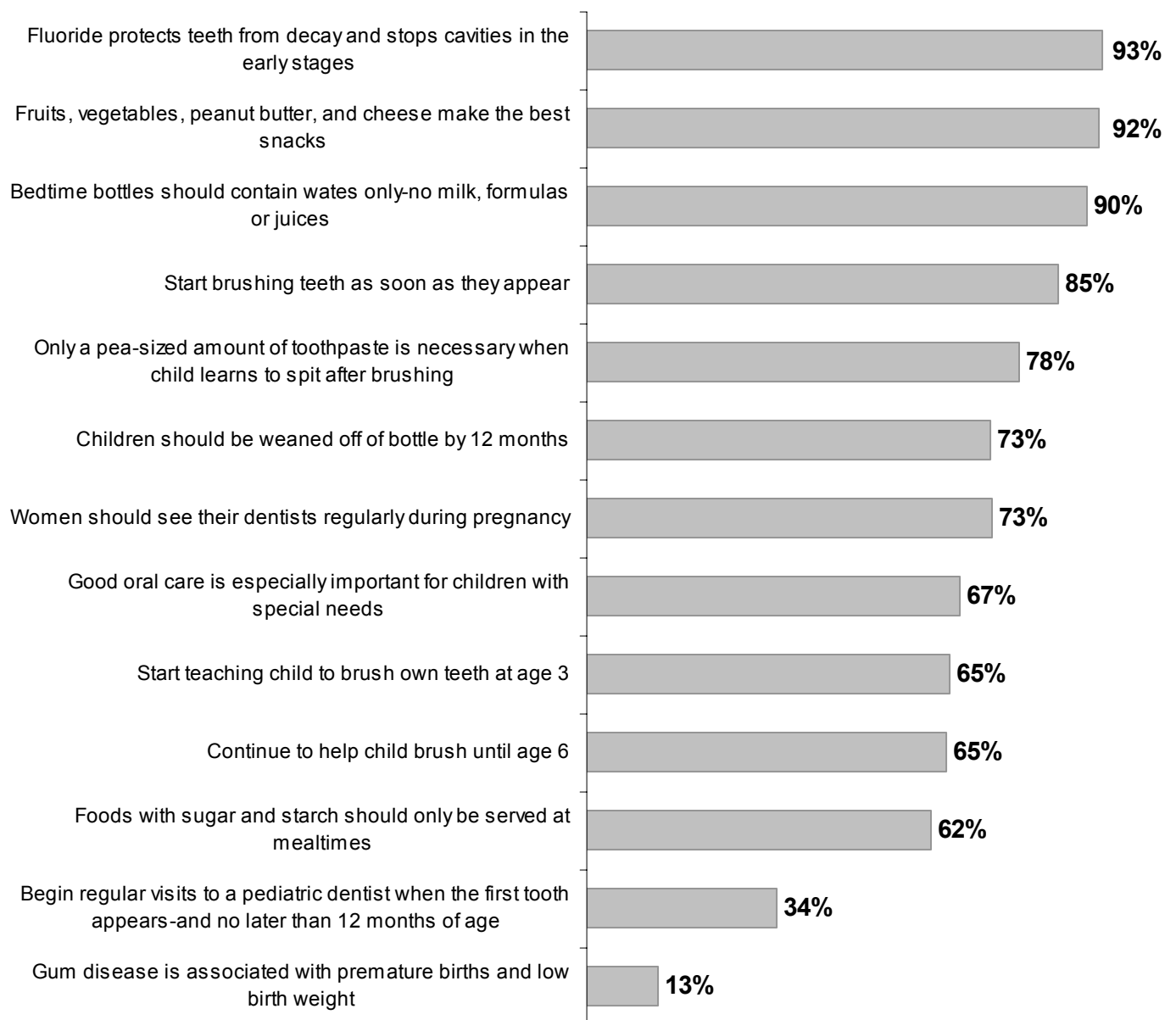
Facts about Oral Hygiene	Prenatal & 1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	©	(d)	(e)
"Baby" teeth can decay	96	99	99	98	100a
Your child's oral health is related to their overall health	93	94	94	96	96
Drinking a bottle at bedtime can harm teeth	87	97a	97a	96a	97a
Physical Dexterity affects a child's ability to brush	80	85	90ab	92ab	89a
There is such a thing as too much fluoride	79	76	84b	83b	82
Children should have the same oral care routine regardless of their age	54	60	57	66ac	61
A child and an adult have the same oral care needs	35	36	42e	36	33
"Baby" teeth don't require dental care because they are temporary	3	5	3	5	3
(Base #)	(200)	(200)	(200)	(200)	(200)

- Overall, all ethnic and income groups tend to show similar agreement levels about facts on oral hygiene with few exceptions.

Awareness about Oral Hygiene Guidelines

- Respondents are generally highly aware about many oral hygiene guidelines related to protection offered by fluoride, the fruits, vegetable, peanut butter and cheese make the best snacks, bedtime bottles should contain only water and start to brush teeth as soon as they appear (93% to 85% aware). There is least awareness about gum disease being associated with premature births and low birth weight (13%) and regular visits to pediatric dentist should start when first tooth appears and no later than 12 months (34%). There is a moderate to moderately high awareness on remaining guidelines (62% to 78)%

Awareness about Oral Hygiene Guidelines



- There are some differences in awareness of guidelines among the respondents with children of different ages as shown below although generally there seem to be at similar levels. Expectant and younger mothers are less aware about bedtime bottles containing only water and about weaning age of the child although they are more aware about the bottle weaning age of children.

Awareness About Oral Hygiene Guidelines by Age of Child

	Prenatal & 1 to 3 M %	4 M to 1 Yr %	2 to 4 Yrs %	5 to 7 Yrs %	8 to 12 Yrs %
	(a)	(b)	(c)	(d)	(e)
Fluoride protects teeth from decay and stops cavities in the early stage	91	91	94	95	93
Fruits, vegetables, peanut butter, and cheese make the best snacks	90	88	94a	96ab	95ab
Only a pea-sized amount of toothpaste is necessary when child learns to spit after brushing	84be	76	80e	78	71
Start brushing teeth as soon as they appear	81	82	86	90ab	87a
Bedtime bottles should contain water only – no milk, formulas or juices	79	91a	91a	95a	94a
Women should see their dentists regularly during pregnancy	77	72	69	71	76
Good oral care is especially important for children with special needs	74bc	64	61	69c	68
Children should be weaned off of bottle by 12 months	65	71	77a	78a	74a
Continue to help your child brush until age 6	63c	63c	53	75ac	70c
Foods with sugar and starch should only be served at mealtimes	61	62	57	67c	64
Start teaching your child to brush his/her own teeth at age 3	58	60	62	81abce	67a
Begin regular visits to a pediatric dentist when the first tooth appears- and no later than 12 months of age	50bcde	33	28	32	30
Gum disease is associated with premature births and low birth weight	17ce	15	11	13	10
(Base #)	(200)	(200)	(200)	(200)	(200)

- No systematic differences in awareness about guidelines are shown among the various ethnic and income groups and there is general similarity in response levels across these groups.

Section D

Sample Profile and Characteristics

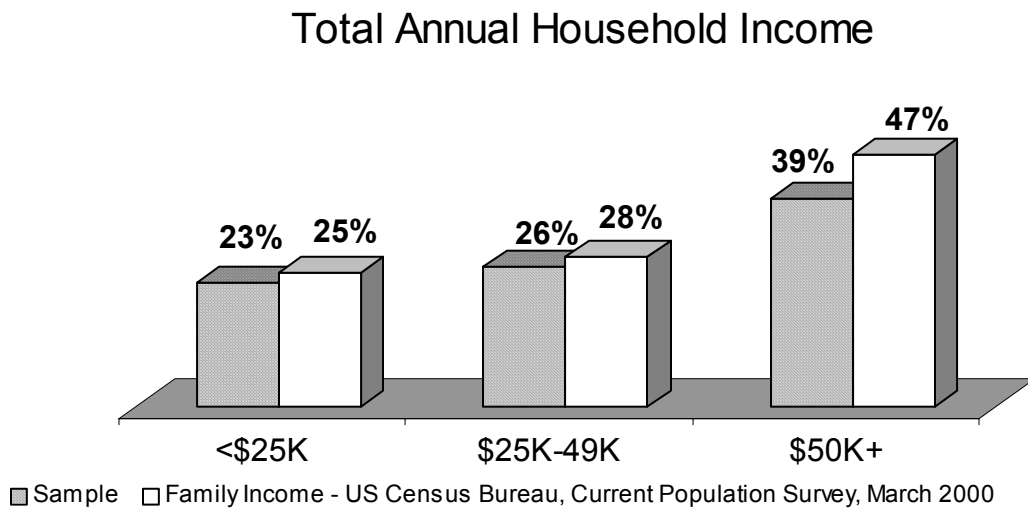
Age of child

- To ensure sufficient sample for all subgroups of interest, the total sample of respondents (prenatal women and mothers/guardians of children up to 12 years of age) was divided into five equal groups based on the age of the oldest child under 12 years of age, as follows:

Sample Composition by Age of Child	Sample Size (#)
Prenatal Women	148
& 1 to 3 months of age	52
4 months to 1 year of age	200
2 to 4 years of age	200
5 to 7 years of age	200
8 to 12 years of age	200
<u>TOTAL</u>	<u>1,000</u>

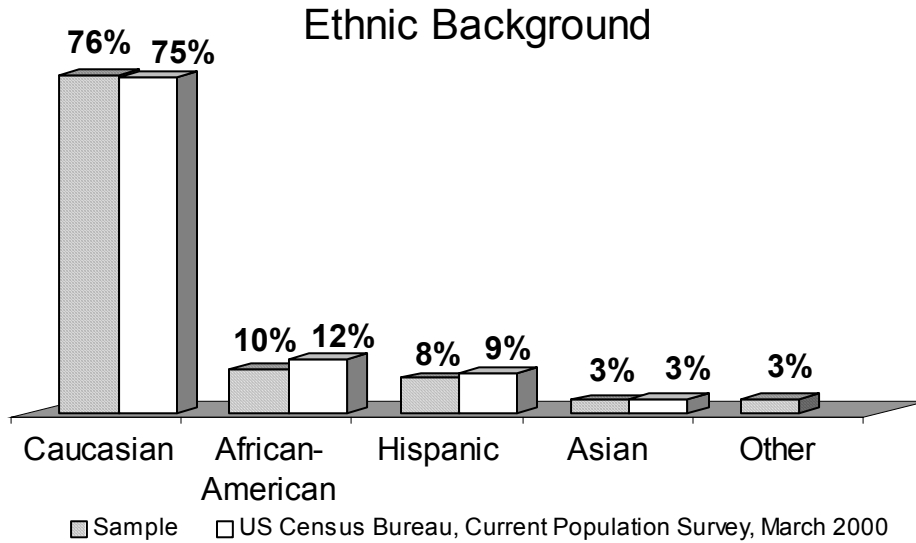
Total Annual Household Income

- Total annual household income was representative of the income distribution across the US, based on the latest family income data from the US Census Bureau, Current Population Survey, March 2000. Roughly 11% of the sample did not report on their total household income range of the past 12 months.



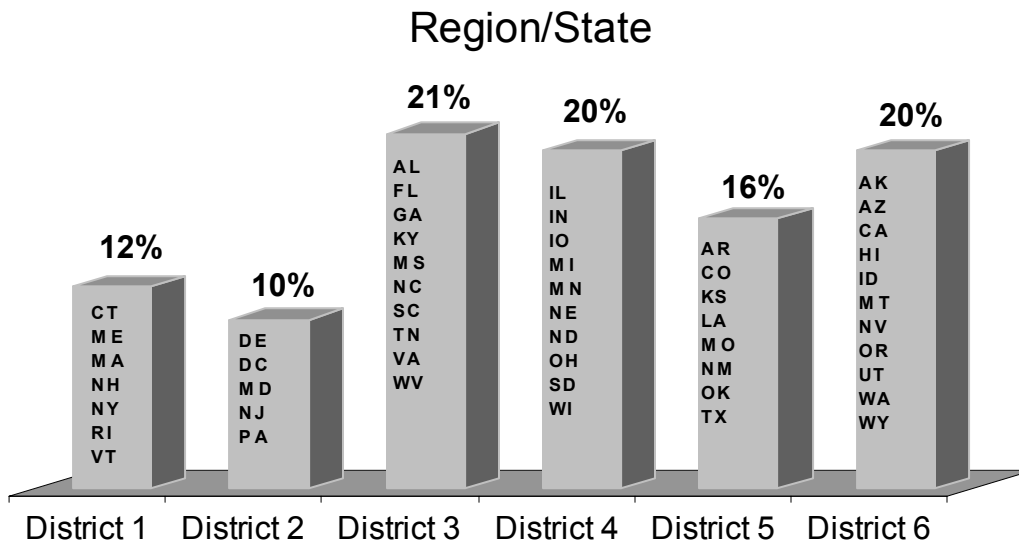
Ethnic Background

- The sample also approximates the ethnic composition of the US, as reported in the latest US Census Bureau Population Survey of March 2000.



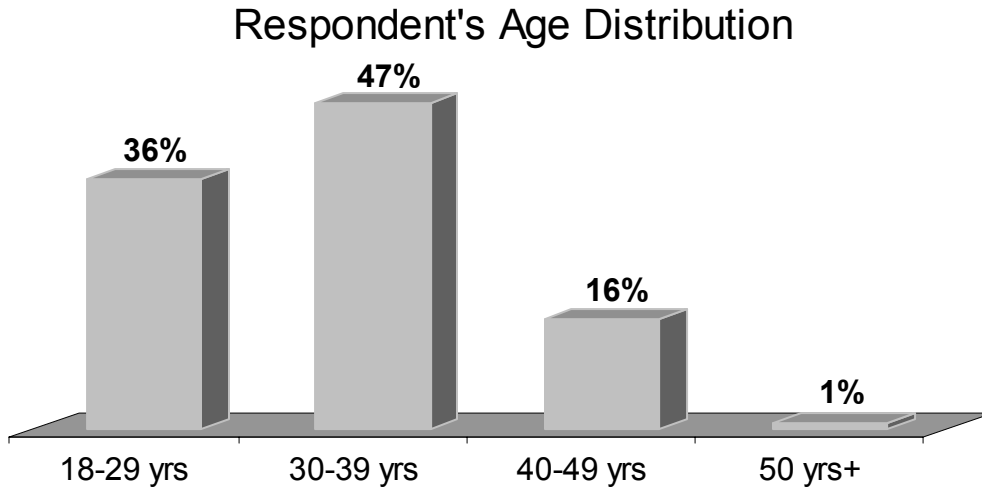
Region

- Regional quotas were set to reflect the geographic dispersion of population across the US.



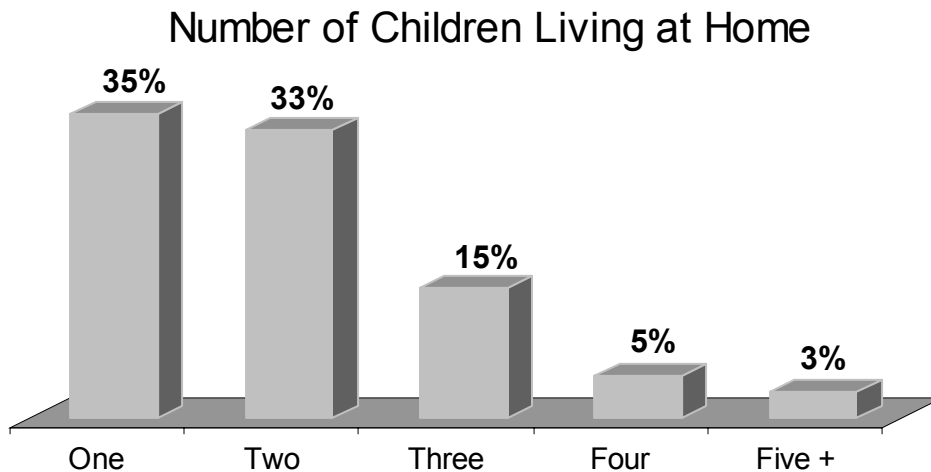
Age of Respondent

- Of the 1,000 respondents, the majority (83%) are between 30 to 39 years of age. Slightly more than 15% are from 40 to 49 years of age, while there are hardly any women 50+ years of age.



Children Living at Home

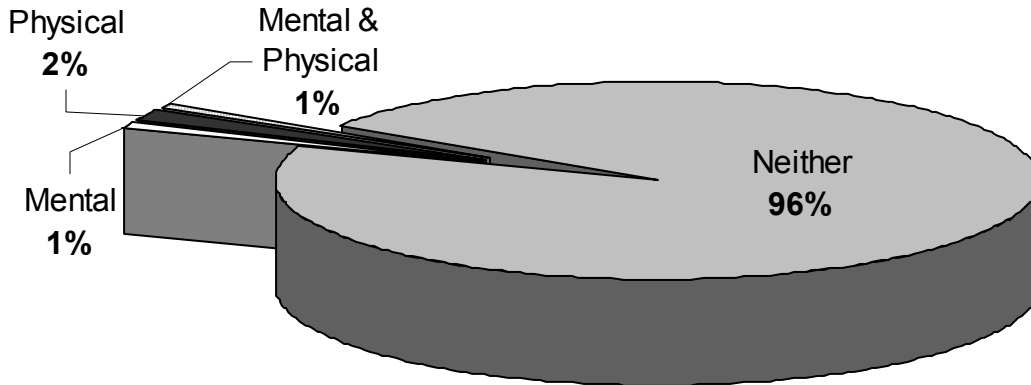
- Roughly seven out of ten respondents have up to two children living at home, while about one in seven respondents has three children living at home. Less than one out of ten respondents have four or five children living at home.



Children with Disability to Brush Teeth

- Only 4% of mothers/guardians said that the child had a disability, (mental, physical, or both mental and physical) which makes dental care for the child's teeth more difficult than normal for the caregiver, the child or the dentist. The remaining majority of respondents reported no disability for their child.

Children with Disability to Brush Teeth



V. CONCLUSIONS & RECOMMENDATIONS

The results of this research study among mothers and/or primary caretakers and prenatal women to evaluate the awareness, attitudes, perceptions and behaviors related to oral health and oral care of children up to 12 years of age shows respondents are aware of many of the important issues in oral care and undertake appropriate behaviors overall.

Nevertheless, respondents do report having many concerns about their child's oral health, and feel they do not have adequate information about a number of issues even as they report high levels of knowledge on a number of issues. Providing information about a number of oral health and oral care issues and validating their knowledge about these issues would seem to be helpful overall.

There are gaps in information and awareness levels with regard to some issues and behaviors related to some oral care habits that can be improved.

More specifically,

- In general, gum care before a child has teeth is undertaken by only about half of the sample.
- A few respondents start brushing their child's teeth as late as two (or three) years of age. Various amounts of toothpaste are used by the respondents. Toothbrushes are, however, replaced mostly on time.
- Many children between the ages of one and four do not see a dentist regularly; children over five do; however, only half of them see a pediatric dentist while the other half sees a general one.
- Most respondents do not indulge in bedtime nutritive sucking and are generally aware of healthy snack preferences.
- Cavities, tooth decay and healthy teeth and gums are among the top concerns of mothers; most, but not all mothers, feel they have adequate information about these issues.
- Among the areas where information gaps are most noticeable and respondents feel they have inadequate information are those related to flossing age, how to floss, fluoride benefits and limitations, type of oral care needed for specific age-groups, and differences in oral care needs between children and adults. Prenatal and younger mothers (children less than five years of age) are more likely to report inadequacy of information as compared to older mothers/caregivers.
- There are some guidelines for oral care that show lower awareness such as those related to the causes of gum disease and when and what type of dentist to see for their child; oral hygiene behaviors such as teaching children how to brush at three years of age, and continuing to help child brush until she/he is six years old, when to wean children off bottles and serving sugars and starch only at mealtimes. Providing education and information related to these guidelines would be helpful.

- Dentists and doctors are the most used sources of information among respondents for this type of information. Other sources may be promoted for further reach and effectiveness.