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At-home oral care for adults with developmental disabilities:

A survey of caregivers

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Abstract

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Background—Little is known about effective at-home oral care methods for people with developmental disabilities (DDs) who are unable to perform personal preventive practices themselves and rely on caregivers for assistance.

Methods—A convenience sample of 808 caregivers (84.5 percent paid, 15.5 percent family members) who accompanied adults with DDs (20 years or older) to appointments at a specialized statewide dental care system completed computer-assisted personal interview surveys. The authors used these data to investigate caregivers' at-home oral care experiences and to explore differences between caregivers who were paid and those who were family members.

Results—Caregivers reported that a high proportion (85 percent) of dentate adults with DDs received assistance with tooth cleaning. They also reported a high prevalence of dental problems, and low adherence to brushing (79 percent) and flossing (22 percent) recommendations. More caregivers reported that they felt confident assisting with brushing than with flossing (85 percent versus 54 percent). Family members and paid caregivers differed with respect to confidence and training.

Conclusions—At-home oral care, particularly flossing, presents substantial challenges for adults with DDs. Solutions must be tailored to address the different experiences and distinct needs of the family members and paid caregivers who assist these adults.

Practical Implications—Caregivers play an important role in providing at-home oral care, and they must be included in efforts to improve oral health outcomes for people with DDs.

Keywords

People with disabilities; at-home oral care; special-care dentistry

Since 2000, five national reports have called attention to the disproportionate impact of oral disease on people with disabilities, including developmental disabilities (DDs).¹⁻⁵ People with DDs face special challenges maintaining good oral health because of commonly associated physical, cognitive and sensory impairments and chronic medical and behavioral conditions. Attention-deficit-hyperactivity disorder, intellectual disabilities, autism and cerebral palsy are among the most prevalent DDs.⁶ To our knowledge, no information exists from nationally representative samples about the prevalence of oral disease among people with DDs. Estimates from convenience and population-based samples, however, suggest that people with DDs have a higher prevalence of caries and periodontal disease, more missing teeth^{1,7-14} and poorer oral hygiene^{7,8,11,13} than does the general population.

Daily oral hygiene contributes to the prevention of dental disease but presents challenges to people with DDs who are unable to perform preventive at-home oral care themselves and rely on caregivers for assistance.^{7,15} Little is known about the adequacy of at-home oral care for adults with DDs or the experiences of the caregivers who assist them. Of the estimated 4.9 million people with DDs nationwide,¹⁶ the majority (72 percent) live with family members who help them with oral health.¹⁷ The rest live in supervised residential settings (13 percent) or in their own homes independent of families (16 percent).¹⁷ People with DDs who do not live with family members generally rely on direct support staff—employed by organizations that support people with DDs—to assist them with oral health care. The

results of a majority of studies show that adults with DDs depend heavily on their caregivers for assistance with daily oral hygiene, although the percentage reported to have received assistance varied from 22 percent⁷ to 72.4 percent¹² and to 84 percent.¹⁸

On the basis of caregiver reports, toothbrushing occurred less frequently than that recommended by the American Dental Association (ADA)¹⁹; Pradhan and colleagues¹² reported that just 60.7 percent of people with DDs brushed twice per day, and Seirawan and colleagues¹¹ reported that 76.1 percent of those with DDs brushed at least once per day. Caregivers described flossing as the oral health activity most likely never performed in residences²⁰; Seirawan and colleagues¹¹ reported that only 11.8 percent of adults with DDs flossed at least once per day. Caregivers cited substantial behavioral and physical difficulties,¹⁸ as well as lack of cooperation,^{15,20} as major impediments to providing adequate at-home oral care. Other impediments included lack of time and staff shortages.^{15,18} The percentage of caregivers who reported receiving instruction regarding the oral health care needs of people with DDs ranged from 27 percent⁷ to 80 percent.²⁰ In contrast to the information available about paid caregivers, information about the oral health care role of family caregivers is almost nonexistent. According to the results of a study conducted by Pradhan and colleagues¹² in Australia, adults with physical and intellectual disabilities (PIDs) who lived with their families were less likely to receive assistance with oral health care than were adults with PIDs who lived in community residences or institutions. They also were less likely to brush their teeth twice per day (44.1 percent) than were those in community residences (78.3 percent) or institutions (72.4 percent).¹²

In this study, we sought to address this information gap by collecting detailed information from a large sample of caregivers, including family caregivers, about their experiences supporting the at-home oral care of adults with DDs. We also explored differences in the experiences of paid and family caregivers.

METHODS

Study design

In this cross-sectional survey, we sought to characterize paid and family caregivers' experiences assisting adults with DDs with at-home oral care. The caregivers represented a convenience sample.

Survey administration

We conducted this survey from September 2011 to May 2012 at four clinics administered by Tufts Dental Facilities (TDF) for Persons with Special Needs, a statewide network of clinics providing comprehensive and specialized services to approximately 7,000 people with DDs. The TDF program is administered by Tufts University School of Dental Medicine, Boston, and supported by the Commonwealth of Massachusetts through the Department of Developmental Services and the Department of Public Health and by revenues from third-party payers, including MassHealth (Medicaid). TDF patients live in a variety of residential settings. Typically, they are accompanied to dental visits by caregivers who are employed in

the supervised residences where the adults with DDs live or, if they live with their family, by a family member.

We collected data via a computer-assisted personal interview (CAPI) by using netbook computers. We pilot tested the survey with 30 caregivers at two TDF clinics. Interviewers, including two of us (K.E.Y., C.J.N.), tested survey administration, and participants provided feedback about the survey itself and the ease of using CAPI. On the basis of the pilot test results, we revised the survey instrument and modified recruitment procedures. The Tufts Health Sciences Campus Institutional Review Board (IRB) certified the survey protocol as exempt from full IRB review.

Study participants

A caregiver was eligible to participate if he or she accompanied an adult (20 years or older) with DDs to a TDF appointment; he or she was a family member or an employee paid to support the adult with DDs in his or her residence; he or she had supported the adult with DDs for at least six months and was knowledgeable about the oral health care practices in the care-recipient's residence; and he or she read and wrote in English. Recruitment posters and flyers informing caregivers about the survey were displayed in the waiting rooms of the clinics. On-site research assistants described the study to caregivers, reviewed inclusion criteria and provided an information sheet to eligible caregivers that instructed them to inform the research assistant if they wished to participate. The research assistants then provided participants with portable netbook computers in which the CAPI survey was installed. The survey contained instructions and practice questions for caregivers. Caregivers completed the survey during the approximately one-hour window they were in the clinic before, during or after the dental appointment. Participants took a mean of 22.3 minutes to complete the survey and received a gift card on completion.

Data collection: CAPI survey instrument

The three sections of the survey consisted primarily of closed-ended multiple-choice questions. We used Likert-type scales with three response choices ("never/rarely," "sometimes," "often/always") to gauge the frequency of various events. We also used Likert-type scales (consisting of "very," "somewhat," "not at all") to gauge caregivers' level of confidence about oral health activities. Caregivers identified themselves as paid or family caregivers, and they were directed automatically to the questions worded to reflect their respective roles. After completing a practice section, caregivers answered the survey questions addressing the following three areas:

- characteristics of the patient whom the caregiver brought to the clinic, including general health status, level of functioning, and oral health care practices and routines;
- caregiver's experiences overall in assisting adults with DDs with at-home oral care;
- caregiver's personal oral health care practices.

Analysis

We used counts and percentages to profile caregiver and care-recipient characteristics, the caregiver's perceptions of the oral health status of the adult with DDs and the frequency with which the adult brushed and flossed, the caregiver's level of confidence about his or her at-home oral health care skills, and information about how caregivers learned to assist adults with DDs with at-home oral care. We recoded responses to the Likert-type scale questions into dichotomous variables on the basis of the distribution of responses: we combined "always/often" and "sometimes" and compared these results with those for "rarely/never." In addition, we combined responses to Likert-type scale questions regarding caregivers' confidence in their oral health care skills; thus, we combined responses of "somewhat confident" and "not at all confident" and compared these results with those for "very confident."

We used χ^2 and Fisher exact tests to evaluate associations between caregiver type and caregiver reports regarding the following: the care-recipient's oral health status, the percentage of dentate adults with DDs who brushed and flossed at recommended frequencies, the factors that interfered with at-home oral care routines, caregivers' level of confidence in their skills to assist with at-home oral care and the ways in which they learned to assist with at-home oral care. We considered *P* values less than .05 to be statistically significant. We used statistical software (SAS, Version 9.2, SAS, Cary, N.C.) for all analyses.

RESULTS

Caregiver characteristics

Overall, 808 caregivers for adults with DDs completed surveys; 683 (84.5 percent) were paid caregivers, predominantly direct support staff and residential supervisors, and 125 (15.5 percent) were family caregivers, predominantly parents (Table 1). More paid caregivers than family caregivers were younger than 30 years and a lower percentage were 50 years or older ($P < .01$). Most survey participants were experienced caregivers: among paid caregivers, 76.0 percent had five or more years of experience supporting adults with DDs, and 45.4 percent had five or more years of experience working with the adult with DDs whom they accompanied to the dental visit. Family caregivers did not quantify their years of experience caring for their family member; we assume that the number of years reflects the family member's age.

Characteristics of adults with DDs

As shown in Table 2, the majority of adults with DDs were male. Slightly more than one-half were between the ages of 40 and 59 years. More adults with DDs who were accompanied by paid caregivers as opposed to family caregivers were 60 years or older, and a smaller percentage were between the ages of 20 and 39 years ($P < .01$). The majority of adults with DDs (89.9 percent) had more than one condition or type of disability. The most prevalent were intellectual disabilities, problems with communication, behavioral problems and physical impairments. Behavioral problems were more prevalent among adults who

were accompanied by paid caregivers than among those accompanied by family caregivers ($P < .01$).

Conditions that were more prevalent among adults accompanied by family caregivers were communication problems ($P = .01$), Down syndrome ($P = .01$) and cerebral palsy ($P < .01$). Among adults with DDs who came to the clinic with paid caregivers, the majority lived in community residences (including group homes and apartments) supported by the state agency for people with DDs; only 7.6 percent lived in institutional settings that housed 16 or more people. A small percentage of adults with DDs who were accompanied by paid caregivers lived with family. Most of these caregivers were adult foster care providers, who provided daily care for adults with DDs in their homes, or direct support staff, including personal care attendants who helped adults with DDs live at home by assisting with activities of daily living, including at-home oral care.

Oral health status and receipt of assistance

As Table 3 shows, almost all of the adults with DDs had natural teeth, reflecting the 100 percent of adults accompanied by family caregivers and 94.9 percent of those accompanied by paid caregivers who were dentate ($P = .01$). Caregivers reported the presence of oral health problems, including bad breath and swollen or bleeding gums. The survey asked caregivers for dentate adults, “What kind of help does he or she typically get cleaning his or her teeth?” As shown in Table 3, 84.5 percent of dentate adults received some assistance with tooth cleaning, including 13.3 percent who received “hand-over-hand guidance” and 40.2 percent whose teeth were cleaned by their caregivers. Caregivers also described the condition of the care-recipients’ teeth; more family than paid caregivers described the teeth as being in “excellent or good” condition ($P < .01$). Among dentate adults, 38.6 percent were reported to have “cavities or decayed teeth”; the prevalence did not differ according to caregiver type.

Brushing and flossing frequency

As shown in Table 4 (page 1023), caregivers reported that nearly eight of 10 adults brushed their teeth at least twice per day, thereby meeting ADA recommendations.¹⁹ According to our survey findings, only 21.5 percent of adults flossed at least once per day, as recommended by the ADA.²¹ Moreover, caregivers reported that 44.6 percent of adults with DDs “never” flossed.

Influences on at-home oral care routines

As shown in Table 5 (page 1023), more caregivers reported that behavioral problems interfered with at-home oral care routines than did any other factor, and more paid caregivers than family caregivers cited behavioral factors ($P < .01$). Two other factors—lack of time and not enough help—did not differ significantly according to caregiver type. Many more caregivers reported feeling confident about their toothbrushing skills than about their flossing skills. A majority of caregivers also reported feeling confident about their skills responding to behavioral challenges, and more paid caregivers than family caregivers reported having confidence in this area ($P = .04$). Nearly the same percentage of caregivers reported they had learned to assist adults with DDs by means of formal training (that is, in

structured group sessions) as did those by means of trial and error. Slightly more than one-half reported that they learned how to assist adults with DDs through instruction from clinicians during dental visits. Many more paid caregivers than family caregivers reported learning through formal training sessions ($P < .01$) (Table 5).

DISCUSSION

The results of our survey of 808 caregivers who had extensive experience supporting adults with DDs emphasize the important role of and challenges for the caregiver in helping to maintain oral health in this population. Families are the primary caregivers for adults with DDs nationwide, and the inclusion of 125 family caregivers provided important information specific to their roles. Family caregivers were considerably older than paid caregivers; almost 80 percent were 50 years or older, compared with just 33 percent of paid caregivers. This finding is consistent with national data indicating that family caregivers are aging and may face difficulties maintaining their caregiving roles.¹⁷

The adults with DDs in this survey represented a diverse group with multiple and complex disabilities and medical and behavioral conditions. The vast majority were unable—for reasons related to their disabilities—to perform preventive at-home oral care themselves and relied heavily on their caregivers to assist them. Caregivers reported a high prevalence of dental problems—as they perceived them—despite their assistance. Overall, 24.5 percent of adults were reported to have swollen or bleeding gums and 38.6 percent of dentate adults were reported to have cavities or decayed teeth. According to the survey findings, a higher proportion of adults accompanied by family caregivers were dentate, and a higher proportion had teeth described as being in “excellent or good” condition, which may reflect their younger age distribution. In addition, responses of paid caregivers and family caregivers did not differ significantly with regard to the perceived prevalence of other oral health problems surveyed.

Although caregivers in our study seemed able to recognize poor oral health among adults with DDs, they appeared less able to recognize the presence of specific oral diseases, particularly periodontal diseases. The results of studies of oral health in the developmentally disabled population indicate a higher prevalence of periodontal diseases than that noted by the caregivers in our survey.^{7-10,14} In 2012, Morgan and colleagues¹⁴ reported clinical data that showed a caries prevalence of 32 percent and a periodontitis prevalence of 80 percent among adults with DDs. Using data from the National Health and Nutrition Examination Survey (2009-2010 cycle), Eke and colleagues²² reported an estimated prevalence of periodontal diseases of 47 percent in the U.S. population and an estimated prevalence of 70.1 percent for those older than 65 years. Caregivers who are unaware of the presence of specific oral health conditions may be less likely to implement preventive hygiene strategies or seek clinical intervention.

According to our survey findings, many adults with DDs did not meet ADA recommendations regarding brushing and flossing.^{19,21} Caregivers reported that slightly more than three-quarters of dentate adults brushed their teeth at least twice per day, and only 22 percent flossed at least once per day. Overall, our findings are consistent with those of

earlier studies in which investigators documented poor oral hygiene in people with DDs,^{7,8,11,13} although the percentage of adults who brushed and flossed at recommended frequencies, according to our study findings, was higher than that reported previously.^{11,12} In addition, our study findings show that a lower percentage of dentate adults accompanied by family caregivers than of those accompanied by paid caregivers brushed their teeth at least twice per day, consistent with the results of an earlier report¹² in which investigators found that adults with disabilities who lived with their families were less likely to brush their teeth twice per day than were those living in community residences or institutions. However, we found that a slightly higher percentage of dentate adults accompanied by family caregivers than of those accompanied by paid caregivers flossed according to recommended frequencies, and a lower percentage “never” flossed. Both paid and family caregivers reported that the greatest barrier to at-home oral care routines was the behavioral problems of adults with DDs, followed by lack of time and not enough help; these findings are consistent with those of previous reports from paid caregivers.^{15,18,20}

Study limitations

Several limitations of this study are noteworthy. First, the specialized system of dental clinics designed for and financially accessible to people with DDs living in Massachusetts is a long-term collaboration between Tufts University School of Dental Medicine and the state government of Massachusetts. Many patients and their caregivers have developed strong relationships with the dental care professionals in these clinics. Thus, the experiences of caregivers in our survey may not represent those of caregivers more generally.

In addition, caregivers who chose to participate in the survey may have been particularly interested in at-home oral care. Also, it is important to note that the information about brushing and flossing frequency reflects self-reports of caregivers and, owing to factors related to social desirability, may overestimate actual frequencies. In addition, caregivers’ reports about the oral health problems of the adults they support represent their perceptions and are not based on clinical examinations. Finally, the focus of the survey was on the occurrence of at-home oral care practices, not on their quality.

Nonetheless, the results of this survey bring important information to policy discussions about the role and challenges of the caregiver. Brushing with fluoridated toothpaste can contribute to the prevention of dental caries,^{23,24} and toothbrushing is a recommended strategy for preventing gingivitis.²⁵ The adults with DDs in this study who were not brushing at recommended frequencies are not benefiting optimally from strategies to prevent dental disease. In the absence of optimal brushing practices, however, other strategies—such as water fluoridation and use of topical fluorides—can be implemented to protect the oral health of adults with DDs.

Flossing is recommended to maintain periodontal health,²⁶ and routine and frequent flossing generally occurs in the home environment. For more than three-quarters of the adults with DDs in this study, flossing occurred infrequently or never. Overall, caregivers reported that they were less confident about their skills assisting with flossing than about their skills assisting with toothbrushing, and they appeared unable to recognize the presence of gum disease or swollen/bleeding gums. Infrequent flossing among adults with DDs presents a

conundrum, as many people without disabilities find it difficult to floss their teeth.²⁷ Compounding the challenges associated with flossing in the general population are the many difficulties associated with flossing in special populations.¹⁵ Finding an effective alternative to flossing to prevent periodontal diseases in this population proves challenging. Nonetheless, caregivers represent a major focal point for any solution to this problem.

All caregivers need support to assist with at-home oral care, but family caregivers may require special measures. They reported feeling less confident than paid caregivers about their skills assisting with toothbrushing and flossing and responding to behavioral challenges and were much less likely to have learned to assist with at-home oral care through group training sessions. Residences other than family homes generally are associated with state agencies for people with DDs. As a result, paid caregivers typically are linked with organized systems that have the potential to increase instruction and provide support for at-home oral care. Special efforts must be made by state agencies for people with DDs, in partnership with dental schools, professional dental associations and family support organizations, to reach out to families who lack similar access to instruction and information regarding oral health.

CONCLUSIONS

Although the caregiver's contribution to oral health outcomes is not well understood, given the emphasis on home care, he or she may play a pivotal role—along with the dental professional and the patient—in improving the oral health status of adults with DDs. Caregivers play a vital role in assisting adults with DDs with at-home oral care and must figure prominently in policy discussions at the federal and state levels aimed at improving the oral health status of these adults, particularly because this population is known to have poor oral hygiene. The detailed information from caregivers in our study will bring attention to the issue of at-home oral care as a potential contributor to the oral health disparities experienced by people with DDs. Our findings also support the inclusion of at-home oral care in comprehensive approaches to promote the oral health of adults in this population.

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ABBREVIATION KEY

ADA	American Dental Association
CAPI	Computer-assisted personal interview

DD	Developmental disability
NA	Not applicable
PID	Physical and intellectual disability
TDF	Tufts Dental Facilities

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TABLE 1

Characteristics of caregivers, according to caregiver type.

CHARACTERISTIC	NO. (%) OF PAID CAREGIVERS (n = 683)	NO. (%) OF FAMILY CAREGIVERS (n = 125)
Role or Relationship		
Direct support staff	358 (52.4)	NA *
Residential supervisor	195 (28.6)	NA
Alternative living provider (foster home)	46 (6.7)	NA
Personal care attendant	35 (5.1)	NA
Other paid staff (nurse, health or service coordinator)	49 (7.2)	NA
Parent	NA	98 (78.4)
Sibling	NA	18 (14.4)
Other family member	NA	9 (7.2)
Age, in Years ^{† ‡}		
< 30	125 (18.3)	3 (2.4)
30-49	332 (48.7)	23 (18.4)
50-69	217 (31.8)	83 (66.4)
70	8 (1.2)	16 (12.8)
Time Employed as Paid Caregiver for Adults With DDs [§]		
6 months-1 year	16 (2.3)	NA
1-2 years	48 (7.0)	NA
2-5 years	100 (14.6)	NA
5 years	519 (76.0)	NA
Time Employed as Paid Caregiver for Adult With DD Visiting Clinic		
6 months-1 year	113 (16.5)	NA
1-2 years	107 (15.7)	NA
2-5 years	153 (22.4)	NA
5 years	310 (45.4)	NA

* NA: Not applicable.

[†] All *P* values derived from χ^2 tests.

[‡] *P* < .01.

[§] DD: Developmental disability.

TABLE 2

Characteristics of adults with developmental disabilities, according to caregiver type.

CHARACTERISTIC	NUMBER (PERCENTAGE)*			P VALUE†
	All Adults (N = 808)	Adults With Paid Caregivers (n = 683)	Adults With Family Caregivers (n = 125)	
Sex				.34
Male	471 (58.3)	403 (59.0)	68 (54.4)	
Female	337 (41.7)	280 (41.0)	57 (45.6)	
Age, in Years				< .01
20-39	243 (30.1)	154 (22.6)	89 (71.2)	
40-59	408 (50.6)	376 (55.2)	32 (15.6)	
60	155 (19.2)	151 (22.2)	4 (3.2)	
Condition/ Disability ‡				
Intellectual	744 (95.5)	629 (95.6)	115 (95.0)	
Communication	420 (52.8)	342 (50.8)	78 (63.4)	
Behavioral	387 (49.4)	350 (53.1)	37 (29.8)	
Physical	330 (41.7)	277 (41.5)	53 (42.4)	
Seizure disorder/ epilepsy	275 (35.6)	229 (35.3)	46 (36.8)	
Visual or hearing	214 (27.0)	185 (27.7)	29 (23.4)	
Cerebral palsy	125 (16.5)	91 (14.3)	34 (27.4)	
Autism	121 (15.9)	100 (15.7)	21 (16.8)	
Down syndrome	106 (13.7)	80 (12.3)	26 (21.0)	
Type of Residence (5 Days/Week)				NA§
Community residence (state supported)	NA	494 (72.3)	0	
Own home independent of family	NA	62 (9.1)	0	
Family home	NA	59 (8.6)	125 (100)	
Developmental center or facility	NA	52 (7.6)	0	
Other	NA	16 (2.3)	0	

* Percentages are based on the number of responses for each survey item. Not all 808 participants answered all of the questions.

† All P values derived from χ^2 tests.

‡ Some adults with developmental disabilities had more than one condition or disability.

§ NA: Not applicable.

TABLE 3

Oral health status of adults with DDs* and receipt of assistance by dentate adults with DDs, according to caregiver type.

VARIABLE	NUMBER (PERCENTAGE) ^{†‡}			P VALUE [§]
	All Adults	Adults With Paid Caregivers	Adults With Family Caregivers	
All Adults With DDs	808	683	125	
Presence of natural teeth				.01
Yes	773 (95.7)	648 (94.9)	125 (100)	
No	35 (4.3)	35 (5.1)	0	
Able to let caregivers know about dental problems	570 (70.8)	480 (70.5)	90 (72.6)	.64
Able to rinse and spit	521 (64.6)	442 (64.9)	79 (63.2)	.71
Has aspiration problems	235 (29.1)	207 (30.4)	28 (22.4)	.07
Oral health problems reported by caregivers ¶				
Bad breath	227 (28.5)	197 (29.3)	30 (24.2)	.25
Gum disease or swollen/bleeding gums	196 (24.5)	167 (24.7)	29 (23.2)	.72
Problems chewing	103 (12.9)	89 (13.2)	14 (11.2)	.55
Dry mouth	104 (13.1)	83 (12.3)	21 (16.9)	.16
Dentate Adults With DDs Only	773	648	125	
Assistance with tooth cleaning				.26
Receives no help	119 (15.4)	99 (15.3)	20 (16.0)	
Receives reminders/supervision	240 (31.0)	201 (31.0)	39 (31.2)	
Receives hand-over-hand guidance	103 (13.3)	93 (14.4)	10 (8.0)	
Caregiver cleans teeth	311 (40.2)	255 (39.4)	56 (44.8)	
Condition of teeth				< .01
Excellent/good	347 (44.9)	272 (42.0)	75 (60.0)	
Fair/poor	426 (55.1)	376 (58.0)	50 (40.0)	
Other oral health problems reported by caregivers ¶				
Cavities or decayed teeth	296 (38.6)	248 (38.7)	48 (38.4)	.95

* DDs: Developmental disabilities.

[†] Unless otherwise specified.

[‡] Percentages are based on the number of responses for each survey item. Not all 808 participants answered all of the questions.

[§] All *P* values derived from χ^2 tests, except for those for presence of natural teeth, which was derived from a Fisher exact test, owing to sparse expected counts.

[¶] Caregivers may have reported multiple oral health problems.

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TABLE 4

At-home oral care activities for dentate adults, according to caregiver type.

AT-HOME ORAL CARE ACTIVITY	NUMBER (PERCENTAGE)*			P VALUE†
	All Dentate Adults (n = 773)	Dentate Adults With Paid Caregivers (n = 648)	Dentate Adults With Family Caregivers (n = 125)	
Toothbrushing				.02
At least twice per day	608 (78.8)	519 (80.2)	89 (71.2)	
Once per day	137 (17.8)	104 (16.1)	33 (26.4)	
Less than once per day	27 (3.5)	24 (3.7)	3 (2.4)	
Flossing				.04
At least once per day	162 (21.5)	133 (21.0)	29 (23.8)	
Less than once per day, but sometimes	256 (34.0)	205 (32.4)	51 (41.8)	
Never	336 (44.6)	294 (46.5)	42 (34.4)	

* Percentages are based on the number of responses for each survey item. Not all participants answered all of the questions.

† All *P* values derived from χ^2 tests.

TABLE 5

Factors related to at-home oral care activities, according to caregiver type.

VARIABLE	NUMBER (PERCENTAGE)*			P VALUE†
	All Caregivers (N = 808)	Paid Caregivers (n = 683)	Family Caregivers (n = 125)	
Factors Interfering With At-Home Oral Care ‡ §				
Behavior of adult with DD ¶	472 (63.0)	416 (65.8)	56 (47.9)	< .01
Lack of time	229 (32.3)	191 (31.9)	38 (33.9)	.68
Not enough help	175 (25.4)	146 (25.2)	29 (26.4)	.80
Lack of oral health routines	134 (19.5)	119 (20.5)	15 (14.2)	.13
Caregivers Who Reported Feeling Very Confident About Their Skills ...				
Assisting with toothbrushing	672 (85.2)	579 (86.2)	93 (79.5)	.06
Assisting with flossing	393 (53.6)	343 (54.5)	50 (48.1)	.22
Addressing behavioral challenges	520 (70.9)	468 (72.2)	52 (61.2)	.04
Ways in Which Caregivers Learned to Assist With At-Home Oral Care *				
Formal group training sessions	497 (61.5)	489 (71.6)	8 (6.4)	< .01
Trial and error or informal tips from other caregivers	484 (59.9)	403 (59.0)	81 (64.8)	.22
Individualized instruction from dentists or hygienists at dental visits	429 (53.1)	358 (52.4)	71 (56.8)	.37

* Percentages are based on the number of responses for each survey item. Not all 808 participants answered all of the questions.

† All *P* values derived from χ^2 tests.

‡ Factors cited as interfering with at-home oral care “often or always” and “sometimes” were compared with those occurring “never or rarely.”

§ Caregivers could check all that applied.

¶ DD: Developmental disability.