

Caregivers' knowledge regarding oral health of children aged 2–5 years at Kajjansi Health Center IV, Wakiso District. A cross-sectional study.

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ABSTRACT

Background:

The study aimed to assess caregivers' knowledge regarding the oral health of children aged 2–5 years at Kajjansi Health Center IV, Wakiso District.

Methodology:

This study used a descriptive cross-sectional quantitative design to assess caregivers' oral care practices for children aged 2–5 years at Kajjansi Health Center IV, Wakiso District. A sample of 96 caregivers was obtained using the Kish and Leslie (1965) formula and selected through convenience sampling. Data were collected using structured questionnaires translated into Luganda and pretested at Seguku Health Center III. Responses were coded and analyzed using SPSS to generate frequencies and percentages. Ethical approval and informed consent were obtained, and confidentiality was maintained throughout the study.

Results:

A total of 96 caregivers participated in the study. Respondents were aged 20–30 years (42, 43.8%), followed by 31–40 years (30, 31.3%), while 16 (16.6%) were aged 41 years or above, and 8 (8.3%) were below 20 years. Half of the caregivers had secondary education (44, 45.8%), while 24 (25.0%) had tertiary education, 22 (22.9%) had primary education, and 6 (6.3%) had no formal education. Regarding employment, 36 (37.5%) were unemployed, 30 (31.3%) were self-employed, 28 (29.2%) were employed, and 2 (2.1%) were retired. Knowledge results showed that 62 (64.6%) identified twice-daily brushing, while 78 (81.3%) knew sugar causes dental caries. Awareness of fluoridated toothpaste was reported by 56 (58.3%). Also, 70 (72.9%) recognized the need for primary teeth check-ups, 52 (54.2%) knew the brushing technique, and 88 (91.7%) reported that brushing prevents tooth decay. However, only 30 (31.3%) identified the six-month dental visit interval.

Conclusion:

The study finds that caregivers at Kajjansi Health Center IV have moderate to good knowledge.

Recommendation:

Health workers should educate caregivers on tooth-brushing techniques, the use of fluoridated toothpaste, and the risks of frequent sugary snacks.

Keywords: Knowledge on oral health, Tooth-brushing techniques, Fluoridated toothpaste, Primary teeth check-ups.

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BACKGROUND OF THE STUDY

Oral health is a critical component of overall health in children, with proper home-based practices playing a central role in preventing dental diseases. A study conducted in Dhaka, Bangladesh, reported that 85% of mothers recognized the importance of regular tooth brushing for preventing dental caries among children aged 5–9 years, although many were unaware of the recommended frequency and proper techniques (Tamannur et al., 2025). Similarly, a systematic review across countries, including the United Kingdom and Australia, found that only 60% of parents knew that children should brush their teeth at least

twice daily, highlighting a knowledge gap that limits effective home-based oral care (Aliakbari et al., 2021).

Caregivers' understanding of dietary influences is also limited. A cross-sectional study in Saskatoon, Canada, found that only 44% of caregivers understood the role of excessive sugar in dental caries, yet many struggled to control children's sugar intake due to preferences and external factors (Kim et al., 2019). Awareness of fluoride use is insufficient, with just 55% of parents in Trinidad and Tobago recognizing the benefits of fluoridated toothpaste in preventing dental problems (Naidu & Davis, 2024).

Additionally, routine professional dental care is often undervalued. A study in Randburg Clinic School reported

that 65% of caregivers of children with autism did not recognize the importance of regular dental check-ups, reflecting misconceptions about primary teeth (Ngema, 2021). In the United Kingdom, newly qualified dentists

$$n = \frac{Z^2 \cdot p \cdot (1 - p)}{d^2}$$

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identified that gaps in parental knowledge about child development and oral care techniques often led to improper tooth brushing practices, indicating a critical area where professional guidance can improve children's oral health outcomes (Rutter et al., 2023).

Collectively, these studies highlight persistent gaps in caregivers' knowledge, attitudes, and practices regarding children's oral health, emphasizing the need for targeted educational interventions to promote effective oral hygiene behaviors from early childhood.

The study aimed to assess caregivers' knowledge regarding the oral health of children aged 2–5 years at Kajjansi Health Center IV, Wakiso District.

METHODOLOGY

Study design and rationale

The study employed a descriptive cross-sectional design utilizing quantitative research approaches. This design enabled the researcher to collect all the required data at a single point in time, which was practical within the limited timeframe available. The cross-sectional approach also allowed for the assessment of caregivers' knowledge and practices regarding the oral health of children aged 2–5 years, providing a clear snapshot of the prevailing situation at Kajjansi Health Center IV, Wakiso District.

Study setting and rationale

The study was conducted at Kajjansi Health Center IV in Wakiso District, a peri-urban health facility serving a diverse population. The setting provided an appropriate environment for examining early childhood oral health because many caregivers regularly sought health services at this facility. Conducting the study at this site enabled the researcher to collect reliable information on caregivers' knowledge and practices related to the oral health of children aged 2–5 years.

Study Population

The study targeted caregivers of children aged 2–5 years attending Kajjansi Health Center IV. This population was selected because caregivers played a central role in shaping the oral health behaviors of young children, a stage characterized by limited awareness of proper oral hygiene and increased vulnerability to dental problems. Focusing on this group provided valuable insights into how caregiver knowledge and practices influenced children's oral health outcomes.

Sample Size Determination

Since the total number of caregivers of children aged 2–5 years attending Kajjansi Health Center IV, Wakiso District, is not known, the sample size was determined using the Kish and Leslie (1965) formula for prevalence studies, applying an estimated prevalence of 53% (Musinguzi et al., 2019).

Where

n is the same size

Z=1.96 (for 95% confidence level)

p=0.53 (estimated prevalence of 53%)

d=0.05 (desired margin of error or precision)

Substituting the values

$$\begin{aligned} n &= (1.96)^2 \times 0.53 \times (1-0.53) \\ (0.05)^2 & \\ &= 383 \end{aligned}$$

Due to time and resource limitations, and since this was a prevalence study, only one-quarter of the calculated sample size was used.

$$\text{Therefore } n = 383/4$$

$$= 96$$

Thus, the final sample size consisted of **96** study participants.

Sampling Procedure

A convenience sampling technique was used to select caregivers. This non-probability method was appropriate given the limited time and resources available for data collection. Caregivers who were present at the health facility during the study period and who consented to participate were approached and enrolled. This method ensured accessibility while still providing insights into caregivers' knowledge and practices regarding oral health.

Inclusion and Exclusion criteria

Inclusion Criteria

The study included caregivers of children aged 2–5 years who attended Kajjansi Health Center IV and had lived in the catchment area for at least six months. Eligible participants were required to provide voluntary informed consent and be the primary caregivers responsible for the child's daily care and oral hygiene.

Exclusion Criteria

Caregivers were excluded if they did not have children within the specified age range, were not residents of the Kajjansi catchment area, were unable to communicate effectively due to language or health-related challenges, declined consent, or had participated in the pilot test.

Study Variables

Dependent Variable

Oral care of children aged 2–5 years, as reflected in their oral hygiene status and related outcomes.

Independent Variables

Knowledge-related factors: Caregivers' awareness of appropriate oral hygiene practices, understanding of common dental diseases, and sources of information on children's oral health.

Research Instruments

Data were collected using a structured questionnaire designed to capture caregivers' knowledge and practices. The questionnaire consisted mainly of closed-ended questions and was developed in English before being translated into Luganda for improved comprehension. A pilot test (9 participants) was conducted at Seguku Health Center III to assess clarity and reliability. The questionnaire comprised three sections: demographic information, knowledge of oral care, and oral care practices.

Data Collection Procedure

Data were collected using structured questionnaires administered to caregivers through convenience sampling. Where possible, questionnaires were self-administered; for caregivers with literacy challenges, questions were read aloud in Luganda and responses recorded. Each completed questionnaire was checked on-site for completeness. The purpose of the study was explained to all. Participants, and written informed consent was obtained prior to participation.

Data Management, Data Analysis, and Presentation

Completed questionnaires were reviewed daily for accuracy, coded, and entered into SPSS, with backups stored securely.

Data were manually sorted and tallied before analysis. Descriptive statistics, including frequencies and percentages, were used to summarize the results. Findings were presented using tables, pie charts, and bar graphs.

Quality Assurance: Validity and Reliability

To ensure validity and reliability, several measures were undertaken. The structured questionnaire was pretested at Seguku Health Center III outside Kajjansi Health Center IV to evaluate its clarity, relevance, and comprehensiveness. Feedback from the pretest was used to refine the tool. Additionally, the instrument was reviewed by academic supervisors to ensure content and construct validity.

Reliability was promoted through standardized data collection procedures. Research assistants were trained to administer the questionnaire consistently, which minimized interviewer bias. The pilot study helped to identify and correct any ambiguities, thereby improving clarity and uniformity.

During data collection, all completed questionnaires were checked daily for completeness and accuracy. These measures guaranteed that the findings were credible, reproducible, and valuable in guiding strategies to improve oral care practices among caregivers at Kajjansi Health Center IV, Wakiso District.

Ethical Considerations

Ethical approval was obtained from the research supervisor and the Dean of the Mildmay Institute of Health Sciences. An introductory letter was issued to facilitate access to the study site. Caregivers were informed about the study purpose and procedures, after which written consent was obtained. Participation was voluntary, and confidentiality was maintained through anonymous coding. Data were securely stored to prevent unauthorized access.

RESULTS

Socio-Demographic Characteristics of Caregivers

Table 1: Knowledge of Caregivers Regarding Oral Health (n=96)

Characteristic	Frequency (f)	Percentage (%)
Age (years)	8	8.3
Less than 20		
20–30	42	43.8
31–40	30	31.3
≥41	16	16.6
Highest Level of Education	6	6.3
No formal education		
Primary	22	22.9
Secondary	44	45.8
Tertiary	24	25.0

Employment Status	28	29.2
Employed		
Unemployed	36	37.5
Self-employed	30	31.3
Retired	2	2.1

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The result in Table 1 shows that most respondents, 42 (43.8%) were aged 20-30 years, followed by 30(31.3%) aged 31-40 years. Almost half of the caregivers, 44 (45.8%), had attained secondary education, while 24(25.0%) had

tertiary education. Regarding employment status, 36(37.5%) were employed, 30 (31.3%) were self-employed, and 28(29.2%) reported being formally employed. Only 2 (2.1%) were retired.

Caregivers' Knowledge on Oral Health of Children Aged 2–5 Years

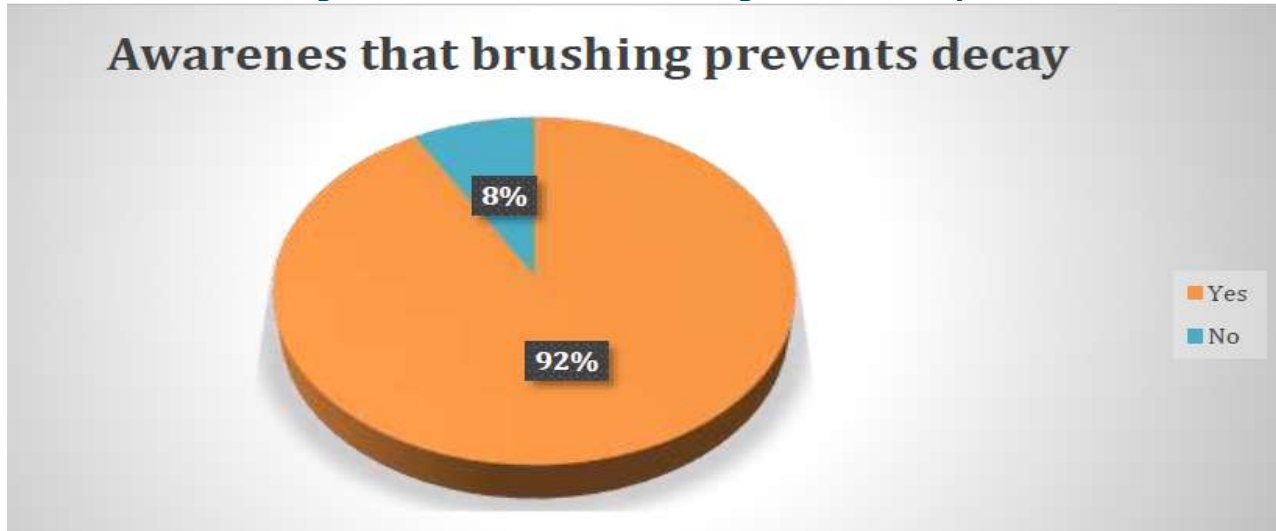
Table 2: Knowledge of Caregivers Regarding Oral Health (n=96)

Knowledge Item	Response Category	Frequency (f)	Percentage (%)
Recommended brushing frequency	Twice daily	62	64.6
	Once daily	14	14.6
	After every meal	10	10.4
	Don't know	10	10.4
Sugar causes dental caries	Yes	78	81.3
	No	18	18.7
Role of fluoridated toothpaste	Prevents decay	56	58.3
	Don't know	40	41.7
Primary teeth need check-ups	Yes	70	72.9
	No	26	27.1
Correct brushing technique	Yes	52	54.2
	No	44	45.8
Recommended dental visit	Every 6 months	30	31.3
	Other responses	66	68.7

Table 2 indicates that most caregivers, 62 (64.6%), correctly identified the recommended brushing frequency as twice daily. Similarly, excessive sugar consumption was recognized as a cause of dental caries by 78 (81.3%) of caregivers. However, knowledge of fluoridated toothpaste was relatively low, with only 56 (58.3%) aware that it strengthens teeth and prevents decay.

Regarding dental check-ups, 70 (72.9%) understood that primary teeth require routine care despite being temporary, while 30 (31.3%) knew that children should visit the dentist every six months. Just over half, 52 (54.2%), were familiar with the correct tooth-brushing technique for young children.

Figure 1: Awareness that Brushing Prevents Decay



The results shown in the pie chart indicate that a large proportion, 88 (91.7%), correctly reported that regular brushing helps prevent tooth decay, while only 8(8.3%) reported not.

DISCUSSION

The study found that caregivers demonstrated relatively adequate knowledge about oral health, particularly regarding the importance of brushing, the role of sugar in causing tooth decay, and the need for routine dental care. For instance, 91.7% correctly reported that regular brushing prevents tooth decay, and 81.3% recognized excessive sugar intake as a major contributor to dental caries. These findings align with evidence from Bangladesh and Australia indicating that many caregivers understand the basic principles of oral hygiene but may vary in depth of knowledge (Tamannur et al., 2025; Aliakbari et al., 2021). Correct recognition of recommended brushing frequency was identified among 64.6% of respondents, suggesting moderate awareness. Similar gaps have been reported in a Canadian study that found caregivers struggle with adhering to proper brushing guidelines due to limited oral health literacy and competing caregiving demands (Kim et al., 2019). This present study supports literature showing that although foundational oral hygiene concepts are understood, knowledge of the correct techniques and frequencies remains suboptimal.

Knowledge of fluoride use presented notable gaps. Only 58.3% of caregivers understood that fluoridated toothpaste helps prevent decay. This mirrors findings from Trinidad and Tobago, where parental misconceptions about fluoride contributed to reduced use of fluoridated toothpaste and lower childhood oral health outcomes (Naidu & Davis, 2024). Additionally, only 54.2% of respondents were aware of correct brushing techniques, consistent with studies in the UK reporting that caregivers often lack the skills needed to

support optimal brushing practices in young children (Rutter et al., 2023).

A considerable proportion (72.9%) recognized that primary teeth require routine check-ups, which agrees with studies from Poland and South Africa emphasizing the growing awareness among caregivers about the importance of maintaining the health of deciduous teeth (Gerreth et al., 2020; Naidoo et al., 2013). However, only 31.3% correctly identified the recommended six-month dental visit interval, reflecting the broader challenge of limited preventive dental-seeking behaviours highlighted in East African literature (Teshome et al., 2021).

Collectively, the findings indicate that caregivers possess moderate to good oral health knowledge but still hold gaps in fluoride awareness, brushing techniques, and preventive dental visit schedules.

CONCLUSION

The study finds that caregivers at Kajjansi Health Center IV have moderate to good knowledge about children's oral health aged 2–5 years, especially regarding the importance of brushing and the role of sugar in dental caries. However, there are notable gaps in understanding fluoridated toothpaste use, proper brushing techniques, and recommended dental visit frequency.

RECOMMENDATION

Kajjansi Health Center IV should integrate brief but consistent oral health education into routine child health services to improve caregivers' understanding of oral hygiene for children aged 2–5 years.

Health workers and community teams should educate caregivers on correct tooth-brushing techniques, the importance of using fluoridated toothpaste, and the risks associated with frequent consumption of sugary snacks.

Health workers should address misconceptions about fluoride and increase awareness about the importance of early childhood oral health.

Training institutions and partners should strengthen oral health content in both pre-service and in-service training programs for health workers to improve knowledge and capacity in promoting oral hygiene.

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List of abbreviations

Abbreviation	Meaning
ANC	Antenatal Care
CHC	Community Health Center
HC IV	Health Center IV
MIHS	Mildmay Institute of Health Sciences
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization
IRC	Institutional Research Committee
f	Frequency
%	Percentage

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The study received no external funding.

Conflict of interest

The authors declare no conflict of interest.

Data availability

Data is available upon request from the author.

Author biography

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Author contributions

CN: collected the data.

JO: supervised the study.

FS: supervised the study.

HN: supervised the study.

JFN: supervised the study

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