Factors affecting Children's (1-13 Years) Oral Health: A Case Study of Buhara Sub-County, Kabale District.

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Abstract

Oral health is of vital importance to general health in humans. Caries occurs in both developed and developing countries. Despite the marked improvement in oral health, it is still widespread among children and it can be controlled but not eliminated.

Background

Objectives

The broad objective was to assess the factors affecting children's (1-13 years) oral health: a case of Buhara sub-county, Kabale District. The specific objectives included; assessing the knowledge of caregivers, identifying the attitude of caregivers, and establishing the practices of caregivers towards children's oral health: a case of Buhara sub-county, Kabale District.

Methodology

The study was carried out using a descriptive cross-sectional design and it involved a sample size of 73 respondents. The data was collected using self-administered questionnaires analyzed by Microsoft excel software and presented in frequency tables, figures, and statements.

Results

The study found that (72.60%) did not know about oral health,(and 41.10%)of the respondents knew that diet especially sugary food consumption mainly caused dental problems. (17.81%) of the respondents agreed that the rotten child's tooth causes psychological torture.

Conclusion

The knowledge of the caregivers about children's (1-13 years) oral health was poor since the majority of the respondents did not know about children's oral health.

Recommendation

There is a great need for health workers to deliver information about oral health to community members who can't access the health facility.

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1 Background of the study

Oral health is of vital importance to general health in humans. Nevertheless, despite the marked improvement in oral health.

Globally, caries occur in both developed and developing countries. Despite the marked improvement in oral health, it is still widespread among children, and it can be controlled but not eliminated (Skrivel et al, 2013).

Dental caries is 5 times more common than asthma and its prevalence is high among children from families with income below the poverty level and making it the most prevalent childhood chronic disease in the United States (Peeddikayil et al, 2013)

In a study done in Australia by Australian Research Centre for Population Oral Health, about 50% of children aged 2 to 3 years brushed their teeth daily with fluoride toothpaste. Of those who had visited a dental health professional for the first visit, 86.7% of them went for a check-up. These oral health practices, especially the widespread usage of fluoride toothpaste, have contributed to a marked reduction in dental caries experience. In addition, numerous national oral health authorities recommended regular preventive visits to an oral health professional (Riley et al, 2013; O'Mullane et al, 2016)

A study carried out in Morocco about Knowledge attitudes and self-reported practices of mothers towards oral health revealed that most surveys concentrate on parents from high-income countries and less is known from low-income countries which have a high prevalence of dental caries (Chela et al, 2018)

The World Health Organization (WHO) recognizes dental caries as a pandemic disease and reports that its prevalence among school-aged children ranges from 90% to 100%.

The prevalence of dental caries in Africa was reported to be 24.1% in Nigeria, 43.3% in Kenya, and 30.5% in Sudan with a mean DMFT of 0.45, 3.4, and 0.42 respectively. And a study done in Northwest Ethiopia showed that the overall prevalence of dental caries was 47.1% In Ethiopia, prevention and treatment of oral diseases receive little attention. Even though oral diseases are affecting the majority of Ethiopian children, much is not known about the extent and factors influencing the occurrence of dental caries and oral care practices and healthcare-seeking behavior in most parts of the country (Ayele et al, 2013).

Lack of oral hygiene practices has been identified as a possible predisposing factor for the occurrence of dental caries. Children generally engage in unhealthy habits that can cause dental problems like failing to brush, nibbling on sweets, and consumption of sugary snacks. All of these can cause acid formation which eats away the tooth enamel. The general health of children who suffer from dental disease is put further at risk and because of this health risk; their dental care is of vital importance.

Uganda has a population of nearly 200 dental surgeons, and 300 dental offices serving a population of about 45 million people. Statistics show the ratio of dentists to the population is 1:175,000 people. (Daily monitor report, 2018)

In a study about the Oral health status of school children in Mbarara Uganda, children in private schools were associated with less plaque (OR: 0.6, 95%CL: 0.4-0.9), as were those in boarding schools. Some 113(25.9%) had calculus that increased with age ($p<0.0001$). Calculus was more prevalent in males, government schools, and among day scholars. Females were less likely to have maxillary overjet (OR: 0.5, 95%CL: 0.3-0.8). Day scholars were 2 times more likely to have maxillary overjet (OR: 1.9, 95%CL: 1.1-3.5) (Batwala et al, 2007).

2 Methodology

Study area

The study was done in Buhara sub-county, Ndorwa East County, Kabale District. Kabale District is located in Kigezi sub-Region, Western Uganda. The sub-county is off of the Kabale-Katuna Road, approximately 83.49 km2 Area. The sub-county has 7 parishes and 73 villages with a population Density of 328.2/km2. Kabale District 620km2 (240 sq. mi). It is bordered by Rukungiri district to the north, Rubanda district to the north-east, and Kanungu district to the north-west' Kabale is approximately 143 km (89 mi), by the road, southwest of Mbarara city, Kabale is located approximately 410km (255 mi) by the road southwest of Kampala. Kabaka sits approximately 25km (16 mi), north of Katuna at the international border with Rwanda. The coordinates of Kabale District are 010, 15'S3000'E (Latitude: 0.616942; Longitude: 30.637493).

The major activities done in the area are farming, small-scale businesses, and iron ore mining in some areas.

Buhara sub-county has a population of 27,400 (2020). It is headed by the chairman Lc 3 with the help of councilors and chairpersons Lc 1 and 2.

Study Design

A descriptive cross-sectional study design was used to collect quantitative data on children's (1-13 years) oral health: a case of Buhara sub-county, Kabale District. This design was chosen because it would allow the researcher to collect data within the short time possible.

Study Population

The study involved children aged 1-13 years in the Buhara sub-county whose caregivers were

ready to consent to the study. This population was chosen since there is no published information about children's oral health in the Buhara sub-county, Kabale District and children's oral related conditions are less addressed. During this age, the children either have deciduous teeth or mixed dentition where caretakers have less concern about the children's oral health since they know that the deciduous teeth are to be replaced by permanent teeth.

Sample Size Determination

The sample size was determined using the Kish Leslie (1965) formula: N= z2pq / d2

Where N= sample size.

Z=standard normal corresponding to 95% confidence interval and is 1.96.

p= an estimate of 5% knowledge level (as the prevalence of knowledge of oral health in this community was unknown)

q=1-p, where (100-0.5) % =0.5

d= precision of the study and a precision of 5% (0.05) was allowed by the researcher.

Hence

= 72.9 approximately 73 respondents

The calculated sample size was 73,

Therefore the researcher used 73 respondents in the study.

Selection criteria

Inclusion criteria

The study included children aged 1-13 years whose parents and caregivers consented to participate in the study.

Exclusion criteria

The study excluded people who did not consent to take part in the study, as well as those who asked to be paid to participate in the study.

Sampling Procedure

The researcher identified respondents by particulars in the different villages. They were called upon to convene in a convenient place and the purpose and details of the study were explained to them. Voluntary consent was sought after a thorough understanding of the study. Pieces of paper were written on "yes" or "no" and then shuffled and those who picked ones with yes were included in the study as participants. A fixed number of respondents was considered each day. This procedure was repeated every day till the required number of respondents was achieved.

Data Collection Tools

The researcher used both self and researcher-administered questionnaires. The questions were in English and where necessary, translations in the local language were made. It was a multiple-choice questionnaire where the participants were asked to select the most relevant answer. Questionnaires were completed under supervision to ensure that no interpersonal communications occurred. The questionnaire had four sections Demographic, Knowledge, Attitude, and Practices of caregivers towards children's (1-13 years) oral health.

Data Collection Procedure

After obtaining informed consent, data was collected using questionnaires which were administered for filling after obtaining informed consent from the respondents. Responses were written on the form in English. If the respondent could not read or write or was not comfortable with the language, the researcher read questions or translated the questions into the local language understandable to the respondent, and then responses were written down. The filled questionnaires were kept under key and lock and cross-checked in the evenings for completeness. Incomplete questionnaires were discarded.

Quality Control

The quality of the study was ensured through conducting a pretesting and double-checking of the study instrument and responses. Pretesting enabled the determination of validity and reliability of the study tool and permitted due adjustments to be made.

Data Presentation and Analysis

Data analysis was done manually using tally sheets, pens, and paper. The data analyzed was entered in the excel computer program and presented in tables, and charts, and analyzed using across-tabulation and chi-square while qualitative data were presented using descriptive narratives and analyzed using themes.

Ethical Considerations

Ethical approval to conduct the study was sought from Medicare Institutional Review Board after analyzing all ethical issues.

The research ethics committee of Medicare Health Professionals College (MHPC) provided the researcher with an introductory letter to the chairperson LC3 and the District Health Officer (DHO). Through the chairperson LC3, it was addressed to chairpersons of the villages who allowed the researcher to carry out the study. Informed consent

was obtained from each respondent and the respondent retained a right to withdraw from participation or refuse to participate in the study at any point if he or she felt uncomfortable continuing without penalty.

Presentation of Study Findings

Demographic data

3 Discussion, Conclusion, and Recommendation

4 Discussions:

Demographic Data

With the sex of the respondents, the majority 63(86.30%) were females while the minority 10(13.70%) were males. This is because most the children spend more time with their mothers as compared to the fathers. This is slightly in line with the study carried out in Morocco about Knowledge, attitude, and self-reported practices towards oral health by mothers by Chela, *et al,* (2018) whose respondents were only mothers.

Knowledge of caregivers towards children's (1-13 years) oral health

The study about factors affecting children's (1-13 years) oral health revealed that the majority of the respondents 53 (72.60%) had not heard about oral health before. This is probably because the majority of the respondents had low levels of education. This was contrary to the study carried out by Mani S, *et al,* (2012) in Malaysia which showed that almost all the respondents knew the causes of dental caries and the importance of brushing children's teeth.

The study established that the majority 30(41.10%) of the respondents got information about oral health from family members, while 10 (13.70%) were from health practitioners. This is probably because respondents rarely visited the clinics and when they visited, they rarely asked about oral health. This is slightly in line with the study by Chela *et al,* (2018) carried out in Morocco showed that the main source of oral health information was family members while Pediatricians and dentists were cited in less than (10%) of the cases.

The study also revealed that the major cause of oral/ dental problems was the diet of the children 30(41.10%) and poor oral hygiene or not brushing 20(27.40%). This is probably because respondents rarely visited the clinics and this is probably because the most information was got from family members. Free sugars are now found in almost all foods and are the most cause of oral problems for example dental caries. This puts almost everyone at risk of dental caries if all the sugars are consumed in between meals. This was slightly in line with the study done by Nair B (2014) which showed that (76.6%) of participants identified diet as being the primary cause of rotten teeth, whilst only less than (8%) identified poor hygiene.

The attitude of caregivers towards children's (1-13 years) oral health

The study found that the majority of the respondents 40 (54.79%) visited the dental clinic when they had dental pain. This is probably because most of the respondents had low education levels and less information had been received from the practitioners. . This implies that the majority of the respondents were ignorant about other forms of treating oral diseases (preventive) apart from curative means. This was not in line with the study by Chela et al, (2018) which revealed that previous children's use of dental services was reported by 45% of the mothers were emergency dental care and 13.7% of the mothers reported that they sought treatment for their child from dental practitioners for a toothache.

The study revealed that the effect of rotten teeth was psychological torture 13 (17.81%) since children with rotten teeth are called funny names which reduces their self-esteem among their fellow children. This is probably because of the low level of education and the little knowledge about children's oral health. This is in line with the study carried out by Nair, (2014) which revealed that the majority of the parents (50.9%) reported that their child will be teased or called names if he/she had rotten teeth.

The study established that 30(41.10%) of the respondents visited the dentist to treat sick teeth, and 23(31.51%) said to check for cavities. This implies that the majority of the respondents were ignorant about other forms of treating oral diseases (preventive) apart from curative means.

Practices of caregivers towards children's (1-13 years) oral health

The study established that the majority of the respondents 50(68.49%) had never visited a dentist while the minority 23 (31.51%) had ever visited a dentist. This is probably because most of the re-

Table 1. Distribution of respondents according to demographic data (n=73)

Variable	Frequency (n=73)	Percentage (%)
Age of caregivers		
15-20	08	10.96
21-29	15	20.55
30-39	30	41.10
Above 40	20	27.40
Sex		
Male	10	13.70
Female	63	86.30
Age of child		
1-5	40	54.79
6-10	20	27.40
11-13	13	17.81
Occupation		
Business person	07	9.59
Peasants	30	41.10
Civil servants	15	20.55
Unemployed	08	10.96
Others	13	17.81
Tribe		
Munyankole	10	13.70
Mukiga	50	68.49
Mufumbira	05	6.85
Others	08	10.96
Religion		
Catholic	20	27.40
Protestant	30	41.10
SDA	08	10.96
Moslem	05	6.85
Others	10	13.70
Level of Education		
Primary	28	38.36
Secondary	20	27.40
Tertiary	15	20.55
No formal education	10	13.70

Table 2. Distribution of respondents by where information about oral health was obtained (n=73)

variable	Frequency(n=73)	Percentage (%)
Media	13	17.81
Health practitioner	10	13.70
Friends	20	27.40
Family member	30	41.10

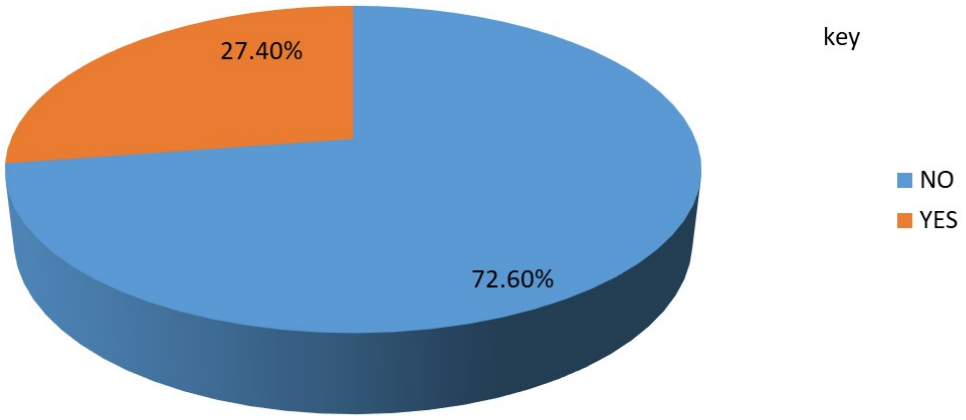

Figure 1. Distribution of respondents according to whether they had heard about oral health (n=73)

Table 3. Distribution of respondents by what they thought causes dental (oral) problems (n=73)

Variable	Frequency (n=73)	Percentage (%)
Not brushing/ poor oral hygiene	20	27.40
Diet of the child	30	41.10
Not visiting a dentist	10	13.70
Prolonged bottle feeding at night	08	10.96
Caused by bacteria	05	06.85

Table 4. Distribution of respondents by when one should visit a dental clinic (n=73)

Variable	Frequency (n=73)	Percentage (%)
At least after 6 months	10	13.70
When one has dental pain	40	54.79
When the first tooth erupts	08	10.96
Not sure	15	20.55

Table 5. Distribution of respondent by what the results of a rotten tooth are (n=73)

Variable	Frequency(n=73)	Percentage%
Pain	50	68.49
Psychological torture	13	17.81
Not sure	10	13.70

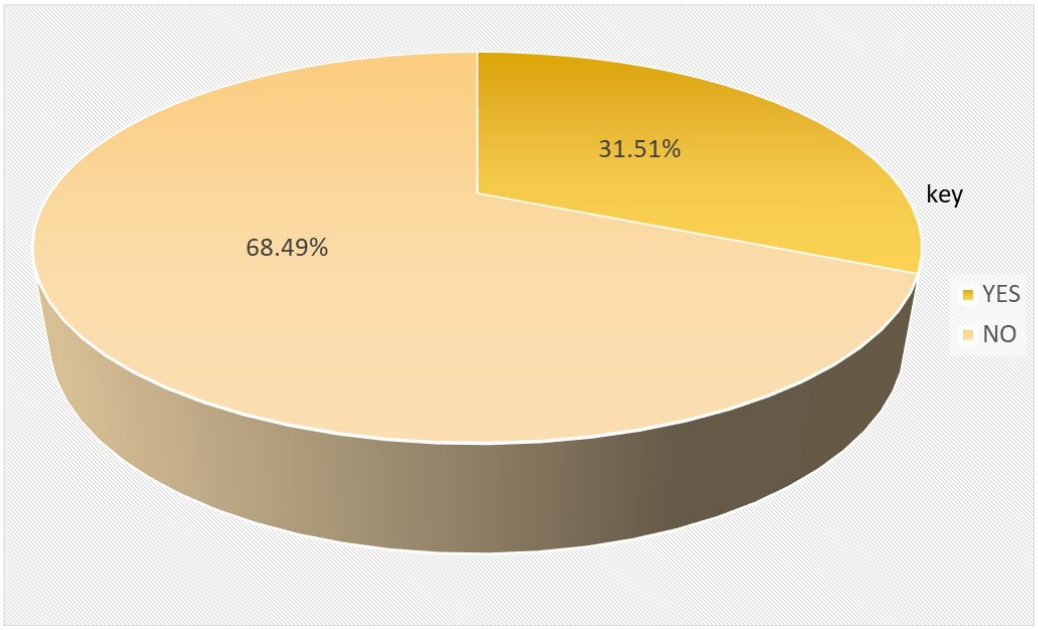

Figure 2. Distribution of respondents by whether cleaning teeth can only be achieved by a child himself/herself? (n=73)

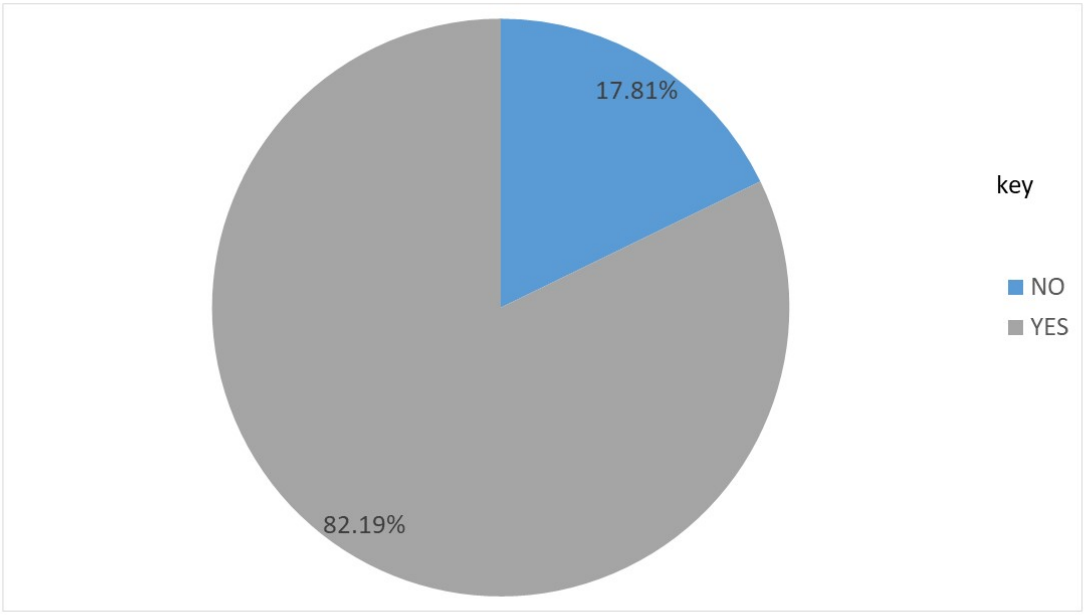

Figure 3. Distribution of respondents by whether they thought it was important to look after their children's teeth? (n=73)

Table 6. Distribution of respondents by what their opinions on how to take care of your children's teeth are (n=73)

Variable	Frequency(n=73)	Percentage (%)
Regular brushing	35	47.95
Regular dental checkup	28	38.36
Others	10	13.70

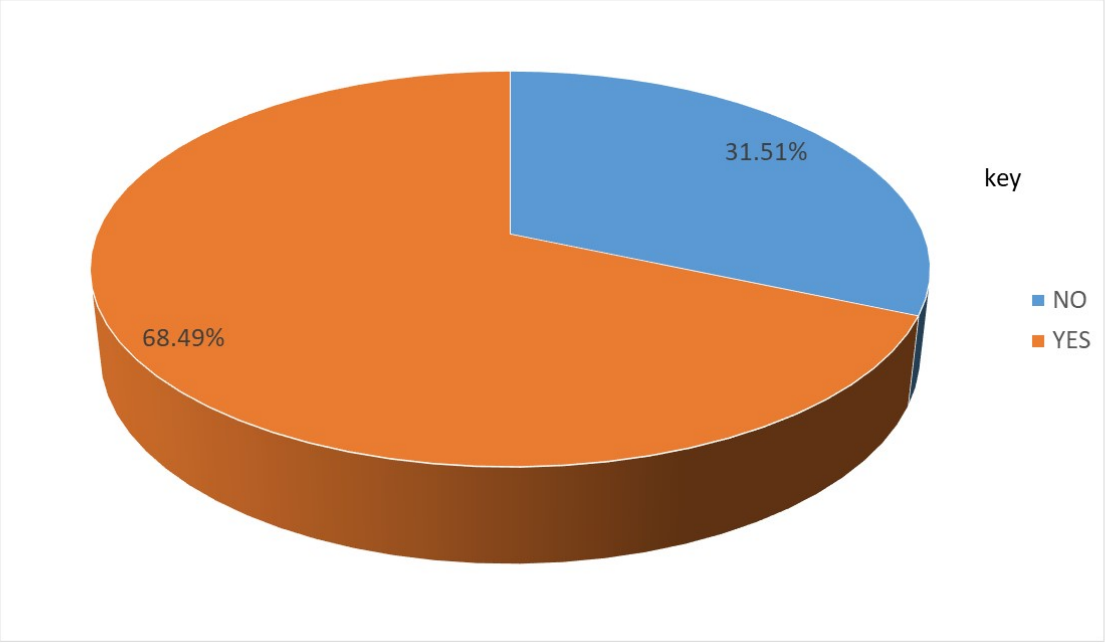

Figure 4. Distribution of respondents depending on whether they thought it is important to visit a dentist for regular checkup (n=73)

Table 7. Distribution of respondents by why it is important to visit a dentist for regular checkups.

Variable	Frequency (n=73)	Percentage%
Check for cavities	23	31.51
Treat sick teeth	30	41.10
Not sure	20	27.40

Table 8. Distribution of respondents by why they brush their children's teeth (n=73)

Variables	Frequency(n=73)	Percentage (%)
Remove food	20	27.40
Control dental plaque	18	24.66
Avoid bad smell	30	41.10
Not sure	05	06.85

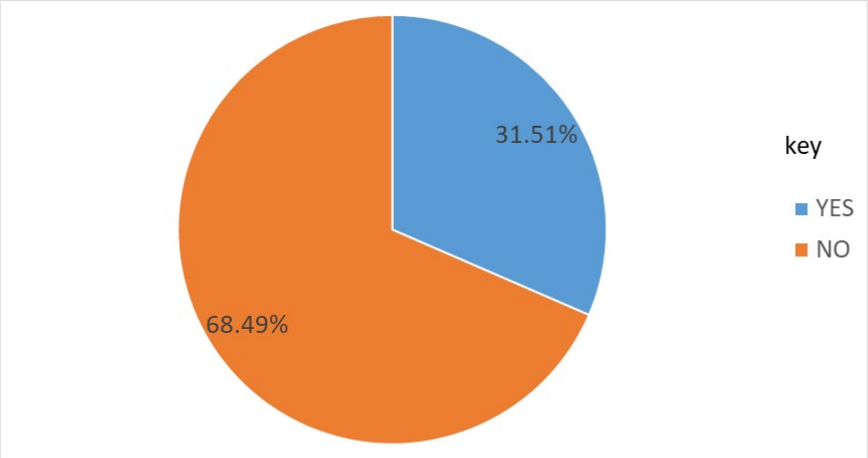

Figure 5. Distribution of respondents by if they have ever visited a dentist (n=73)

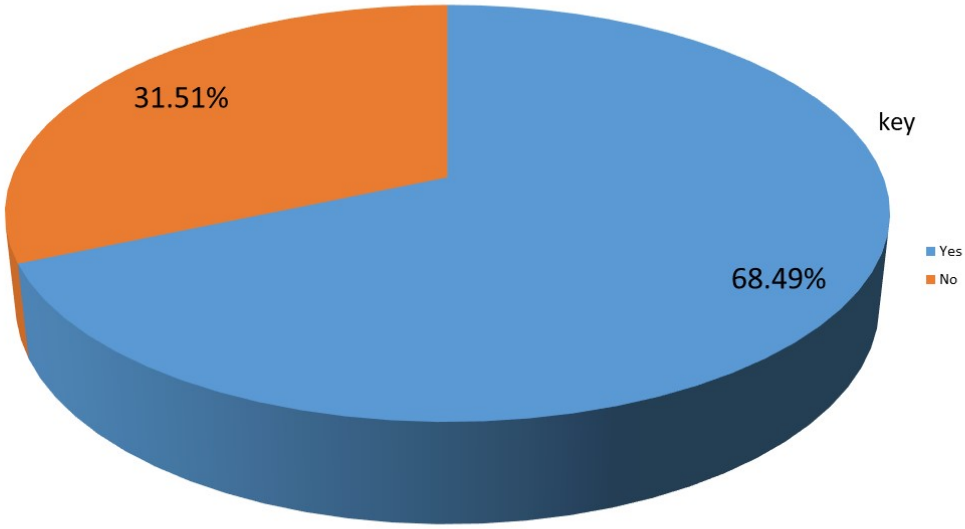

Chart 1. Distribution of respondents by if they brush their children's teeth (n=73)

Table 9. Distribution of respondents by what they use for brushing their children's teeth (n=73)

Variables	Frequency(n=73)	Percentage (%)
Toothbrushes	23	31.51
Sticks	35	47.95
Herbs	10	13.70
Charcoal	05	06.85

Table 10. Distribution of respondents by how often their child brushed (n=73)

Variables	Frequency(n=73)	Percentage (%)
Once a day	40	54.79
Twice a day	20	27.40
Not sure	13	17.81

spondents were peasants who could not afford the dental treatment costs. This is in line with a study done in Nigeria by the International Journal of Dentistry, 2019 which showed that 23.9% of the respondents had utilized dental services while 76.1% had not visited a dental clinic

The study also found out that the majority of the respondents 40(54.79%) reported that the child brushed once a day. This is could be because most of the respondents couldn't afford the toothpaste, and brushes and had less information since most information was received from the family members. This implies that brushing once a day can minimally have an impact on improving children's oral health. This was contrary to the study conducted in South Africa by Nair B (2014) which revealed that 70.7% indicated that their children brushed their teeth twice a day.

About what the child uses for brushing, 23(31.51%) used toothbrushes. This could be because most of the respondents were peasants whose economic status is too low to facilitate buying toothbrushes. This is not in line with the study made by Nair B, (2014) in South Africa about Parental Knowledge, Attitude, and Perception of dental caries and dental sealants showed that children indicated (68.1%) that they used toothbrushes.

5 Conclusions

Knowledge of the caregivers about children's (1-13 years) oral health was poor since the majority of the respondents (72.60%) had never heard about oral health, (13.70%) got the information about oral health from the health practitioners, and (27.40%) thought poor oral hygiene(not brushing) causes oral problems.

Attitude towards children's (1-13 years) oral health was fair with (82.19%) of the respondents saying it is important to look after their children's teeth,(68.49%) said it was important to visit a dentist for a regular dental checkup.

Practices towards children's (1-13 years) oral health were fair as the majority of the respondents(68.49%) said they brush their children's teeth,(47.95%) said they use toothbrushes to clean their children's teeth.

Recommendations

The government should recruit community health workers to deliver information about oral health to the community members, who cannot access the health facilities.

Due to the lack of oral health personnel in health centers 1, 2, and 3, nurses in health centers should be provided with basic oral knowledge to provide oral health education therefore the oral health program should prepare guidelines on how to go about training and supervisions to help them carry out this function.

Most outreach visits focus only on oral health education and screening of oral diseases, neglecting oral disease management due to the lack of mobile dental units. The Oral Health program together with the government should come up with a procurement plan to cater to these items.

The hospitals and health centers should organize and train health workers, especially on techniques

and psycho-education aimed at creating a positive attitude towards oral health.

The government should provide more preventive measures on dental-related conditions as compared to curative measures to improve the knowledge of the community.

The dental health care providers in hospitals should train and encourage the caregivers to use the appropriate brushing techniques and other oral practices to improve the practices of the caregivers.

Study limitations

Limited funds caused financial constraints and this was overcome by strict budgeting.

The estimated sample size was too big to be achieved with the limited resources. This study recruited 73 respondents. The chosen study tool (questionnaires) provided limited information about the topic under study. Future studies may be conducted using focus group discussions and interview guides to obtain a depth understanding of factors affecting children's (1-13 years) oral health.

Translational challenges by the researcher since the questionnaire was in English. But this was minimized by the researcher by interpreting the questionnaires in the local language.

6 List of abbreviations and acronyms

DMFT: Decayed Missing Filled Teeth

MoH: Ministry of Health

SDA: Seventh-Day Adventists

WHO: World Health Organization

LC: Local Council

DHO : District Health Officer

Operational definitions

Attitude: A settled way of thinking or feeling about something

Caregivers: Family member or paid helper who regularly looks after a child

Children :

Family members below eighteen years of age.

Knowledge: Facts, information, and skills acquired through experience or education

Oral Health: A key indicator of overall health, well-being, and quality of life. This encompasses a range of diseases and conditions that include dental caries.

Practice: Actual application or use of an idea, belief, or method

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