Student's Journal of Health Research Africa
Vol. 4 No. 9 (2023): September 2023 Issue
https://doi.org/10.51168/sjhrafrica.v4i9.411
Original article

FACTORS CONTRIBUTING TO THE PREVALENCE OF DENTAL CARIES AMONG ADULT (18-30) YEARS POPULATION IN NDEJJE HEALTH CENTRE IV, WAKISO DISTRICT UGANDA.A CROSS-SECTIONAL STUDY.

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Abstract

Objective:

The purpose of this study was to identify factors contributing to the prevalence of dental caries among adults in Ndejje Health Center IV, Wakiso District.

Method:

A descriptive cross-sectional hospital-based study was conducted at the dental clinic and with both quantitative and qualitative approach as the research design conducted at Ndejje HCIV in Wakiso District in February. Altogether 85 respondents were taken and the respondents were men and women between 18-30 years who attended a dental clinic at the facility.

Findings:

More than half of the respondents 64% did not seek dental care in the past 6 months. , majority of the respondents 89% regarded it important to have regular dental visits, and the majority, of the respondents 87%, ascribed to the notion that dental diseases can be treated in the hospital but could not go when the need arises. The study revealed that more than half of respondents 53% brush their teeth once a day whereas only 20% brush after every meal and only 29.5% brush twice.

Conclusions:

The research has reflected less motivation and awareness of dental caries, making people more likely to risk developing caries. All the patients in the present study were informed of their estimated caries risk profile and were encouraged to improve their oral Socioeconomic status, educational level, and poor oral hygiene practices were associated factors for dental caries.

Recommendations :

Adequate policy guidelines for the supply and uptake of Dental health services in all health facilities in Ndejje HCIV. Streamlining the implementation of Oral health care by integrating it with other health programs. The Health facility should do outreach services and adequate mobilization and sensitization through radios and resourceful people to bridge the knowledge gap on dental health care and utilization.

Keywords: Dental caries, Oral health, periodontal disease, oral hygiene practices, Non-communicable diseases, Submitted: 2023-04-28 Accepted: 2023-08-14

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1. BACKGROUND OF THE STUDY.

According to the World Health Organization, 2016, Oral diseases, in this case, dental caries, are the most common non-communicable diseases (NCDs) that affect people throughout their lifetime, causing pain, discomfort, disfigurement, and even death. estimated that oral diseases affected half of the world's population (3.58 billion people) with dental caries (tooth decay) in permanent teeth being the most prevalent condition assessed. a report on the burden of disease pointed out that 2.3 billion people worldwide suffer from dental caries (cavities) in their permanent teeth. On the other hand, Boing A.F et al (2014), observed that oral health inequalities exist among and between different population groups around the world and throughout the entire life course, given that social determinants have a strong impact on oral health in addition to behavioral risk factors for oral diseases that are shared with other major NCDs, such as an unhealthy diet high in free sugars, tobacco use and harmful use of alcohol. On that note, it has been proven that poor oral hygiene and inadequate exposure to fluoride have negative effects on oral health.

A study by Azuonwu O et al (2018), found that dental Caries occur depending on genetic, humoral, nutritional, and many other factors such as weight. Abnormal dietary intake has been linked to the development of obesity and this is common among young people. Obesity is caused by frequent intake of all fermentable carbohydrate foods and drinks whether cooked starches or sugar. Young people are more susceptible to this infectious disease than older ones because children consume more sucrose. Furthermore, the same study revealed that globally,90% of adults have experienced carries with the disease most prevalent in Asia and Latin America.

In Uganda, the situation is not any better compared to the world statistics as few people have access to dental care services. A study by Kutesa A et al (2015) on prevalence and factors associated with dental caries among children and adults in the selected district in Uganda found the prevalence of dental caries was higher in adults (66.7%) compared to children (32.5%). The district with the highest prevalence of dental caries in adults was Hoima district (90.1) while the lowest was Gulu (48.8%). Dental caries are responsible for a high rate of morbidity among the population and are associated with a reduced quality of life and have equally been linked to socio-economic and demographic conditions, as well as behavioral aspects.

1.1. General objective.

The purpose of this study was to identify factors contributing to the prevalence of dental caries among adults in Ndejje Health Center IV, Wakiso District.

1.2. Specific objectives.

- To evaluate the health-seeking behaviors on oral health among the adult population of Ndejje Health Center IV Wakiso District.
- To assess the oral health practices of the adult population in Ndejje Health Center IV Wakiso District.
- To assess the knowledge about oral health among the adult population in Ndejje Health Center IV, Wakiso District.

2. METHODOLOGY.

2.1. Study design.

The researcher used a cross-sectional design which included both quantitative and qualitative approach. The cross-sectional design was appropriate for this study because of the short time provided for conducting research at this level of education.

2.2. Study area.

The study area was at Ndejje Health Centre IV in Ndejje municipality, Wakiso district. This study was conducted for a period of two (2) months i.e. from December 2019 to January 2020.

2.3. Study population.

The study population consisted of adults from the age of 18 years to 30years.

2.4. Sample size determination.

The research used a sample size that is calculated from a statically formula

The Kish and Leis Lie formula (1965).

Where,

n- Required sample size

d- Error of 10%

z- Represents 1.96 critical value of standard normal distribution.

P-estimated prevalence-67%

n= 85 participants

2.5. Sampling Technique.

The respondents were selected using a simple random sampling method whereby 85 small equal-sized papers will be labeled 1 to 80 and the remaining 5 papers were not numbered. The papers were folded and each participant was allowed to pick without replacement until completing days for data collection. Those who picked none numbered papers were not interviewed.

2.6. Inclusion Procedure.

The study included adults between 18 years and 30 years of age that have fully consented to take part in the study.

2.7. Exclusion procedure.

The study did not include adults that have not consented and the mentally incapacitated.

2.8. Definition of Variables.

2.8.1. Variables.

These are factors that were used while carrying out the study and involved independent and dependent variable.

2.8.2. Independent variable.

: In this study, the independent variables referred to factors contributing to the prevalence of dental caries among adults.

2.8.3. Dependent variable.

In this study, the dependent variables referred to dental caries among the adult population.

2.9. Research Instruments.

Pre-tested semi-structured questionnaires addressing the objectives of the study were used to collect data. The research tools or questions were pre-tested to check the wording of questions and questions which attracted wrong answers against the intention of the researcher were redefined.

2.10. Data Collection Procedure.

The permission letter was written by the Principal of Mildmay Institute of Health Sciences to be delivered to the In-charge of Ndejje Health Centre IV. The In-charge of the hospital thereafter wrote an authorization letter to the researcher, which later was presented to any staff on duty seeking consent to conduct a study on factors contributing to the prevalence of dental caries among the adult population in Ndejje Health Centre IV, Wakiso District.

The researcher clarified the ethical issues of the study and sought for their consent to contribute to the study and after consent, eligibly selected participants were interviewed.

2.11. Data Management.

After each day of data collection, the filled-in Questionnaire was edited, checked for completeness, and coded. The collected data was later compiled in one file which was kept in a cupboard under "key and lock", and then the data entries in the analysis software were backed up on the flash disk for safety.

2.12. Data Analysis.

The data was analyzed by use of Microsoft office excel and was presented by tables, charts, and graphs.

2.13. Ethical Consideration.

The research proposal was approved by the Principal of Mildmay Institute of Health Sciences; the introductory letter was obtained from the principal to be presented to the hospital in-charge who allowed the researcher to conduct the study.

Informed consent was obtained from the respondents who were assured of confidentiality as the study had no legal implications.

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3. PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS/FINDINGS.

3.1. Respondents bio-data.

From table 1, most of the respondents 32 (37.6%) were aged between 18-21 years whereas the least were aged between 26–30. Most of the respondents 48(56.5%) had completed the primary level whereas only 9(10.6%) had reached the tertiary level of education. Table 1 shows that more than half 46(54.1%) of the respondents were single whereas none of the respondents was divorced. From Table 1, most of the respondents 31(36.4%) are merchandise sellers whereas a few were fast food sellers, and others were in an unclassified category.

3.2. Oral Health care seeking behavior among adult population.

From figure 1, the majority of respondents 48(56%) have ever visited a dentist in their lifetime while the minority37(44%) have never.

Table 2 shows that more than half of the participants had visited because of toothache and 8.3% had come for checkup.

From figure 2, the majority of the respondents 48(89%) regarded it important to have regular dental visits whereas the minority 9(11%) did not consider regular dental visits important.

From figure 3, the majority of respondents 64% did not seek dental care in the past 6 months and 36% sought care in the past 6 months.

From table 3, the majority of the respondents 40(47%) preferred going to Dental health units while the minority 2(2.4%) preferred herbal remedies.

From figure 2, the majority of the respondents74 (87%) agreed that dental diseases can be treated in a hospital whereas the minority 6(7%) disagreed.

Table 4 shows that the minority 34(40%) had never visited the hospital because of a dental disease and 51(60%) have ever visited the hospital because of a dental disease.

From figure 5, more than half 77(91%) of respondents agreed that doctors can treat and cure dental caries whereas the minority 2(2%) did not know.

3.3. Oral health practices among the adult population.

From table 5,more than half of respondents 45 (53%) brush their teeth once in a day whereas a few brush 17(20%) brush after every meal.

From Table 6, the majority of the respondents 45(53%) brush their teeth early morning when they wake up whereas the minority 10(11.8%) brush their teeth at all the mentioned times.

From table 7, 80% the respondents used toothbrush and tooth paste while the minority 3(3.5%) used chewing sticks and ash, or chewing sticks only.

From figure 5, the majority of the respondents 43(50.6%) use the horizontal technique whereas the minority 5(5.8%) use circular brushing technique.

Table 8 shows that majority 48 (56.5%) of the respondents used toothpicks to clean between their teeth and only 14(16.5%) of the respondents used dental flosses.

Figure 7 shows that more than half (56 %) of the respondents brushed their teeth after every meal and 44% of the respondents 44% were not brushing after every meal.

Table 9 shows that most of the respondents 62(73%) used fluoride toothpaste while the minority 23(27%) did not use fluoride toothpaste.

3.4. Knowledge about oral hygiene among the population.

Figure 8 Shows that more than half 51(60%) of the participants did not know about dental caries while about 34(40%) knew about dental caries.

Table 10 shows that most of the respondents 30(35.3%) thought that dental caries are caused by consumption of refined sugars whereas the minority 15(17.6%) thought that dental caries are familial.

From table 11 most of the respondents 29(34.1%) were of the view that refined sugary foods were the highest risk factor for dental caries while the minority 16(18.8%) believed that

Table 1: **Respondents bio-data.**

Variables	Frequency(f)	Percentage (%)
Age	32	37.6
18-21	15	17.7
22-25	14	16.5
26-30	24	28.2
31-35		
Marital Status	46	54.1
Single	39	45.9
Married	0	0
Divorced		
Level of Education	16	18.8
Never went to school	48	56.5
Primary	12	14.1
Secondary	9	10.6
Tertiary		
Occupation	31	36.4
Merchandise seller	14	16.5
Teacher	6	7.1
Fast food seller	28	32.9
Farmer	6	7.1
Others		
Religion	35	41.2
Catholic	23	27.0
Protestant	14	16.5
Muslim Pentecostal	11	12.9
Others	2	2.4
TOTAL	**85**	**100**

Table 2: **Distribution of respondents by the reason they visited the dentist.**

Reason	Frequency(f)	Percentage(%)
Toothache	27	56.2
Extraction	10	20.8
Checkup	4	8.3
Loose Teeth	7	14.5
Others	0	0
Total	**48**	100

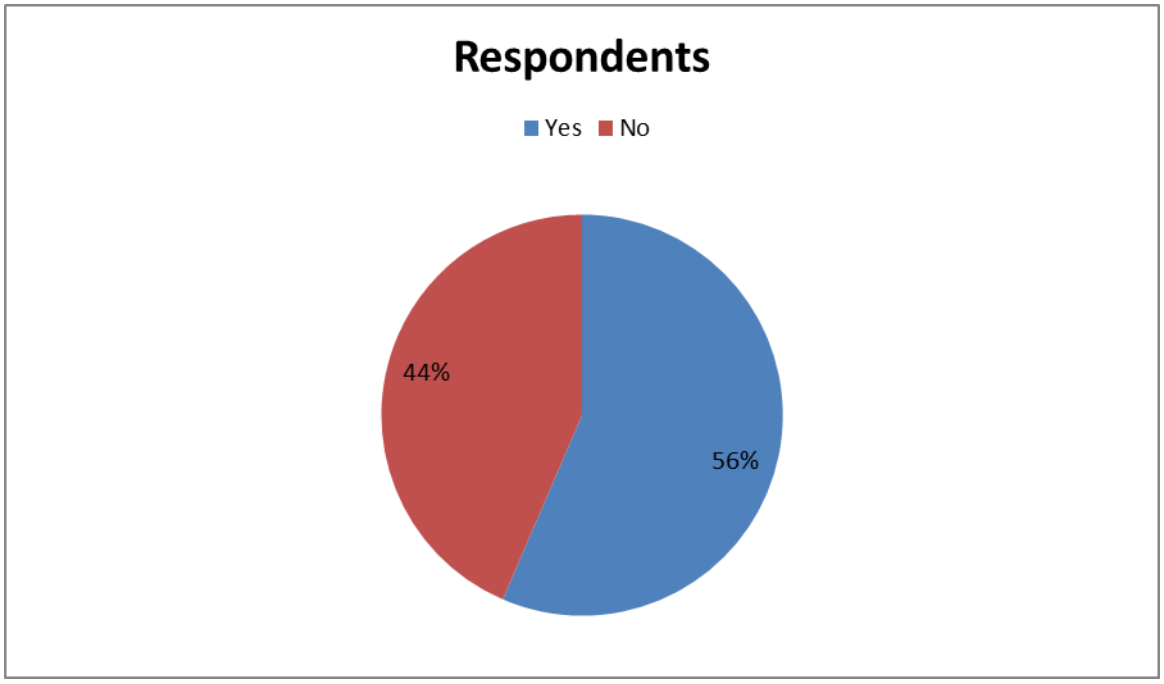

Figure 1: **Distribution of respondents who have ever visited a dentist in their lifetime. Yes-48(56%),No-37(44%), Total-85(100%)**

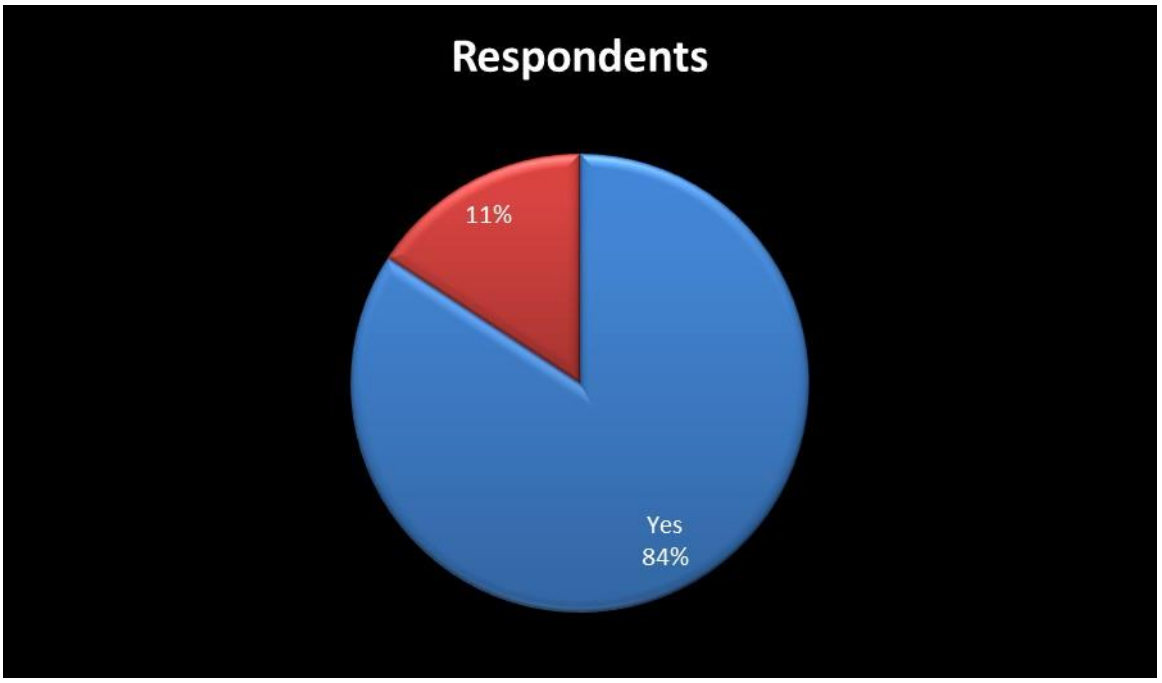

Figure 2: **Distribution of respondents who think regular visits to the dentist are important.N=85, Yes=76(89%), No=9(11%)**

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https://doi.org/10.51168/sjhrafrica.v4i9.411
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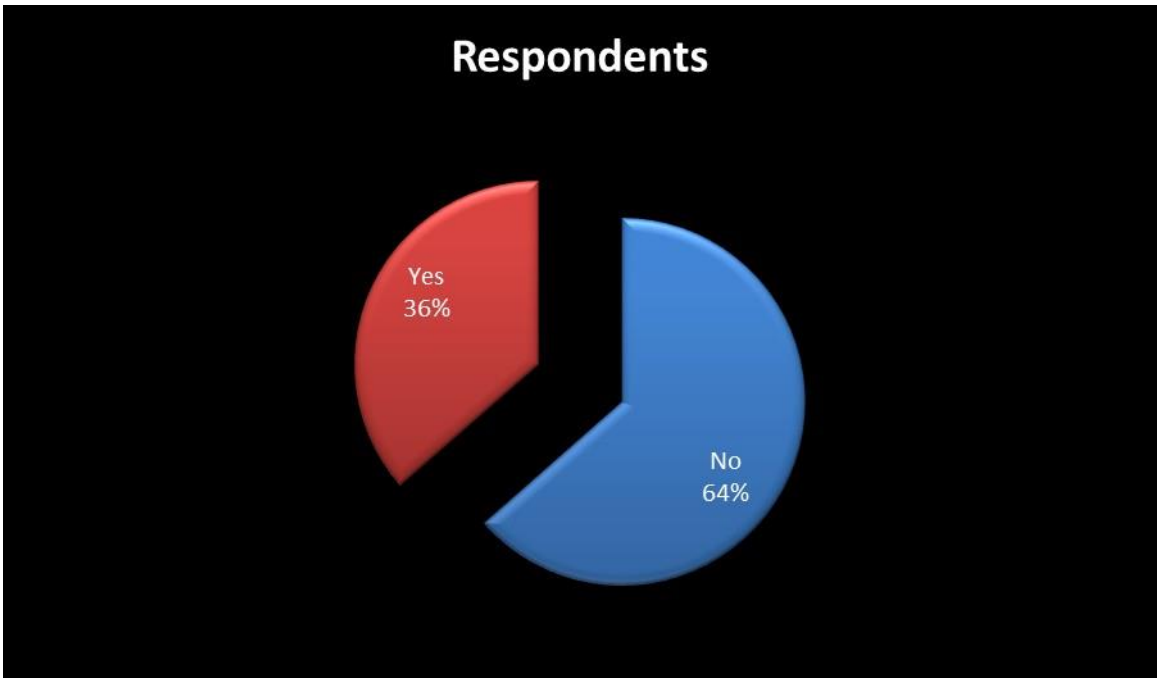

Figure 3: **Distribution of respondents who ever sought dental care in the past 6 months.**

Table 3: **Preferable place to go when respondents get a toothache.**

Place	Frequency(f)	Percentage (%)
Dental Health clinic	40	47
Herbalist/ Traditional men	2	2.4
Government Health Units	37	43.5
Stay at Home	6	7.1
Total	**85**	**100**

Table 4: **Distribution of respondents by whether they have ever visited the hospital because of dental diseases.**

Hospital visit because of dental disease	Frequency(f)	Percentage (%)
Yes	51	60
No	34	40
Don't know	0	0
Total	**85**	**100**

Table 5: **Distribution of respondents according to the number of times they brush their teeth in a day.**

Number of times in a day	Frequency(f)	Percentage(%)
Once	45	53
Twice	23	17
After every meal	17	20
None	0	0
Total	**85**	**100**

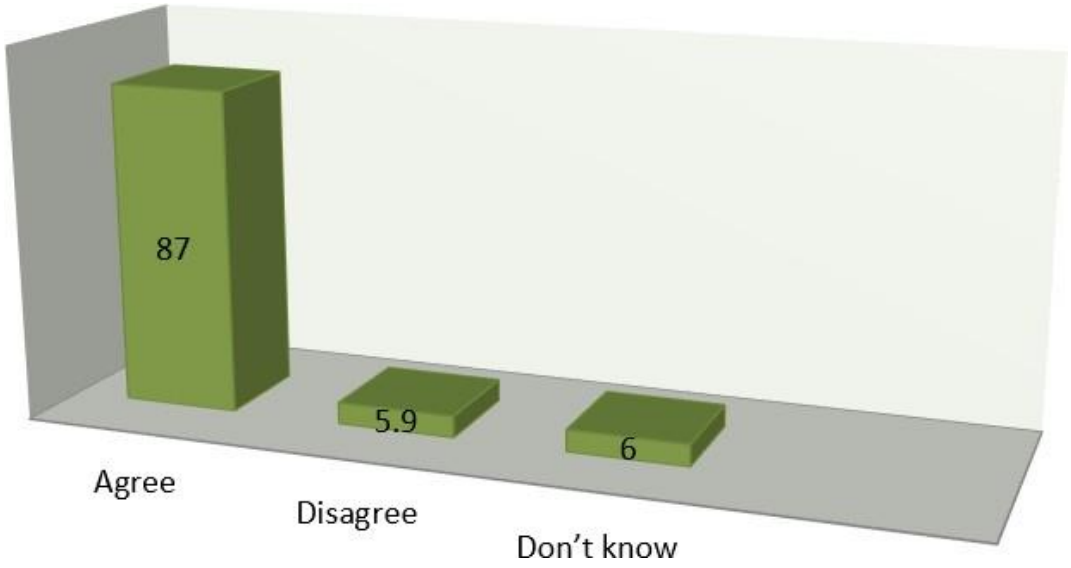

Figure 4: **Distribution of respondents regarding the idea that dental diseases can be treated in the hospital.**

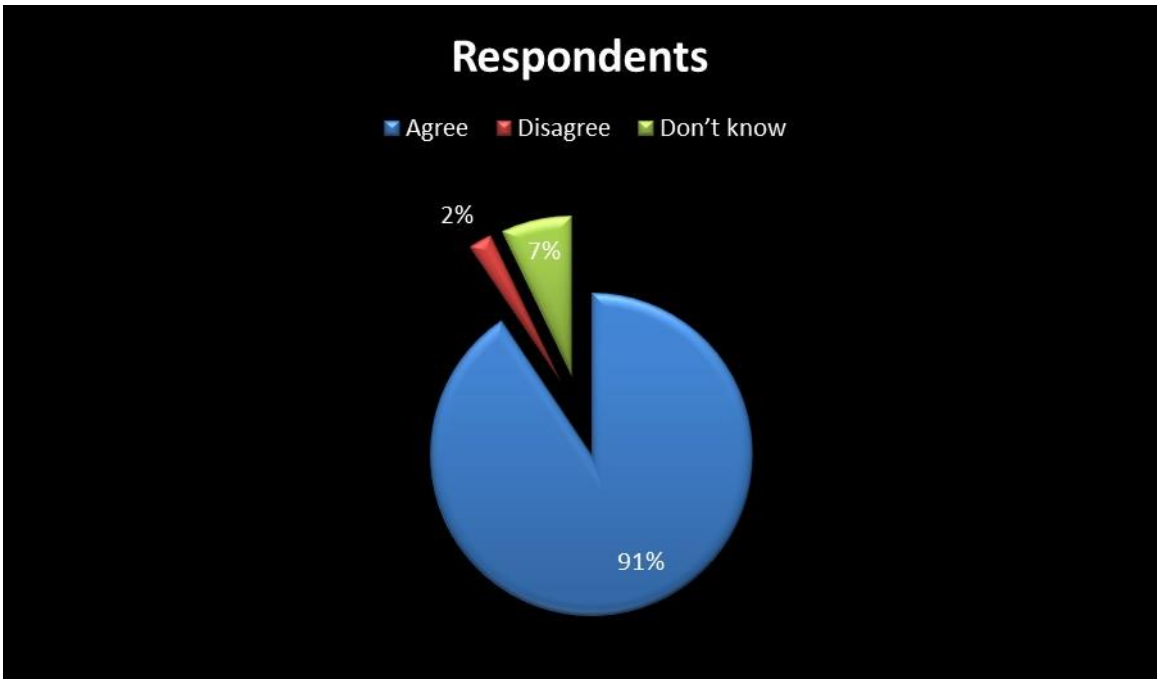

Figure 5: **Distribution of respondents by whether doctors can treat and cure dental diseases.**

Table 6: **Distribution of respondents according to the time when they brush their teeth.**

Time of brushing	Frequency(f)	Percentage (%)
Early Morning	45	53
After Breakfast	11	13
At night when going to sleep	19	22.4
At all above mentioned times	10	11.8
Total	**85**	**100**

Table 7: **Distribution of respondents according to the material used for cleaning the teeth.**

Material used	Frequency(f)	Percentage (%)
Toothbrush & Toothpaste	68	80
Toothbrush & charcoal	11	13
Chewing sticks alone	3	3.5
Chewing sticks & ash	3	3.5
Total	**85**	**100**

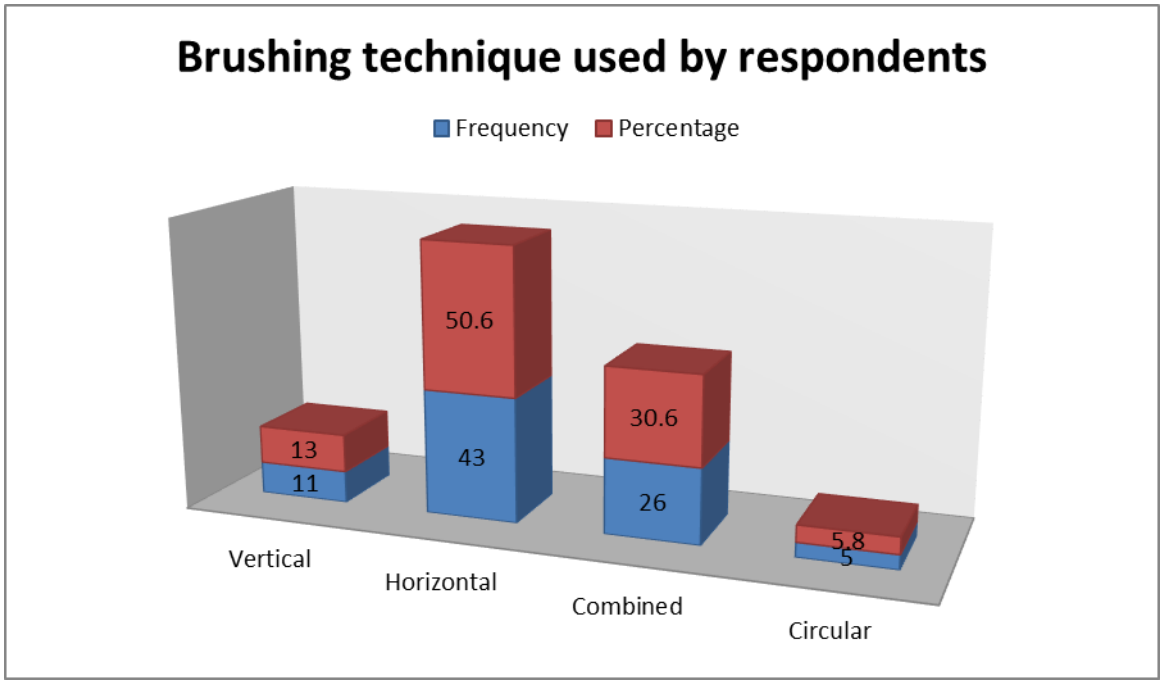

Figure 6: **Distribution of respondents on the technique used for brushing their teeth.**

Table 8: **Distribution of respondents according to the material used to clean between the teeth.**

Material used	Frequency(f)	Percentage (%)
Dental floss	14	16.5
Interdental brushes	6	7
Toothpick	48	56.5
None	17	20
Total	**85**	**100**

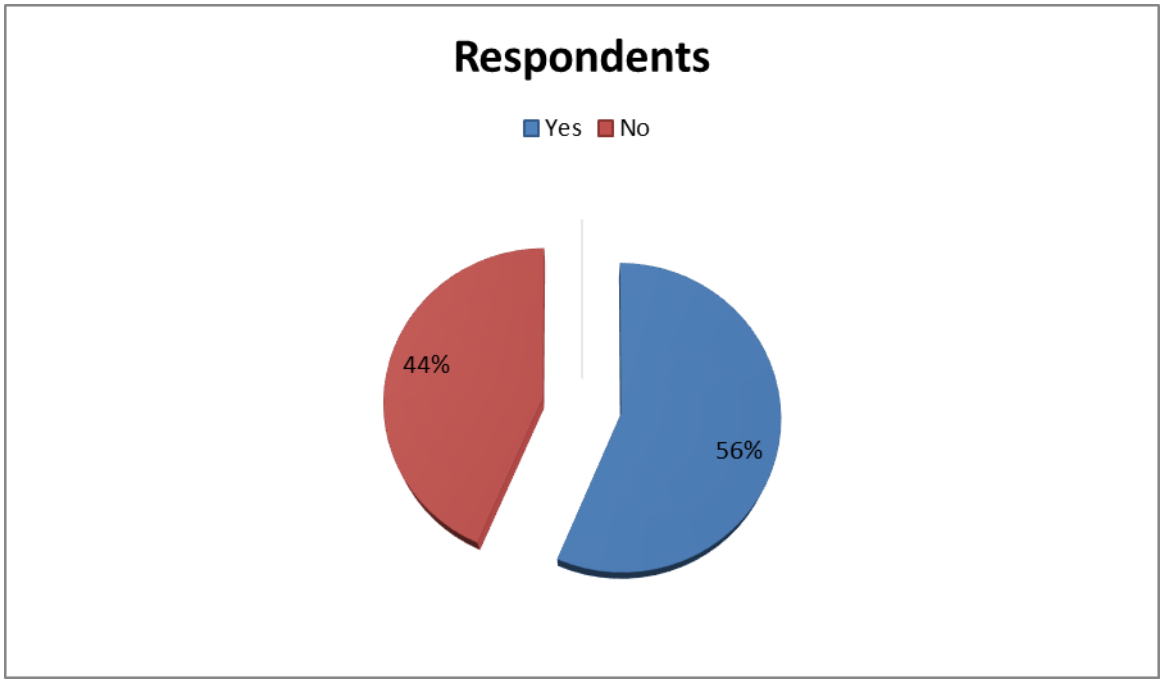

Figure 7: **Distribution of respondents according to whether they always brush their teeth after every meal.**

Table 9: **Distribution of respondents who use fluoride toothpaste.**

Fluoride toothpaste use	Frequency(f)	Percentage (%)
Yes	62	73
No	23	27
Total	85	100

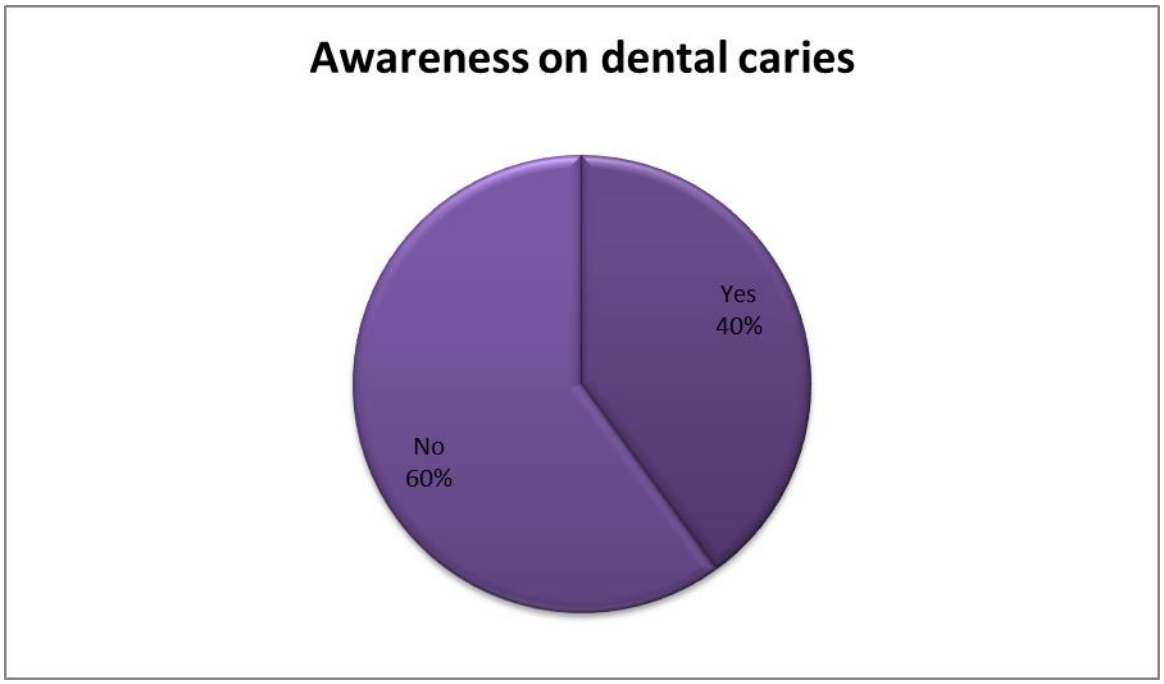

Figure 8: **Distribution of participants who know about dental caries.**

Table 10: **Distribution of participants on the cause of dental caries.**

Cause	Frequency(f)	Percentage (%)
Reftned sugars	30	35.3
Poor brushing technique	22	26
Smoking	18	21.2
Family	15	17.6
TOTAL	85	100

Table 11: **Distribution of participants on the highest risk factor of Dental caries.**

Risks for dental caries	Frequency(f)	Percentage (%)
Smoking	19	22.3
Chronic illnesses	16	18.8
Poor oral hygiene	21	24.7
Reftned sugary foods	29	34.1
TOTAL	84	100

chronic illnesses were the highest risk factor for dental caries.

Figure 9 shows that more than half 49(58%) were experiencing sensitivity to cold or hot in the teeth and the minority 36(42%) did not experience sensitivity to cold or hot.

4. DISCUSSION OF RESULTS.

4.1. Demographic data.

Regarding the study findings, most of the respondents 56.5% had completed the primary level whereas only 10.6% had reached the tertiary level of education, it was also observed that among these, more than half 58% were experiencing sensitivity to cold or hot in the teeth and the minority 42% did not experience sensitivity to cold or hot. It has been noted that a low level of education is associated with a high risk of dental caries (Yilkal Tafere et al, 2018). These findings are in correlation with the same study on the assessment of the prevalence of dental caries and the associated factors among patients attending a dental clinic in Debre Tabor general hospital that found that dental caries among respondents who never attended any formal education was 76% higher of developing dental caries compared to those who had attended formal education.

4.2. Health-seeking behaviors on oral health.

The study revealed that the majority of respondents (56%) had ever visited a dentist in their lifetime. However, more than half of the respondents (64%) did not seek dental care in the past 6 months. This synchronizes with a study by Robbins, J. et al (2010) about health, oral health care needs, and healthcare-seeking behavior among homeless injection drug users in San Francisco observed that 63% of participants reported a need for oral health care, and 73% did not seek any care in the past 6 months. (Robbins, J. et al 2010). The study also observed that 89% of the respondents regarded regular dental visits as very important while 87% knew that dental diseases can be treated in the hospital but could not go when the need arose. However, a comparable view was pointed out by Aukett, J.2019 where he explained that few individuals can seek oral health care because a large portion of oral health education is carried out by dental care professionals in a general dental practice that may not be able to simplify the advice or facts in a language that people understand. Thus, patients will not be able to correctly implement medical advice (Aukett, J. 2019).

The study revealed that more than 56.2% of the

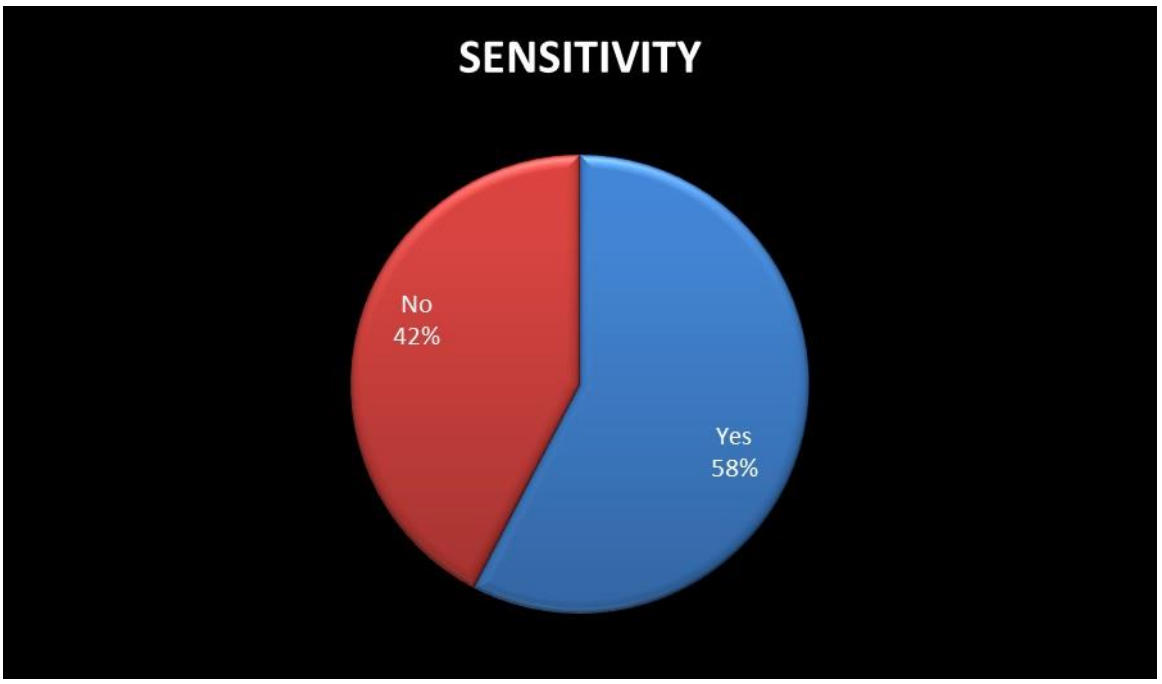

Figure 9: **Distribution of participants experiencing tooth sensitivity**

participants had visited because of toothache and only 8.3% had come for checkup. This is in line with the above-mentioned results because participants only seek care when they are badly off.

4.3. Oral Health Practices among the Adult Population.

The study revealed that the majority of respondents 53% brush their teeth once a day whereas only 17(20%) brush after every meal. This is in line with a study done by Richard Holmes –evidence-based dentistry on toothbrush frequency and risk of new carious lesions that compared frequent brushers and infrequent brushers and observed a higher prevalence of carious lesions in infrequent brushers as compared to the frequent brushers (RD, Holmes, 2016). In addition, another study done by S. Kumar on the effect of tooth brushing frequency and increment of dental caries showed a higher incidence of carious lesions than infrequent brushers.(S.Kumar et al, 2014)

The study also showed that the majority of the respondents 53% brush their teeth early morning when they wake up whereas a marginal of 11.8% brush their teeth at all the above-mentioned times. Dental caries risk among respondents who had attended any formal education was 76% times lower risk of developing dental caries compared to those who were not attended formal education. Dental caries were lower among respondents who had good oral hygiene status as compared to those whose oral hygiene status was poor.

This study also observed that 80% of the population used toothbrushes and toothpaste and only 3.5% used chewing sticks and ash. Of these over 73% used fluoride toothpaste, a finding consistent with a study by James R et al (2017) On the Prevalence of Dental Caries, Oral Hygiene Knowledge, Status, and Practices among Visually Impaired Individuals in Chennai, Tamil Nadu shows a positive result of 86.9% of students using toothbrush and toothpaste to clean their teeth and only 8.2%(JR John ·2017) using tooth powder with fingers. In addition, a majority of the participants (68.6%) brushed at least once a day and 29.5% brushed twice. Furthermore, similar findings in a study conducted by Singh et al.(2014) reported that more than half of the visually impaired used toothbrushes and toothpaste. This supports the notion that there is more room for promoting awareness of not only the effective use of tooth-

brushes and toothpaste but also the proper techniques of tooth brushing.

4.4. Knowledge about proper oral health practices.

The study showed that more than half 60% of the participants did not know about dental caries. This is supported by a study done in Kenya about the prevalence of dental caries among the adult population where a prevalence of 37% was attributed to a lack of knowledge on the causes and preventive methods of the disease in addition to increasing utilization of sweet foods in the developing countries, poor tooth brushing habits, poor oral hygiene and low level of awareness are some of the factors that increased the levels of dental caries (Yilkal Tafere et al, 2018).

The study shows that more than half that is 58% were experiencing sensitivity to cold or hot in the teeth and the minority 42% did not experience sensitivity to cold or hot. Similar findings have been observed in a study by James Rufus John et al (2017) reported that almost half of the respondents 49% had experienced tooth sensitivity and 48% had oral malodor. These results project a high chance of caries development in the population thus creating a need for oral health awareness.

5. CONCLUSIONS.

- The research has reflected less motivation and awareness of dental caries making people more likely to run a high risk of developing caries.
- The caries-related factors which have been identified by the research can explain both the high caries prevalence in the study population and the probability of a high risk of developing caries
- All the patients in the present study were informed of their estimated caries risk profile and were encouraged to improve their oral
- Socioeconomic status, educational level, and poor oral hygiene practices were associated factors for dental caries.
- Health promotion about oral hygiene and integration of services is supremely important for the prevention of the problem of dental caries.
- The prevalence of dental caries might be because there were variations in the study population, time, and study setting, in this study since it is institutionally based there might be high patient flow in health institutions compared to the community level which indicates that there is a need to promote oral health.

6. RECOMMENDATIONS.

- The government of Uganda should put in place adequate policy guidelines for the supply and uptake of Dental health services in all health facilities in Ndejje HCIV.
- Adequate action must be taken to modify these factors, on both a population and an individual level, to increase the percentage chance of avoiding caries.
- The district health Authorities of Wakiso District should streamline the implementation of Oral health care by integrating it with other health programs
- The human resource for the health sector Wakiso district should be sourced for and trained adequately to carry out Oral Health Care sensitization in schools and communities.
- Outreach services should be organized by the health facility to ensure adequate knowledge and services related to Oral Health Care are given to all communities.
- There should be adequate mobilization and sensitization through radios and resourceful people to bridge the knowledge gap on dental health care and utilization.

7. ACKNOWLEDGEMENT.

I thank the Almighty God for bringing me this far and for his continuous unconditional protection, provisions, mercy, and guidance throughout my life; for sure God's love never fails. My sincere appreciation goes to my supervisor Mr. Okwany Jimmy for the continuous advice and support he gave me whenever needed, and his guidance rendered in writing this research report. Special thanks to my tutors for their knowledge and change impact on my life.

My sincere gratitude goes to **Mildmay Institute of Health Sciences** especially the dedicated and hardworking working team of staff members of the institution for imparting to me the knowledge and skills that enabled me to successfully come up with my final research report.

Special thanks to the principal Ms. Edith Akankwasa for her support and providing a favorable learning environment at Mildmay Institute of Health Sciences.

In the same spirit, I extend my sincere appreciation to my best friends Nkumbi Ronald, Stanley Walimbwa, Rukundo Nicholas, Kalani Derrick, Nabbona Caroline, Namulindwa Sarah, Ddungu Benard, Kaggwa Jude to mention but a few. Special thanks to Ndejje Health Centre IV Staff including Mr.Kato, Mr. Wasajja, and Dr. Mukiibi for their generous contribution towards this report writing.

8. LIST OF ABBREVIATIONS AND ACRONYMS.

NCDs: Non Communicable Diseases
WHO: World Health Organization
GBD: Global Burden of Disease

9. References:

Publisher: Student's Journal of Health Research (SJHR)
(ISSN 2709-9997) Online
Category: Non-Governmental & Non-profit Organization
Email: studentsjournal2020@gmail.com
WhatsApp: +256775434261
Location: Wisdom Centre, P.O.BOX. 148, Uganda, East Africa.

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