Knowledge, Oral Hygiene Practices, and Barriers to Compliance Among Adult Residents of Adankolo Community, Lokoja, Kogi State

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ABSTRACT

Introduction

Several factors influence oral hygiene compliance among adults, including knowledge and awareness, where individuals with higher awareness of oral hygiene benefits are more likely to engage in effective practices.

Purpose

This study aimed to assess the knowledge, oral hygiene practices, and barriers to compliance among adult residents of Adankolo community, Lokoja, Kogi State.

Methodology

A cross-sectional research design was employed for data collection from 390 randomly selected adults from Adankolo. Data were collected using a validated structured questionnaire focusing on oral hygiene knowledge, attitudes, and practices. Descriptive and inferential statistics were used to analyze the data, with a paired t-test conducted to explore the relationship between knowledge and compliance.

Results

The findings revealed that 52.3% of participants were male, and 47.7% were female, with the majority (21.8%) aged 36-45 years. Most respondents demonstrated moderate knowledge of oral hygiene practices, with 21.3% strongly agreeing that sugary foods contribute to tooth decay, while 23.8% strongly disagreed on the benefits of daily flossing. Compliance with recommended oral hygiene practices was suboptimal: 50.8% brushed their teeth twice daily, 52.8% used fluoride toothpaste, and 48.2% visited a dentist regularly. Financial constraints, fear of dental procedures, and limited access to resources were identified as significant barriers. A paired t-test showed a statistically significant relationship ($p = 0.014$) between knowledge and practice compliance.

Conclusion

The study highlights a gap between knowledge and adherence to oral hygiene practices among adults in Adankolo, exacerbated by financial and systemic barriers. Although basic awareness exists, compliance with preventive measures like flossing and regular dental visits remains inadequate. To improve oral hygiene compliance, regular awareness programs, affordable dental services, and integrating oral health education into primary healthcare services are recommended.

Key words: Oral hygiene, Utilization, Systemic barriers, Compliance, Dental caries, Diabetes

INTRODUCTION

Oral hygiene is a critical aspect of overall health, significantly influencing an individual's quality of life and wellbeing. Poor oral hygiene has been linked to various health issues, including periodontal disease, dental caries, and systemic conditions such as diabetes and cardiovascular diseases (Saini et al., 2020). The World Health Organization (WHO) emphasizes that oral health is essential to general health, advocating for improved awareness and practices to enhance oral hygiene globally (WHO, 2020). In Nigeria, oral health is often neglected due to cultural beliefs, lack of awareness, and inadequate access to dental care services (Awojobi et al., 2018).

Globally, oral hygiene compliance varies widely, with many adults failing to meet recommended practices. For instance, a study in Brazil found that only 57% of adults brushed their teeth twice daily (Stark et al., 2019). In Nigeria, studies have shown low levels of oral hygiene compliance among adults, often attributed to a lack of awareness and limited access to dental services (Odukoya et al., 2018). Research conducted in urban areas indicates that knowledge and education significantly impact compliance rates, highlighting the need for community-based interventions (Al-Mahmoud et al., 2020). Compliance in oral hygiene practices refers to the adherence to recommended practices that promote oral health, such as regular tooth brushing and dental visits (Yahaya et al., 2021). Several factors influence oral hygiene compliance among adults, including knowledge and awareness, where individuals with higher awareness of oral hygiene benefits are more likely to engage in effective practices (Sulaiman et al., 2021).

Socioeconomic factors also play a significant role, as research indicates that lower-income individuals may prioritize immediate needs over preventive health measures (Adnan et al., 2020). Cultural influences can shape health behaviours, as traditional beliefs about health may conflict with recommended dental practices, leading to non-compliance (Ogunyemi et al., 2024). Moreover, access to dental care is a critical determinant of compliance; limited availability of dental services in rural areas can discourage regular dental visits, thereby impacting overall oral hygiene (Adebayo et al., 2022).

Various studies have explored oral hygiene compliance among adults in Nigeria, revealing that only 40% of adults in a Nigerian urban community practiced adequate oral hygiene (Adegbembo et al., 2017). Despite existing literature, there is a lack of localized studies focusing on oral hygiene practices among adults in Adankolo Community. Adankolo community, located in Lokoja, Kogi State; this reflects a microcosm of the broader challenges faced in the rural areas in Nigeria regarding oral health practices. Many residents may lack sufficient knowledge about the importance of maintaining good oral hygiene, which could lead to detrimental health outcomes (Eze et al., 2023).

Oral hygiene as a preventive concept also aligns with broader public health goals, such as reducing the burden of non-communicable diseases linked to poor oral health, including diabetes and cardiovascular diseases (Al-Balawi et al., 2023). Despite the availability of oral health interventions and campaigns, adherence to recommended oral hygiene practices among adults in rural areas remains low (Adeyemo et al., 2021). Studies indicate that knowledge of oral hygiene does not always translate to practice compliance, suggesting a complex interplay of individual, social, and environmental factors (Abdulwahab et al., 2022).

Limited research exists on oral hygiene practices specifically in Adankolo community, making it challenging to identify the unique factors contributing to low compliance levels. This lack of localized data hampers efforts to develop tailored interventions that address the specific needs and barriers faced by the residents. Additionally, the absence of a comprehensive understanding of the relationship between knowledge, practices regarding oral hygiene can impede the effectiveness of health promotion campaigns.

Therefore, this study aims to investigate the level of oral hygiene practice compliance among adult residents of Adankolo, exploring the knowledge, attitudes, and barriers that contribute to their oral hygiene behaviors.

METHODOLOGY

The study was conducted in Adankolo community, Lokoja. Adankolo settlement is a sub-urban community located along 1001 Ibrahim Salihu Road, before Federal Medical Center (FMC) junction, Lokoja. Adankolo

community has a a primary and secondary school, and a catholic church, St Clement Catholic Church, where seminarians are trained. Lokoja, the capital city of Kogi State, Nigeria. Lokoja is located between latitudes 7045'N and longitude 6045'E and lies on the West bank of the river Niger, close to the confluence with River Benue, Nigeria's two major rivers. The population of Adankolo from the 2006 census is 16,354 (Otorkpa et al., 2022). This area was chosen due to its diverse population. A cross-sectional research design was adopted to assess the level of oral hygiene practice compliance among adults in the Adankolo community. This design is appropriate for determining the participants' knowledge, attitudes, and practices related to oral hygiene at a specific point in time (Creswell & Creswell, 2017).

The sample size of 390 people from age 18 years and above were selected for this study, and this was determined using Taro Yamane's formula for finite population with 5% margin error. A simple random sampling technique was employed to select participants from the community; this method ensures that every individual has an equal chance of being included in the study, minimizing selection bias. Informed consent was obtained from all participants that indicated their willingness to participate in the study, the purpose of the study was explained to them and they were assured of their confidentiality, as their responses will be used solely for research purposes and will not be shared with unauthorized individuals.

The questionnaire used for data collection was a modified copy of the one previously used in a similar study by Adeola et al., (2022), which further supports the validity and reliability of the instrument. Data was collected with the help of two research assistants who are dental professionals working at Federal Medical Center, Lokoja. The purpose of the research was explained to the participants ensuring that participants understand their rights and the voluntary nature of participation. Participants were encouraged to answer the questions honestly. The questionnaire retrieved immediately the participants finished filling them. The data collected was analyzed using SPSS version 23. Descriptive statistics (frequencies, percentages, and means) was used to summarize the data. The relationships between variables was examined using t-tests for hypothesis testing,

RESULTS

Table 1: Demographic Presentation of Respondents n=390

Variables	Frequency	%
Age		
18-25	82	21.0
26-35	73	18.7
36-45	85	21.8
46-55	82	21.0
56 and above	68	17.4
Gender		
Male	204	52.3
Female	186	47.7
Educational Level		
No formal education	97	24.9
Primary Education	95	24.4
Secondary Education	107	27.4
Tertiary Education	91	23.3
Occupation		

Government worker	103	26.4
Private sector worker	97	24.9
Self-employed	114	29.2
Unemployed	76	19.5
Total **100%**		**390**

The table above shows that majority of the respondents were aged 36-45 years (21.8%), while the least number of respondents were 56 years and above (17.4%). More respondents were male (52.3%) than female (47.7%). Regarding educational level, the largest group had secondary education (27.4%), while tertiary education was the least common (23.3%). In terms of occupation, the highest percentage of respondents was self-employed (29.2%), whereas the unemployed represented the smallest group (19.5%).

Research Question 1: What is the level of knowledge regarding oral hygiene practices among adults in the Adankolo community?

Table 2: Knowledge of Oral Hygiene Practice

Items	**SA**		**A**		**N**		**D**		**SD**	
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Brushing teeth at least twice a day is important for good oral hygiene.	78	20.0	89	22.8	74	19.0	74	19.0	75	19.2
Using toothpaste with fluoride helps to prevent tooth decay.	78	20.0	78	20.0	80	20.5	86	22.1	68	17.4
Flossing or using an interdental cleaner daily is good	79	20.3	67	17.2	71	18.2	80	20.5	93	23.8
Visiting a dentist at least once every six months is necessary for maintaining oral health.	83	21.3	67	17.2	78	20.0	82	21.0	80	20.5
Smoking or using tobacco can negatively affect oral health	72	18.5	78	20.0	82	21.0	72	18.5	86	22.1
Sugary foods and drinks can contribute to tooth decay	83	21.3	91	23.3	86	22.1	57	14.6	73	18.7

SA-strongly agreed, **A**-agreed, **D**-disagreed, SD-strongly disagreed

The highest proportion of respondents strongly agreed (21.3%) and agreed (23.3%) that sugary foods and drinks can contribute to tooth decay. Similarly, a notable percentage agreed (22.8%) that brushing teeth at least twice a day is important. Conversely, a significant proportion strongly disagreed (23.8%) with the statement that flossing or using an interdental cleaner daily is beneficial.

Research Question 2: What are the oral hygiene practices of adult residents in Adankolo?

Table 3: Oral Hygiene Practice Compliance

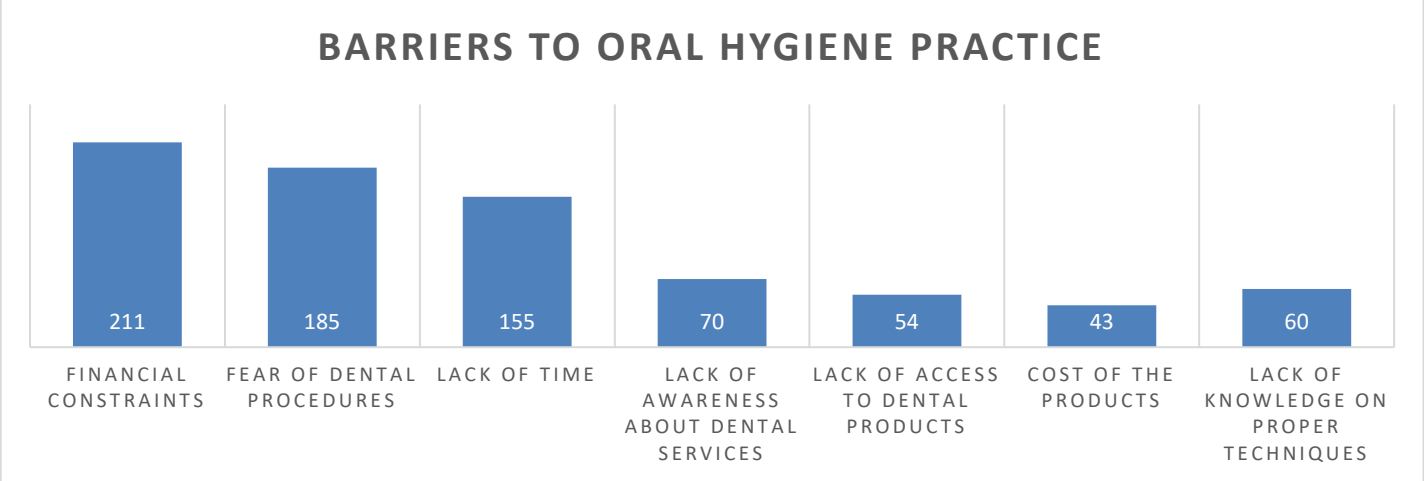
Items	**Yes**		**No**	
	F	**%**	**F**	**%**
Do you brush your teeth at least twice a day	198	50.8	192	49.2

Do you use fluoride toothpaste	206	52.8	184	47.2
Do you floss or use an interdental cleaner at least once a day	208	53.3	182	46.7
Do you visit a dentist regularly (at least every six months)	188	48.2	202	51.8
Do you avoid smoking or using tobacco products?	190	48.7	200	51.3
Do you limit your intake of sugary foods and drinks?	184	47.2	206	52.8
Do you use mouthwash as part of your oral hygiene routine?	202	51.8	188	48.2

A majority of respondents reported brushing their teeth at least twice a day (50.8%), using fluoride toothpaste (52.8%), and flossing daily (53.3%). However, only 48.2% regularly visited a dentist, and 47.2% limited sugary foods and drinks. Notably, 51.8% reported using mouthwash as part of their oral hygiene routine.

Research Question 3: What barriers hinder oral hygiene compliance in Adankolo?

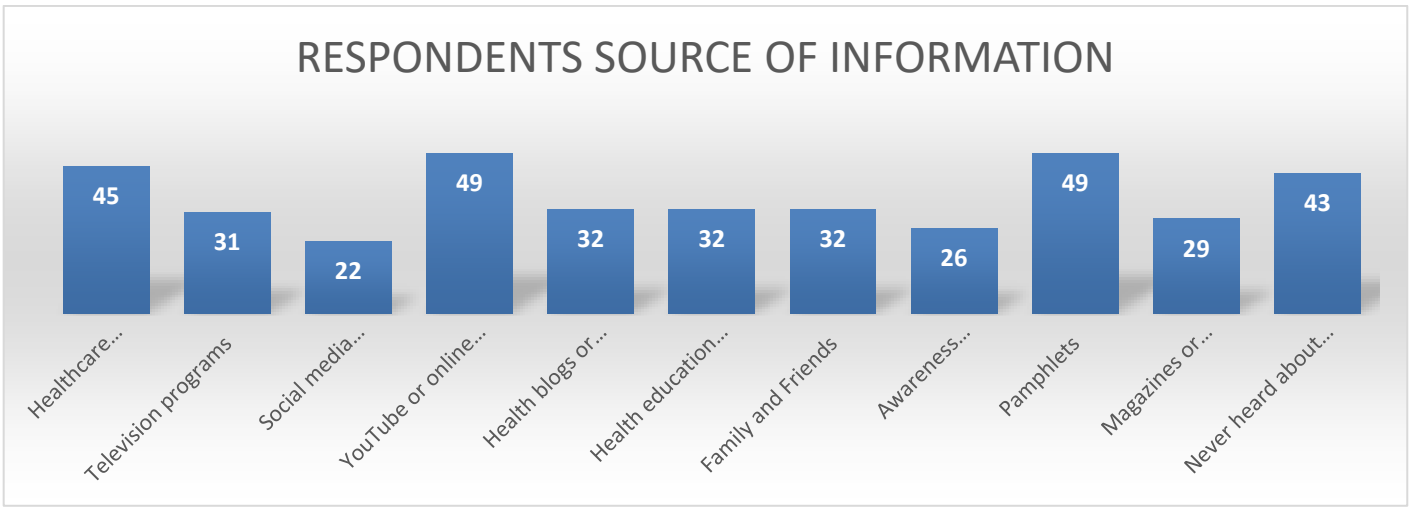
Figure 1. Barriers to Oral Hygiene Practice



The bar chart above illustrates various barriers to oral hygiene practice. Key obstacles include financial constraints, fear of dental procedures, lack of time, limited access to resources, and the associated costs. These factors appear relatively similar in significance, with financial and cost-related barriers standing out slightly as major challenges.

Research Question 4: What are the sources of Information on Knowledge of Oral Hygiene?

Figure 2: Source of Information on Knowledge of Oral Hygiene



The bar chart displays the various sources of knowledge about oral hygiene. The most frequently mentioned sources are healthcare professionals, YouTube or online videos, and awareness campaigns or workshops, each receiving notable mentions. Social media platforms, health education seminars, and family or friends were moderately used sources, while pamphlets and magazines or newspapers were among the least referenced. Interestingly, a considerable number of respondents indicated that they had never heard about oral hygiene.

Test of Hypothesis

For the paired T-test, the mean difference between knowledge and practice is 15.68, with a standard deviation of 17.48 and a standard error mean of 5.27. The 95% confidence interval of the difference is between 3.94 and 27.42, indicating that the mean difference is statistically different from zero within this range. The t-statistic is 2.98, with 10 degrees of freedom (df), and the significance level (p-value) is .014.

Since the p-value (.014) is less than the significance level (typically 0.05), we reject the null hypothesis (Ho) that there is no significant relationship between knowledge of oral hygiene practices and compliance levels among adults in the Adankolo community. This suggests that there is a statistically significant relationship between knowledge and practice.

DISCUSSION

The study revealed that respondents generally recognized the importance of brushing teeth twice daily (42.8% agreed) and using fluoride toothpaste (40.5%). However, daily flossing was less commonly acknowledged, with 23.8% disagreeing on its importance. These findings are consistent with Ogunyemi et al. (2024), which emphasized gaps in oral health knowledge among adults despite educational interventions. Comparatively, other studies (e.g., Nasir et al., 2019) highlighted that knowledge alone does not always translate to compliance, reinforcing the need for targeted awareness campaigns.

Only 50.8% of respondents reported brushing twice daily and 48.2% used mouthwash regularly. These low compliance rates align with findings from Adeola et al. (2020), where fewer adults adhered to recommended dental visits or interdental cleaning uses, despite awareness. Such trends suggest the influence of socioeconomic and cultural barriers on actual practice.

Key barriers identified include financial constraints, fear of dental procedures, and lack of time. These challenges agreed with those found by Nazir et al. (2019), who documented that cost and access issues are common barriers in low-resource settings. Furthermore, the fear of dental procedures, highlighted in this study, is consistent with findings by Kumar et al. (2018), who also explained that anxiety can limit dental visits among people with low oral health knowledge.

Limitations of the Study

Several limitations may affect the outcomes of this study. Firstly, the reliance on self-reported data may introduce biases, as participants may underreport poor oral hygiene practices or overestimate their compliance levels due to social desirability (Akinmoladun et al., 2020). The sample size may also affect the generalization of the findings, as a small sample may not fully represent the diversity of the Adankolo community. Moreover, external factors such as socioeconomic conditions, cultural beliefs, and access to dental care may vary significantly within the community, potentially influencing oral hygiene practices in ways that are not captured by this study; anxiety can also reduced dental visits.

CONCLUSION

The study highlights moderate knowledge and suboptimal adherence to oral hygiene practices among adults in Adankolo. While awareness of basic practices such as brushing the teeth is fair, significant gaps exist in understanding and following other preventive measures, including flossing and regular dental visits. Financial constraints, fear, and limited access to dental resources are major barriers to compliance.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

i. Regular awareness programs focusing on the importance of fluoride toothpaste, flossing, and routine dental checkups should be conducted in the communities.
ii. There should be collaboration with local healthcare providers to offer affordable dental services, thus, reducing financial barriers to care.
iii. Oral hygiene education should be incorporated into routine primary healthcare services in the community.
iv. Local healthcare providers should be trained to use anxiety-reducing techniques, such as clear communication and patient-friendly dental environments, to encourage patients' compliance.

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