

## **Oral health assessment of market women in Orlu zone of Imo State, Nigeria.**

Daniel, Ugochi Ngozi

Department of Biology, School of Biological Sciences, Federal University of Technology,  
Owerri. Imo State.

**\*Corresponding Author:** godsbestcreation77@gmail.com, +2347066205881

### **Abstract**

*Oral health has risen in importance in recent times as there is a connection between declining oral health and underlying systemic conditions. Oral bacteria and inflammation have been associated with heart disease (endocarditis or inflammation of the heart), premature birth, and low birth weight. The research sought to fill a literature gap resulting from the fact that this very important topic is currently under researched. The oral health status (knowledge, attitude and practice) of Market women in Orlu Zone (Orlu International and daily markets and Eziachi Market) of Imo State, Nigeria was assessed. The research was done within a period of eight months. Data was collected using pretested, semi structured, self-administered and interviewer administered questionnaires which were collated, manually screened and values calculated with a calculator. Results were presented using tables, percentages and charts. Two hundred and sixty (260) copies of the questionnaire were distributed and returned with 95.3% completion/response rate.*

*Result: 43.5% of the market women were in the age group of 31-40 years with a minority of 8.0% attaining tertiary education. The most common source of Oral health information was mass media (65.1%), Their knowledge of the relationship between oral diseases and the general health of an individual is poor despite the fact that a good number of these participants are aware of Oral hygiene. This is because majority (73.4%) agreed that gingival bleeding is normal during brushing while 64.5 % disagreed that oral diseases can cause poor general health. While 39.5% agreed that teeth condition is decided at birth and not related to self-care, 63.7% agreed that regular dental checkups are important. 87.1% use toothbrush and paste, only 19.35% brush their teeth twice daily. A majority (51.61%) brush their teeth for less than one (1) minute while a paltry 8.06% brush for more than two (2) minutes. While 70.57% cannot say the pattern they use as they brush their teeth, 30.24% do not brush their teeth way up, down and sideways. Whereas there is no statistical difference between attitude to and practice of oral hygiene by these market women ( $P_p < 0.05 = 5.443$ ), there is a significant difference between their knowledge of and attitude to oral health ( $P_p < 0.05 = 11.444$ ) and their knowledge and practice of sound oral health ( $P_p < 0.05 = 11.365$ ) Within the limitation of this study, the oral health awareness of the market women was fair though it could be deduced that the quality of information they have is poor which has affected their attitude and practice of sound oral hygiene. The importance of female education cannot be over emphasized vis a vis, the quality of information accessed, hence the need for laws and regulations to be enacted by the government so that only certified medical personnel disseminate health information.*

**KEYWORDS:** Knowledge, Attitude, Practice, Oral - Hygiene, Market, Women.

## ÉVALUATION DE LA SANTÉ BUCCO-DENTAIRE DES FEMMES DU MARCHÉ DANS LA ZONE D'ORLU DE L'ÉTAT DE L'IMO, AU NIGERIA.

### Resume

*La santé bucco-dentaire a pris de l'importance ces derniers temps, car il existe un lien entre le déclin de la santé bucco-dentaire et les conditions systémiques sous-jacentes. Les bactéries buccales et l'inflammation ont été associées à des maladies cardiaques (endocardite ou inflammation du cœur), à une naissance prématurée et à un faible poids à la naissance. La recherche visait à combler une lacune dans la littérature résultant du fait que ce sujet très important fait actuellement l'objet de peu de recherches. L'état de santé bucco-dentaire (connaissances, attitude et pratique) des femmes du marché dans la zone d'Orlu (marchés internationaux et quotidiens d'Orlu et marché d'Eziachi) de l'État d'Imo, au Nigeria, a été évalué.*

*La recherche s'est déroulée sur une période de huit mois. Les données ont été recueillies à l'aide de questionnaires prétestés, semi-structurés, auto-administrés et administrés par des enquêteurs, qui ont été rassemblés, triés manuellement et les valeurs calculées à l'aide d'une calculatrice. Les résultats ont été présentés à l'aide de tableaux, de pourcentages et de graphiques. Deux cent soixante (260) exemplaires du questionnaire ont été distribués et retournés avec un taux de remplissage/réponse de 95,3 %.*

*Résultat : 43,5 % des femmes du marché étaient dans la tranche d'âge des 31-40 ans avec une minorité de 8,0 % atteignant l'enseignement supérieur. La source la plus courante d'information sur la santé bucco-dentaire était les médias de masse (65,1 %), leur connaissance de la relation entre les maladies bucco-dentaires et la santé générale d'un individu est faible malgré le fait qu'un bon nombre de ces participants sont conscients de l'hygiène bucco-dentaire. C'est parce que la majorité (73,4 %) a convenu que le saignement gingival est normal pendant le brossage tandis que 64,5 % n'étaient pas d'accord pour dire que les maladies bucco-dentaires peuvent causer une mauvaise santé générale. Alors que 39,5% ont convenu que l'état des dents est décidé à la naissance et n'est pas lié aux soins personnels, 63,7% ont convenu que des examens dentaires réguliers sont importants. 87,1% utilisent une brosse à dents et du dentifrice, seulement 19,35% se brossent les dents deux fois par jour. Une majorité (51,61%) se brossent les dents pendant moins d'une (1) minute alors qu'un maigre 8,06% se brossent les dents pendant plus de deux (2) minutes. Alors que 70,57% ne peuvent pas dire le modèle qu'ils utilisent pour se brosser les dents, 30,24% ne se brossent pas les dents de haut en bas et de côté. Alors qu'il n'y a pas de différence statistique entre l'attitude et la pratique de l'hygiène bucco-dentaire par ces commerçantes ( $Pp < 0,05 = 5,443$ ), il existe une différence significative entre leur connaissance et leur attitude à l'égard de la santé bucco-dentaire ( $Pp < 0,05 = 11,444$ ) et leur connaissance et la pratique d'une bonne santé bucco-dentaire ( $Pp < 0,05 = 11,365$ ). Dans les limites de cette étude, la sensibilisation à la santé bucco-dentaire des femmes du marché était passable bien qu'on puisse en déduire que la qualité des informations dont elles disposent est médiocre, ce qui a affecté leur attitude et pratique d'une bonne hygiène bucco-dentaire. L'importance de l'éducation des femmes ne peut être surestimée par*

*rapport à la qualité de l'information accessible, d'où la nécessité que des lois et des règlements soient promulgués par le gouvernement afin que seul le personnel médical certifié diffuse l'information sur la santé.*

**MOTS-CLÉS :** Connaissance, Attitude, Pratique, Oral - Hygiène, Marché, Femmes.

## تقييم صحة الفم للسيدات في منطقة اورلو بولاية ايمو في نيجيريا

### نبذة مختصرة

ازدادت أهمية صحة الفم في الآونة الأخيرة حيث توجد علاقة بين تدهور صحة الفم وظروف الجهازية الأساسية. (ارتبطت بكتيريا الفم والالتهابات بأمراض القلب) التهابا بالشغاف أو التهابا بالقلب (والولادة المبكرة وانخفاض الوزن عند الولادة). يسعى البحث إلى سد فجوة أدبية ناتجة عن حقيقة أن هذا الموضوع المهم لغاية قيد البحث حاليا. تمت تقييم حالة صحة الفم (المعرفة والمواقف والممارسات) لنساء السوق في منطقة أورلو (أسواق أورلو الدولية والأسواق اليومية وسوق إيزياشي (في ولاية إيمو، نيجيريا). تم إجراء البحث في غضون ثمانية أشهر. تم جمع البيانات باستخدام الاستبيانات التيتم اختيارها مسبقاً، وشبه المنظمة، والتيتم إدارتها ذاتياً والتبديلها المحاور والتيتم تجميعها وفحصها يدوياً وحساب القيم باستخدام آلة حاسبة. تم عرض النتائج باستخدام الجداول والنسب والرس ومال بيانية. تم توزيع مائتين وستين (260) نسخة من الاستبيان وإعادتها بمعدل اكتمال / استجابة (95.3%). النتيجة (43.5%) من النساء في السوق كفي الفئة العمرية من 31-40 سنة مع أقلية من (8.0%) حصلن على التعليم العالي. كانت وسائل الإعلام هي المصدر الأكثر شيوعاً لمعلومات صحة الفم (65.1%)، وكانت معرفتهم بالعلاقة بين أمراض الفم والصحة العامة للفرد ضعيفة على الرغم من حقيقة أن عددًا كبيراً من هؤلاء المشاركين على دراية بنظافة الفم. وذلك لأن الغالبية (73.4%) اتفقوا على أن نزيفاً لثة أمر طبيعي أثناء تنظيف الأسنان بالفرشاة بين ما لم يوافق (64.5%) على أن أمراضاً للفم يمكن أن تسبب سوء الصحة العامة. بينما وافق (39.5%) على أن حالة الأسنان تتقرر عند الولادة ولا تتعلق بالرعاية الذاتية، اتفق (63.7%) على أهمية فحوصات الأسنان المنتظمة، (87.1%) يستخدمون فرشاة الأسنان ومعجون الأسنان، و(19.35%) فقط من أسنانهم مرتين يومياً. الغالبية (51.61%) تنظف أسنانها لمدة تقل عن دقيقة واحدة (1) بينما تنظف الفرشاة بنسبة (8.06%) تافهة لأكثر من دقيقتين (2). في حين أن (70.57%) لا يمكنهم قول النمط الذي يستخدمونه أثناء تنظيف أسنانهم، فإن (30.24%) لا يقيمون بتنظيف أسنانهم بالفرشاة للأعلى والأسفل الجانبيين. في حين لا يوجد فرق إحصائي بين الموقف من صحة الفم وممارستها من قبل هؤلاء النساء في السوق (Pp = 5.443 < 0.05)، هنا كفرق كبير بين معرفتهن وموقفهن تجاه صحة الفم (Pp = 11.444 < 0.05) ومعرفتهن وممارسة صحة الفم السليمة (Pp = 11.365 < 0.05) في حدود هذه الدراسة، كان الوعي بصحة الفم لدى النساء في السوق عادلاً على الرغم من أنه يمكن استنتاج أن جودة المعلومات التي لدي هن سيئة مما أثر على موقفهن وممارسة نظافة الفم السليمة. لا يمكن المبالغة في التأكيد على أهمية تعليم الإناث في ما يتعلق بجودة المعلومات التي يتمال وصول إليها، ومن هنا تأتي الحاجة إلى سن القوانين واللوائح من قبل الحكومة بحيث لا ينشر سوى العاملين الطبيين المعتمدين المعلومات الصحية.

### Introduction

There is information gap that this research intends to fill as this topic is currently under-researched. This research may also stimulate interest among researchers in Imo State to further study the Oral health

status of the other populace of the state. In addition, findings of this study may guide policy makers and programme planners towards making oral health intervention available to market women; the recommendations made from this study

may guide the market women to a healthier oral health practice. Poor oral health can have a profound effect on the quality of man's life. The experience of pain, endurance of dental abscesses, problems with eating and chewing, embarrassment about the shape of teeth or about missing, discolored or damaged teeth can adversely affect people's daily lives and well-being [Krawczk D *et al*]. Poor oral health exacerbates oral diseases, leading to an increased risk of non-communicable diseases and self-care dependence, particularly among market women, worldwide [Krawczk D *et al*]. Oral diseases pose a major health burden for many countries and affect people throughout their lifetime, causing pain, discomfort, disfigurement and even death.

These diseases share common risk factors with other major non-communicable diseases. [Global Burden of Disease]. It is estimated that oral diseases affect nearly 3.5 billion people. [Ferlay J E M *et al*]. Untreated dental caries (tooth decay) in permanent teeth is the most common health condition according to the Global Burden of Disease 2017 [Global Burden of Disease]. More than 530 million children suffer from dental caries of primary teeth (milk teeth). Severe periodontal (gum) disease, which may result in tooth loss, is also very common, with almost 10% of the global population affected [Global Burden of Disease]. Factors contributing to oral diseases are an unhealthy diet [Orthodontics]; diet high in sugar [Orthodontics], use of tobacco [Palmer R M *et al*, Ryder M I] and harmful use of alcohol [Healthline]. Most oral health conditions are largely preventable and can be treated in their early stages. In a country

like Nigeria, the awareness about dental diseases and their impact on general health and the need to safeguard oral health and hygiene should be given utmost importance because of the increased use of tobacco, improper eating habits [Orthodontics] and inefficient maintenance of oral hygiene [Ehizele A *et al*].

## Materials and Methods

The Study design was a descriptive cross-sectional design and study population involved the Market Women in Orlu International Market, Orlu Daily Market and Eziachi Market all in Orlu zone of Imo State, Nigeria. Multi-stage sampling technique involving Stratified Random Technique and Simple Random Sampling was used [Manta Dali].

Collection of data was by using a pretested, semi-structured, self-administered and interviewer-administered questionnaire that included close-ended questions (multiple choice and true/false options), written in Igbo but back translated into English by Linguists and were subsequently validated by Dental Scientists. Dependent and independent groups of variables were used in the study. Data was manually screened and values calculated and results were presented using tables, percentages and charts.

**Statistical Analysis:** All data collected were analyzed using Chi-square and values were collected, and the degree of freedom evaluated as 0.05% probability.

## Results

The table below shows the age variations of the participants, their different religious inclinations, marital statuses, tribes, place and types of residence and trade. Their levels of education were also arrayed, in addition to their sources of water supply

and sewage disposal. 43.5% of the participants are under the age range of 31-40yrs which forms the highest for that category and 90.3% are Christians with 90% belonging to Igbo tribe. 61.3% of the participants are married, while 38.7% attained Secondary education in their

different categories. 67.7% dwell in the rural area of the study area and 54.9% live in family houses. 48.4% of the participants sell foodstuff in the market and 90.2% of these people use borehole and their source of water supply.

*Table I: Sociodemographic characteristics of participants*

Category	Frequency (N =248)	Percentage(%)
<b>Age (years)</b>		
<20yrs	34	13.7
21-30yrs	20	8.1
31-40yrs	108	43.5
41-50yrs	60	24.2
51-60yrs	12	4.8
>60yrs	14	5.7
<b>Religion</b>		
Christianity	224	90.3
Islam	6	2.4
African Traditional Religion	18	7.2
<b>Marital Status</b>		
Single	40	16.1
Married	152	61.3
Separated	18	7.3
Divorced	10	4.0
Widowed	28	11.3
<b>Tribe</b>		
Igbo	238	96.0
Hausa	4	1.6
Yoruba	6	2.4
<b>Residence</b>		
Urban	80	32.3
Rural	168	67.7
<b>Type of Trade</b>		
Food Stuff	120	48.4
Building Materials	2	0.8
Cosmetics	40	16.1

Fashion Wears	60	24.2
Educational Materials	20	8.1
Ornaments	6	2.4
<b>Access to Water Supply</b>		
Stream	0	0.0
Tap Water	0	0.0
Well Water	4	1.6
Borehole	220	90.2
Rain Water	20	8.2
<b>Educational Level</b>		
Non Formal	52	21.0
Primary	80	32.3
Secondary	96	38.7
Tertiary	20	8.0
<b>Type of Residence</b>		
Own Flat	40	16.1
Family House	136	54.9
Self Con	24	9.7
Single Room	44	17.7
Shared Apartment	4	1.6
<b>Sewage Disposal Method</b>		
Pit Latrine	60	24.2
Bush Method	30	12.1
Riverside	0	0.0
Water Cistern	158	63.7

---

The Table below shows the degree of awareness and knowledge of oral hygiene among the participants. The highest source of information is from mass media which accounted for 65.1% of the participants. A majority were undecided about the causes of gingivitis while 88.7% agree that sugar consumption play a vital role in Dental Caries infection, yet majority (64.5%) disagreed that oral disease causes poor general health. 59.7% of the participants agreed that tooth brushing is useful to prevent gingivitis and 74.2% also agreed that fluoride is useful to protect teeth. The result for the signs of oral diseases included: bad mouth (14.5%), discoloured teeth (8.1%), bleeding gum (24.2%), frequent teeth fall (29%) and mouth pain (24.2%).

**TABLE II: AWARENESS AND KNOWLEDGE OF ORAL HYGIENE****11a. Have you heard about Oral Hygiene?**

<b>Category</b>	<b>Frequency (N =248)</b>	<b>Percentage(%)</b>
Yes	140	56.5
No	108	43.5

**Which source did you hear it from?**

Mass Media	164	65.1
School	80	31.7
Parents	4	3.2
Friends	0	0.0

**Gingival bleeding is normal when brushing**

Yes	182	73.4
No	30	12.1
I don't know	36	14.5

**Germs are one of the reasons for Gingivitis**

Yes	88	35.5
No	60	24.2
I don't know	100	40.3

**Tooth brushing is useless to prevent Gingivitis**

Yes	20	8.1
No	148	59.7
I don't know	80	32.2

**Dental Caries are mainly caused by germs**

Yes	162	65.3
No	76	30.7
I don't know	10	4.0

**Sugar consumption can lead to Dental Caries**

Yes	220	88.7
No	20	8.1
I don't know	8	3.2

**Fluoride is useless to protect teeth**

Yes	24	9.7
No	184	74.2
I don't know	40	16.1

**Oral diseases can cause poor general health**

Yes	20	32.3
No	160	64.5
I don't know	8	3.2

**What are the signs of Oral diseases?**

Bad Mouth	36	14.5
Discolored Teeth	20	8.1
Bleeding Gum	60	24.2
Frequent Teeth		
Fall	72	29.0
Mouth Pain	60	24.2

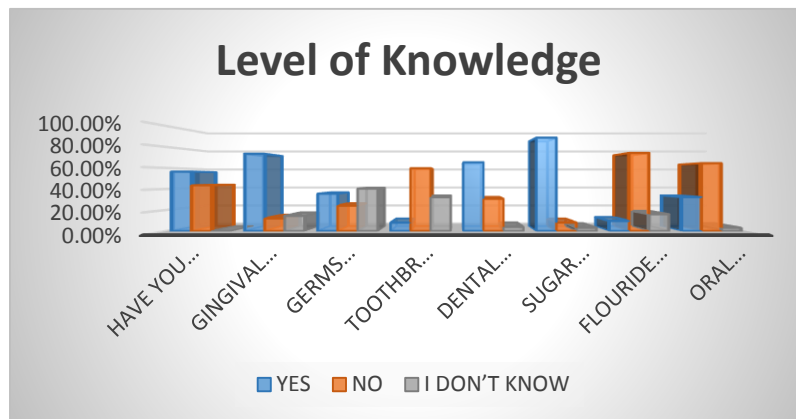
**TABLE III**

**THE ATTITUDE OF RESPONDENTS TOWARDS CONTROL AND PREVENTION OF ORAL DISEASES**

The Table below showcased an assessment of the attitude of respondents towards control and prevention of oral diseases. 83.9% agreed that oral health is very

important and 63.7% agreed that regular dental checkups are important, however, 39.5% agreed that teeth condition is decided at birth and not related to self-care. Conversely, 40.3% are undecided that mothers' oral health influence children's oral health.

**Fig. 1. Level of Awareness and Knowledge of Oral Hygiene among Market Women in International and Daily Markets in Orlu, Imo State**



**Oral Health is very important**

Category	Frequency (N =248)	Percentage(%)
Strongly Agree	40	16.1
Agree	208	83.9
Undecided	0	0.0
Strongly Disagree	0	0.0
Disagree	0	0.0



**Regular Dental Checkups are Important.**

Strongly Agree	0	0.0
Agree	158	63.7
Undecided	60	24.2
Strongly Disagree	30	12.1
Disagree	0	0.0

**Teeth Condition is Decided at Birth and not Related to Self-Care.**

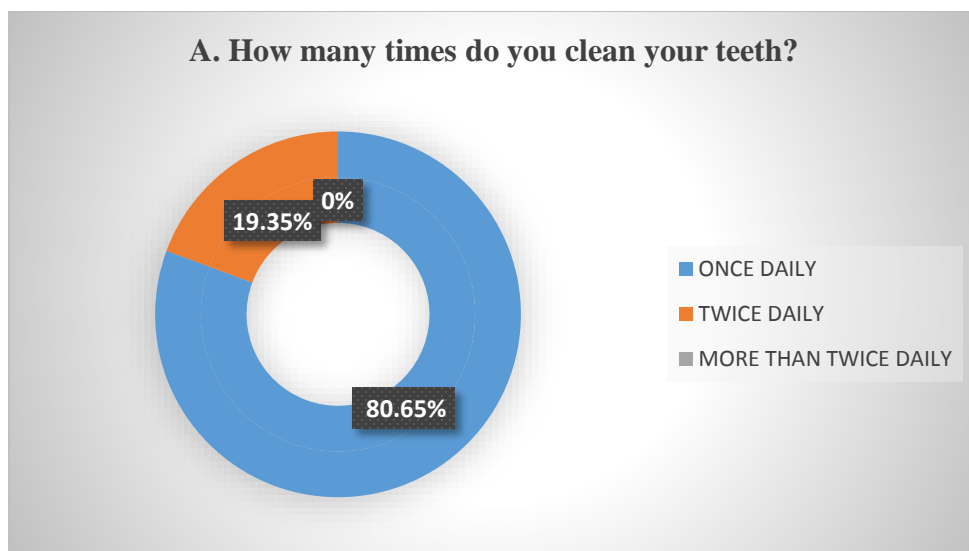
Strongly Agree	0	0.0
Agree	98	39.5
Undecided	10	4.0
Strongly Disagree	120	48.4
Disagree	20	8.1

**Self-care is Important in Preventing Dental Problems.**

Strongly Agree	100	40.3
Agree	120	48.4
Undecided	20	8.1
Strongly Disagree	8	3.2
Disagree	0	0.0

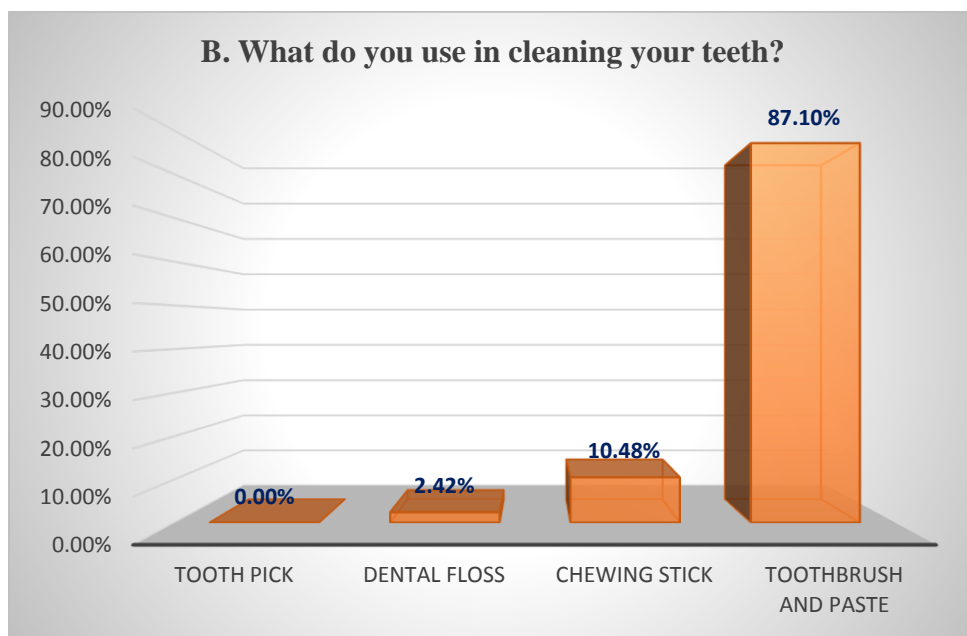
**Mothers' Oral Health Influence Children's Oral Health.**

Strongly Agree	20	8.1
Agree	80	32.3
Undecided	100	40.3
Strongly Disagree	48	19.3
Disagree	0	0.0

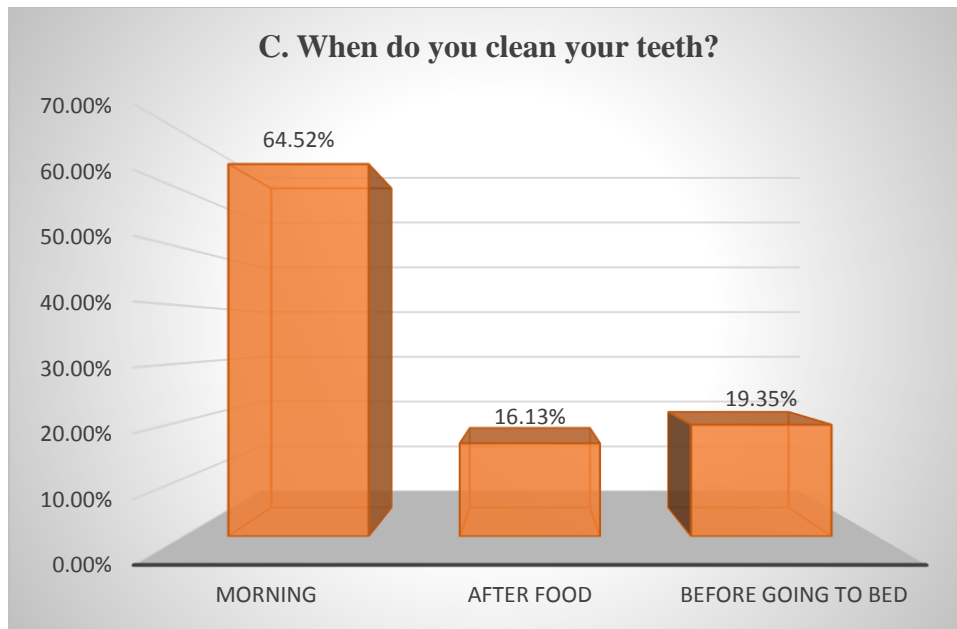


*Fig. Ii practice of oral hygiene and prevention of oral diseases:*

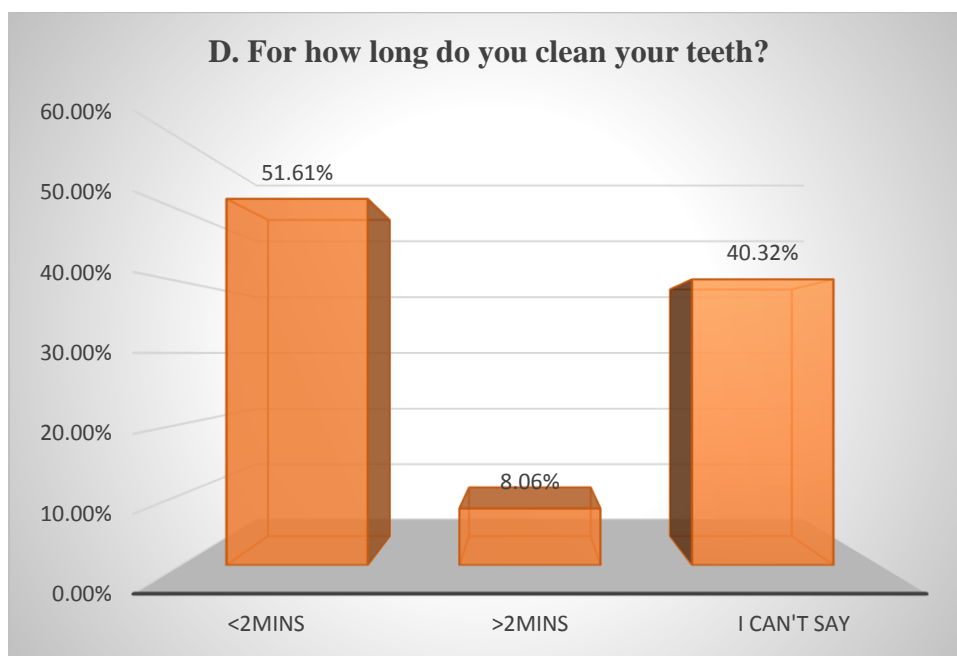
*Fig.IIa. How many times do you clean your teeth?*



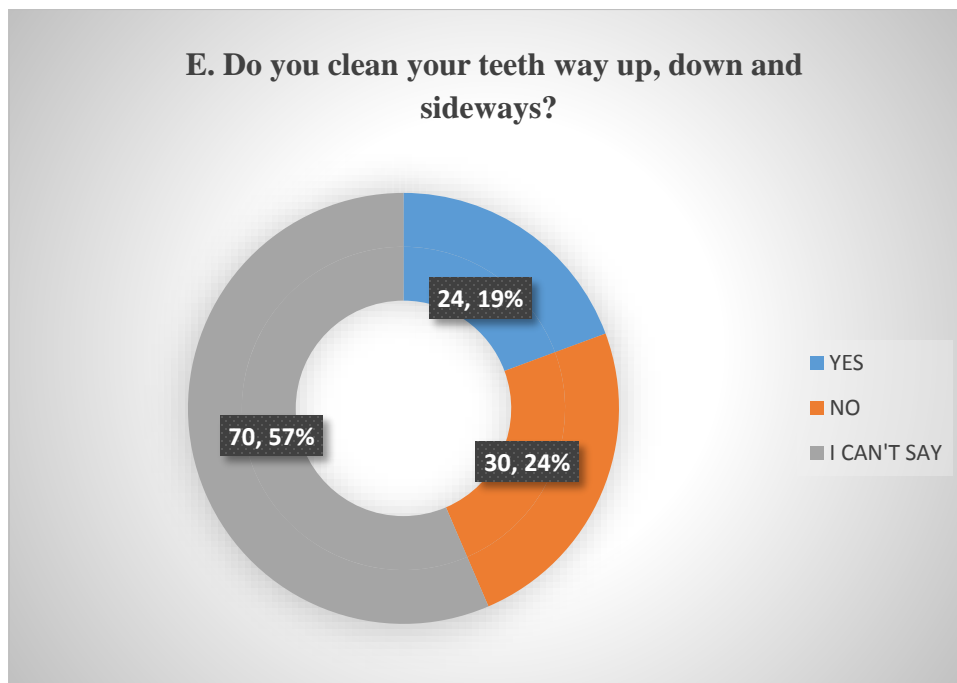
**IIb. What do you use in cleaning your Teeth?**



**Iic. When do you clean your teeth?**



**IId. For how long do you clean your teeth?**



## **Ile. Do you clean your teeth way up, down and sideways?**

### **Discussion**

From Table I, there were discrepancies in some of the demographic and economic characteristics of the different respondents in this study and this is in consonance with the works of Manta 'Manta Dali'. Majority of the market women were in the mean age group of 31-40 yrs, and this finding is also in tandem with result of previous research done in Nepal where the respondents were between 31-45yrs 'Manta Dali'. Majority of the participants are rural dwellers, and out of these number of women, only a minority attained tertiary education while the majority are secondary school leavers

with a good number of them having non formal education.

The most common sources of oral health information were mass media, followed by school and the least coming from parents. This is similar to a previous study done in Vietnam and Sweden 'Backlund C and Gunnarsson C ' but differed with findings from studies done in Nigeria 'Akinyamoju C. A *et al*'. A good knowledge of the various signs of oral diseases is noted as majority attributed it to teeth fall, some for both mouth pain and bleeding gum, while others agreed that bad mouth is a sign of oral disease with only a few of the

participants attributing it to discolored teeth.

The level of knowledge in these women of the relationship between oral diseases and general health of an individual is poor despite the fact that a good number of these participants are aware of oral hygiene. This is also seen in the majority who agreed that gingival bleeding is normal during brushing. This goes to show the quality of information received from the participants since most got their information from mass media which reportedly comprises of local medicine vendors and untrained medical people whose major aim of dissipating health information is to make market of their various health products and not to pass on scientifically-proven information. This is in consonance with a study carried out in Vietnam and Sweden (Backlund C and Gunnarsson ).

Result from this study shows also that most market women do not know the importance of regular dental checks as majority were undecided about that opinion. This is similar to a previous work done in Rivers State Nigeria where many pregnant women did not visit a dentist before, during and after pregnancy even when there were signs of oral disease (Olaoye C H and Ikobho E H.). A good number of the participants agreed that self-care is important, though many of these participants also believed that teeth condition is decided at birth and not related to self-care. In the same vein, a majority were undecided about the influence of mothers' oral health on children's oral health while a significant number disagreed. This position varied with the work done in Nepal (Lubon A J *et al*) where less than 10% of the participants were not aware of the importance of mothers' oral health in relation to that of the family health.

A majority of the women cleaned their teeth once daily with only very few who clean their teeth twice daily. Out of these number of participants also, majority clean their teeth only in the mornings, some clean after food while others clean their teeth before going to bed. The practice of brushing the teeth way up, down and sideways is practiced by only a few, and a majority cannot say how they brush their teeth. Out of these women, a majority brush their teeth for less than two (2) minutes, a very few brush for more than two minutes, and many cannot say for how long they brush their teeth. This level of practice of oral hygiene varies with what is obtained from a study done in Benin City, Nigeria (Adam V Y *et al*).

### **Conclusion**

Within the limitations of this study, the oral health assessment of the market women as studied is fair though it can be deduced that the quality of information they have is poor. Their attitude to oral hygiene is also poor and this can be attributed to the poor quality of information accessible to them. In addition, the practice of oral hygiene by these market women is fair owing to the fact that people rarely can practice what they have no good and quality knowledge about. It is noted that the source of medical information is very important in the lives of women and families, vis a vis the society at large; as such, it is good to filter this information and ensure that only certified medical people bear and disseminate such information. The society should be made to disbelieve any information coming from roadside vendors as this could be misleading. Market leaders are to enforce this in the markets. The importance of female education can never be overemphasized as this would go a long

way to ensure the safe oral/general hygiene of the family and society at large as women are termed the keepers of the families. Routine oral checkups and health education is required and should be encouraged as this imparts a lot on the general wellbeing of the society.

### Acknowledgement

This is to acknowledge the useful input of the following:

- The market women of Orlu, International market, Orlu daily market and Eziachi market all in Orlu zone for their compliance.
- The market union leaders are also acknowledged for granting permission for the subjects to be used.
- The Staff of the Department of Linguistics, Imo State University Owerri is hereby appreciated for translating the original manuscript from Igbo to English.
- The Staff of Dental Technology Department of Federal University of Technology Owerri (FUTO) is hereby acknowledged for their relevance assessment of the questionnaires before they were used.
- Associate Prof. Ejem A. Ejem of the Department of Project Management FUTO is hereby acknowledged for assisting in the Statistical analysis of this work.
- Finally, the auxillary assistants, typists and collators of the data for their dedication in making sure this piece came out successful.

### References

- "7 Foods For Healthy Teeth". Orthodontics Australia. 27 September 2017. Retrieved 10 February 2020/
- "The Global Burden of Oral Diseases and Risks to Oral Health". *Bulletin of the World Health* . 2018; 83 (9): 661–9. PMC 2626328. PMID 16211157.
- "What Does Alcohol Do to Your Teeth?". Healthline. Retrieved 8 May 2017.
- Adam V Y, Okeigbemen A, Osagie O, Oseghale E. Knowledge, Attitude towards and Practice of Oral Hygiene among Antenatal Clinic Attendees in Public Secondary Health Facilities in Benin City, Nigeria. *The Nigerian Health Journal*, Volume 17 No 1. A Publication of Nigerian Medical Association, Rivers State, Nigeria. 2017.
- Akinyamoju C A, Taiwo J O, Uwadia E, Agbogidi J M, Ambeke A. Oral Health Knowledge and Practice Among Traders in Ibadan. *Ann Ib Postgrad. Med.* V. 2018; 16(2):150-156.
- Backlund C, Gunnarsson C. Knowledge, Attitude and Behavior Regarding Oral Health Among Children and Adolescents, in Vietnam and Sweden; Oral Health, Bachelor Degree Thesis. JÖNKÖPING. 2020/
- Ehizele A, Chiwuzie J, Ofili A. Oral health knowledge, attitude and practices among Nigerian primary school teachers. *Int J Dent Hyg.* 2011; 9(4): 254–260.

- Ferlay J E M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, et al. Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Published 2018. Accessed 14 September, 2018.
- Global, Regional, and National Incidence, Prevalence, and years lived with Disability for 354 Diseases and Injuries for 195 countries and territories, 1990–2017: A Systematic Analysis for the Global Burden of Disease Study II. *Lancet*. 2019; 392: 17456–17746.
- Krawczk D, Pels E, Prucia G, Kosek K, Hoehne D. Students' Knowledge of Oral Hygiene vs Its Use in Practice. *Adv. Med. Sci*. 2016;51, *suppl* 1:122 -5.
- Lubon A J, Erchick D J, Khatry S K, LeClerq S C, Agrawal N K, Reynolds M A, et al. Oral Health Knowledge, Behaviour and Care-Seeking among Pregnant and Recently-Delivered Women in Rural Nepal: A Qualitative Study. *BMC Oral Health* 2018; volume 18, Article number: 97.
- Manta Dali. A Study on Oral Health Knowledge, Attitude and Practice Among Population of Siswani Jahada VDC in Biratnagar City, Nepal – A Questionnaire Survey. *Asian Pac. J. Health Sci*. 2014; 1(2): 51-56.
- Marco A, Peres. Oral Diseases: A Global Public Health Challenge. *Lancet*. 2019; 31146-8.
- Olaoye C H, Ikobho E H. Knowledge, Attitude and Practice of Good Oral Hygiene among Pregnant Women in Rivers State, Southern Nigeria – A Multicenter Study. *Asian Research Journal of Gynaecology and Obstetrics*. 2020; 22-36. Published 19 November 2020 vol 4, issue 3.
- Palmer R M, Wilson R F, Hasan A S, Scott D A. "Mechanisms of Action of Environmental Factors in Tobacco Smoking". *Journal of Clinical Periodontology*. 2005; 32 Suppl 6: 180–95. doi:10.1111/j.1600-051X.2005.00786.x. PMID 16128837.
- Ryder M I. The Influence of Smoking on Host Responses in Periodontal Infections. *Periodontology*. 2007; 43: 267–77. doi:10.1111/j.1600-0757.2006.00163.x. PMID 17214844.