

Level of Oral Health Knowledge and Practice Among Federal University Students in Enugu State.

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Abstract:

Oral health being a major aspect of an individual general health is also a state of being free from any form of oral disorder. Unfortunately, young adults in developing countries are known to suffer disproportionately from the burden of oral conditions, trauma and diseases. But having adequate knowledge and good practice of oral health are essential for a healthy oral health status, thereby eliminating their high rate for dental caries, periodontitis and edentulousness. However, some students of tertiary institutions in Enugu state were found to have oral health challenges like halitosis, tooth decolorization, dental caries and bleeding gum among Enugu youths during state youth rally in Enugu in October/November 2020. Hence the motivation of this study to ascertain the level of oral health knowledge and practice among Federal University students in Enugu state. The study employed descriptive survey design and was carried out within 12 months (February 2021 to February, 2023). Data were collected using structural pretested questionnaire administered to 635 students (347 Male students and 288 Female students) with multistage sampling technique. Data were analyzed descriptively and inferentially using SPSS version 20. The hypotheses were tested at 0.05 level of significance and data generated were subjected to percentage findings presented by the use of tables. Data collected were analyzed and discussed.

Result: The data analyzed with chi-square Test showed that age of the student has a statistically significant association with knowledge level among the respondents. The confidence interval (CI) for this relationship is 95%, and it ranges from 0 to 0. As well as the relationship with Gender and knowledge (chi square= 25.8, $p < 0.001$, CI =95%), knowledge and level of students (chi square= 154.2, $p < 0.001$, CI =95%), practice and age (chi square= 25.3, $p < 0.001$, CI =95%), practice and Gender (chi square= 7.4, $p < 0.05$, CI =95%, 0.018 - 0.024) and practice and level of knowledge (chi square= 78.8,, $p < 0.001$, CI =95%, 0).

Conclusion: The outcome of this study shows that among federal university students, 39.7% had poor knowledge, contradicting expectations from their education levels. However, environmental factors or knowledge transmission mediums may have influenced this. However, their oral health practices, showed 1.9% having poor practice which align better with educational expectations.

Keywords: Level, oral health, knowledge, practice, among, Federal University, students and State.

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I. Introduction

Oral health being a major aspect of an individual general health is also a state of being free from any form of disorder in the oral cavity (World Health Organisation, WHO, 2015). Its challenges are commonly seen as public health burden especially in African Region of WHO developing countries like Nigeria, due to their high rate for dental caries, periodontitis, edentulousness, (Adegbembo, El-Nadeef & Adeyinka, 1995; Petersen, Bourgeois & Ogawa, 2005), poor level of public oral health awareness and poor access to oral health care services especially on the intervention of oral health care (Sofola, Agbelusi & Jeboda, 2002; Orenuga & Sofola, 2005).

However, young adults in developing countries are known to suffer disproportionately from the burden of dental diseases (Abiola, Afolabi, Victor, Sofola & Oladapo, 2018). Those with poor oral health knowledge and practice experience pain and tooth loss, which affect their feeding and negatively impact their nutrition,

self-esteem, speech, socialization, quality of life and school attendance (Adeniyi, Oyapero, Ekekezie, & Braimoh, 2016; Edelstein, Vargas, Candelaria & Vemuri, 2006).

However, having adequate knowledge and good practice of oral health are essential for a healthy oral health status. Unfortunately, some students of tertiary institutions in Enugu state were found to have oral health challenges like halitosis, tooth decolorization, dental caries and bleeding gum among Enugu youths during the state youth rally in Enugu in October/November 2020. Hence the motivation of this study to ascertain the level of oral health knowledge and practice among students of federal university in Enugu state.

II. Materials And Methods

Study design: This study employed a cross-sectional, descriptive survey design with the population of the study comprising of students of federal university in Enugu State.

Study location: This study was conducted in the federal university in Enugu state among regular undergraduate students. Enugu State has its capital in Enugu and it's located in southeastern Nigeria. The federal university used in this study was University of Nigeria commonly referred to as UNN.

Study duration: February 2021 to February, 2023.

Sample size: The sample size of the study comprised of 635 students (347 Male students and 288 Female students)

Sample size calculation: The sampling Techniques for this study was multistage sampling technique. The first stage sampling techniques was to select all faculties; 28 faculties; (17 faculties for UNN). For second stage, which was the selection of departments from the faculties. 24 departments were selected with population of 3,513 students. This was generated through 30% of departments from each faculty. These was according to the rule of the thumb where 30% of the sample was found to be representative of the population. In the third stage, students were allocated to each sampled department using proportional sampling technique. Here, each of the sampled department were proportionally allocated students base on the departmental and faculty population. In the Fourth stage, proportional sampling technique were used to allocate students to year/level (Year 1 - 4) of study for each department. In the fifth stage, stratified sampling techniques were used to stratify students Gender into Male and Female. Then, the Sixth stage was where students were allocated to the strata (Male and Female) using systematic techniques.

Inclusive criteria:

1. Regular undergraduate students of UNN
2. Regular undergraduate students within year One to Fourth year or students studying Four years courses.

Exclusive criteria:

1. Regular undergraduate students of UNN
2. Regular undergraduate students in 500L or studying courses that are five years and above intervals (Postgraduates)

Procedure methodology: After a verbal informed consent was obtained, a well-designed and structured pretested close-ended questionnaire were administered to the professionals and were supervised as they fill-in the questionnaire

Statistical analysis: The data generated from the questionnaire were collected and collated by the researcher and were entered into computer software called Statistical Package for Social Science (SPSS) version 20 for both descriptive and inferential statistical analysis. The researcher used simple percentage and frequency to analyze the research objectives and data collected. Chi-square was used to analyze the research hypotheses. The hypotheses were tested at 0.05 levels of significance. Data were subjected to percentage findings presented by the use of tables.

III. Result

Socio-demographic characteristics

Result from Table I, showed that students with less than 18 years of Age were 80 (12.6%) as Students with Age range of 18 – 23 years had 282 (44.3%) respondents. But for students with Age range of 24 – 29 years, had 213 (33.5%) respondents. But for Age above 29 years, the respondents were 60 (9.4%) students

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For Gender of the study, Female students were (67%) But for year of study, year 1, respondents were 97(15.3%) students. For year 2, respondents were 118(18.8%) students. For year 3, respondents were 185(29.1%) students. For year 4, respondents were 235(36.9%) students. But for type of phone used, 98% of the students had smartphones

Table 1: Distribution of respondents by Socio - demographic Characteristics, n =635 (100%)

Variables	Frequency	%	C%
Age			
less than 18yrs	80	12.6	100
18-23yrs	282	44.3	44.5
24-29yrs	213	33.5	78
Above 29yrs	60	9.4	87.4
Total	635	100	
Gender			
Male	209	32.9	100
Female	426	67	67.1
Others	0	0	0
Total	635	100	
Year of study			
Year 1/1001	97	15.3	15.4
Year 2/2001	118	18.6	34
Year 3/3001	185	29.1	63.1
Year 4/4001	235	36.9	100
Total	635	100	

Oral health knowledge

From table 2 below, we have frequency of students with knowledge of oral hygiene at 68 (10.7%) while for Adequate for cleaning mouth was 438(68.9%). For Best time to brush the teeth, the researcher had 90(14.2%) students indicating poor knowledge on best time to brush the teeth for both school. However, for ways to clean the mouth, respondents showed 135(21.2%) students for All of the above option, indicating greater respondents has adequate knowledge on ways to clean the mouth.

For food good for the teeth, 12(1.9%) affirmed cake, 143(22.5%) affirmed chewing gum, 19(3%) affirmed ice cream, 24(3.8%) affirmed sweet, while 437(68.7%) affirmed vegetables. For Ways to prevent oral disease, the outcome showed, 315(49.5%) students for All of the above, 80(12.5%) students for by brushing the teeth, 77(12.1%) students for by Flossing, 105(16.5%) students for by Reducing sugar intake and 58(9.1%) students for by Regular mouth wash. But for Oral diseases as a result of poor oral hygiene, the outcome showed 368(57.9%) for Gingivitis 75(11.8%) for Graves' disease, 102(16%) for Oral cancer and 90(14.2%) for Oral stomatitis.

Table 2: Frequency distribution of oral health knowledge of students, n=635(100%)

Variables	Frequency	%	C%
Definition of oral hygiene	68	10.7	10.8
Brushing the teeth only	57	9.0	19.8
Keeping only the mouth clean and the teeth clean to prevent dental problem	441	69.3	89.2
Keeping the teeth clean only	46	7.2	96.4
None of the above	23	3.6	10.0
Total	635	100	
Adequate for cleaning mouth			
Dental floss	47	7.4	76.4
Tooth brush only	85	13.4	89.8
Tooth paste only	65	10.2	100
All of the above	438	68.9	69.0
Total	635	100	
Best time to brush the teeth			
Afternoon only	41	6.4	6.6
Morning and night	443	69.7	76.3
Morning only	90	14.2	90.4
Night only	61	9.6	100.0
Total	635	100	
Ways to clean the mouth			
All of the above	135	21.2	21.4
Brushing the teeth	76	11.9	33.3
Flossing	129	20.3	53.6
Rinsing the mouth with water	229	36.0	89.6
Use of toothpick	66	10.4	100
Total	635	100	

Food good for the teeth			
Cake	12	1.9	2.0
Chewing gum	143	22.5	24.5
Ice cream	19	3.0	27.5
Sweet	24	3.8	31.5
Vegetables	437	68.7	100
Total	635	100	
Ways to prevent oral disease			
All of the above	315	49.5	49.7
By brushing the teeth	80	12.5	62.3
Flossing	77	12.1	74.4
Reducing sugar intake	105	16.5	90.9
Regular mouth wash	58	9.1	100
Total	635	100	
Consequences of poor oral hygiene			
All of the above	373	58.6	58.8
Bad breathe	68	10.7	72.0
Dental caries (tooth cavity)	84	13.2	85.2
Gum bleeding	62	9.7	95.0
Swelling of the gum	32	5.0	100
Total	635	100	
Cleaning the teeth prevents			
All of the above	373	58.6	58.8
Dental caries	86	13.5	72.3
Halitosis	105	16.5	88.8
Swelling of the gum	71	11.2	100
Total	635	100	
Benefits of cleaning teeth except			
It gives confidence	117	18.4	18.6
It helps to prevent oral infection	114	17.9	36.5
It keeps the mouth fresh	116	18.2	54.7
It prevents shedding	286	45.3	100
Total	635	100	
Oral diseases as a result of poor oral hygiene			
Gingivitis	368	57.9	58.0
Graves' disease	75	11.8	69.8
Oral cancer	102	16.0	85.8
Oral stomatitis	90	14.2	100.0
Total	635	100	

Oral health knowledge frequency distribution by score

On the assessment of oral health knowledge, table 3 results showed that students with less than 40% score were 39.7% for UNN and 34% for ESUT. While those with moderate score were 7.2% for UNN and 13% for ESUT. However, students with high knowledge were 53.1% for UNN and 53.1% for ESUT.

Table 3: Distribution of respondents byoral health knowledge, n= 635 (100%)

Variables	Frequency	%
Poor Knowledge	252	39.7
Moderate	46	7.2
High knowledge	337	53.1
Total	635	100

Oral health practice

From table 4 below, for UNN, question on Often do you clean your mouth, the researcher had, 464 (78%) students Daily, 1 (0.2%) students for Don't know, 50(7.9%) for Four times a week, 24(3.8%) students for

One a week, 4(0.6%) students for None and 60 (9.5%) students for Others. While for ESUT, the researcher had, 571 (72.6%) students Daily, 2 (0.2%) students for Don't know, 88(11.2%) for Four times a week, 1(0.1%) students for One a week, 46(5.9%) students for None and 78 (9.9%) students for Others

For question on, do you clean your teeth, the responds for UNN, 12(1.9%) students replied No and 623(98.0%) students for Yes. While for ESUT, the researcher had 29(3.7%) students for No and 757(96.3%) students for Yes.

For question on Frequency of cleaning teeth, the researcher had for UNN, 27(4.2%) students for Afternoon only, 386(60.7%) students for Morning and night, 159(25%) students for Morning only, 1(0.2%) student for Never, 52 (8.2%) student for Night only, 4(0.6%) student for Sometimes and 1(0.6%) student for Others. While for ESUT, the researcher had, 44(5.6%) students for Afternoon only, 470(59.8%) students for Morning and night, 218(27.7%) students for Morning only, no student for Never, 53 (6.7%) student for Night only and 1(0.1%) student for Sometimes

Table 4: Frequency distribution of student's oral health practice, n=635 (100%)

Variables	Frequency	%	C%
Often do you clean your mouth			
Daily	464	78.0	78.5
Don't know	1	0.2	78.6
Four times a week	50	7.9	86.5
One a week	24	3.8	91.0
None	4	0.6	87.3
Others	60	9.5	100
Total	635	100	
Clean your teeth			
No	12	1.9	2.0
Yes	623	98.0	100.0
Total	635	100	
Frequency of cleaning teeth			
Afternoon only	27	4.2	4.4
Morning and night	386	60.7	65.1
Morning only	159	25.0	90.1
Never	1	0.2	90.3
Night only	52	8.2	98.4
Sometimes	4	0.6	99.1
Others	1	0.2	100
Clean mouth after meal			
Always	195	30.7	30.8
Never	54	8.5	39.3
Sometimes	386	60.7	100.0
Total	635	100	
Items used to clean teeth			
Charcoal	9	1.4	1.6
Cewing stick	36	5.7	7.2
Dental powder	66	10.4	17.6
Floss	1	0.2	17.8
Mouth wash	1	0.2	17.9
None	4	0.6	18.6
Others	4	0.6	18.6
Toothbrush & paste	514	80.8	99.5
Use of charcoal to clean teeth			
Always	16	2.5	2.7
Never	444	69.8	72.5
Sometimes	175	27.5	100
Total	635	100	
Use of chewing stick			
Always	15	2.4	2.5
Never	262	41.2	43.7
Sometimes	358	56.3	100
Total	635	100	
Use of dental powder			
Always	28	4.4	4.6
Never	287	45.1	49.7
Sometimes	320	50.3	100
Total	635	100	
Use of tooth & paste			

Always	496	78.0	78.1
Never	11	1.7	79.9
Sometimes	128	20.1	100
Pattern of brushing			
Up & down technique	406	63.8	98.1
Up & down and sideways	119	18.7	99.1
Sideways	73	11.5	100
Others	35	6.0	100
Reason for cleaning the mouth			
To avoid oral infection	159	25.0	74.4
To avoid bad breathe	200	31.4	99.4
To avoid oral diseases	221	34.7	99.5
Others	56	8.8	100
Routine dental checkup			
Once per year	170	26.7	27.0
Twice per year	289	45.4	27.7
Never	162	25.5	99.8
Others	15	2.3	100
Parents support for dental checkup			
Always	190	29.9	30.0
Sometimes	375	59.0	30.7
Never	53	8.3	40.9
Total	635	100	

Oral health practice by score

Result from table 5, showed that students with poor knowledge scores were 1.9 % and while those with moderate knowledge score were 10.2 %. However, students with high practice score were 87.9% respondents.

Table 5: Distribution of respondents by oral health Practice, n=635 (100%)

Variable	Frequency	%	C%
Poor practice	12	1.9	1.9
Moderate practice	65	10.2	12.1
High practice	558	87.9	100
Total	635	100	

Student Parental socio-economic status

Result from table 6, showed that students whose father's highest level of education was No formal education were 8.3% students while those Father's highest education was tertiary education were 56.6%. However, students whose Mother's highest education was No formal education were 9.4% of the students while those whose Mother's highest education was tertiary were 54.2%. Hence, for student Father's occupation, 2.7% of them were unemployed. While for Mother's occupation, those with 2.6% were in the categories of others. For Parent's residence, those with 0.2% were in the categories of others while, those in urban areas had 47.3%. However, those with 4.9% were in the categories of student's monthly amount for upkeep above ₦40,000. While 33.6% were of the categories of student's monthly amount for upkeep is below ₦10,000. But for student's residence, others had 0.6% and those in off-campus had 48.4%.

Table 6: Distribution of respondents by student parental Socio - economic status, n=635 (100%)

Variables	Frequency	%	C%
Fathers highest level of education			
No formal education	53	8.3	8.3
primary Education	76	11.9	20.4
secondary Education	146	23	43.4
tertiary Education	360	56.6	100
Total		100	
Mothers highest level education	635		

No formal Education	60	9.4	9.6
primary Education	60	9.4	19
Secondary Education	170	26.7	45.8
Tertiary Education	345	54.2	100
Total	635	100	
Father's occupation			
Unemployed/Applicant	17	2.7	100
public/Civil Servant	252	39.6	58.2
Trading/Business	239	37.6	97.3
Farming	68	10.7	17.8
Artisan	31	4.7	5.3
Others	28	4.8	
Total	635	100	
Mothers occupation			
Unemployed/Application	18	2.8	100
public/civil servant	216	34	52
Trading/Business	281	44.2	97
Farming	75	11.8	16.8
Artisan	25	4.6	4.7
Other	16	2.6	
Total	635	100	
Parent area of residence			
Urban	301	47.3	100
semi-Urban	208	32.7	52.5
Rural	125	19.7	19.5
Others	1	0.2	52.7
Total	635	100	
Amount for upkeep from parents			
Below #10000	214	33.6	38.7
#10,000 -#19,000	206	32.4	71.1
#20,000-#29,000	130	20.4	91.5
#30,000 -#39,000	54	8.5	100
Above #40,000	31	4.9	5
Total	635	100	
Student area of residence			
University Hostel	181	28.5	100
Off campus(Lodge	308	48.4	71.4
Living with Relative/friend	85	13.4	22.8
Living with parent	58	9.1	9.4
Other	3	0.6	
Total	635	100	

Table 7: Relationship between Age and Knowledge

Age and Knowledge					
			Knowledge Grade		Total
			Poor Knowledge	High Knowledge	
Age	18 - 23yrs	Count	93	168	261
	24-29yrs	Count	67	126	193
	Above 29yrs	Count	25	29	54
	Less than 18yrs	Count	67	6	73
Total		Count	252	329	581
Missing data = 54					
chi square= 89.7, p< 0.001, CI =95%, 0 – 0					

From the table above, the statistical analysis indicates a significant relationship between age and knowledge level, with a chi-square value of 89.7 and a p-value of less than 0.001. This suggests that age has a statistically significant association with knowledge level among the respondents. The confidence interval (CI) for this relationship is 95%, and it ranges from 0 to 0.

Table 8: Relationship between Gender and Knowledge

Gender and Knowledge					
Gender		Count	Knowledge Grade		Total
			Poor Knowledge	High Knowledge	
	Female	Count	143	252	395
	Male	Count	109	77	186
Total		Count	252	329	581
Missing data = 54					
chi square= 25.8, p<0.001, CI=95%,					

From the table above, the statistical analysis reveals a significant relationship between gender and knowledge level, with a chi-square value of 25.8 and a p-value of less than 0.001. This indicates that gender has a statistically significant association with knowledge level among the respondents. The confidence interval (CI) for this relationship is 95%.

Table 9: Relationship between Knowledge and Level of students

Knowledge and Level					
Whatisyouryearlevelofstudy		Count	Knowledge Grade		Total
			Poor Knowledge	High Knowledge	
	Year I/100L	Count	74	19	93
	Year II/200L	Count	84	25	109
	Year III/300L	Count	47	123	170
	Year IV/400L	Count	47	162	209
Total		Count	252	329	581
Missing data = 54					
chi square= 154.2, p<0.001, CI=95%,					

From the table above, the statistical analysis indicates a significant relationship between the level of students and their knowledge levels, with a chi-square value of 154.2 and a p-value of less than 0.001. This suggests that the level of students (year of study) has a statistically significant association with their knowledge levels. The confidence interval (CI) for this relationship is 95%.

Table 10: Relationship between Practice and Age

Practice and Age						
Whatisyouragerange		Count	Practice1			Total
			Poor practice	Moderate practice	High Practice	
	18 - 23yrs	Count	11	40	231	282
	24- 29yrs	Count	7	19	187	213
	Above 29yrs	Count	1	5	54	60
	Less than 18yrs	Count	4	25	50	79
Total		Count	23	89	522	634
Missing data = 1						
chi square= 25.3, p<0.001, CI=95%,						

From the table above, the statistical analysis indicates a significant relationship between practice level and age, with a chi-square value of 25.3 and a p-value of less than 0.001. This suggests that age has a statistically significant association with practice level among the respondents. The confidence interval (CI) for this relationship is 95%.

Table 11: Relationship between Practice and Gender

Practice and Gender						
			Practice1			Total
Gender			Poor practice	Moderate practice	High Practice	
	Female	Count	12	51	362	425
	Male	Count	11	38	160	209
Total		Count	23	89	522	634
Missing data = 1						
chi square= 7.4, p<0.05, CI=95%, 0.018 - 0.024						

The statistical analysis indicates a significant relationship between practice level and gender, with a chi-square value of 7.4 and a p-value of less than 0.05. This suggests that gender has a statistically significant association with practice level among the respondents. The confidence interval (CI) for this relationship is 95%, ranging from 0.018 to 0.024.

Table 12: Relationship between Practice and Level of students

Practice and level						
			Practice			Total
			Poor practice	Moderate practice	High Practice	
level	Year I/100L	Count	3	32	62	97
	Year II/200L	Count	11	29	77	117
	Year III/300L	Count	7	14	164	185
	Year IV/400L	Count	2	14	219	235
Total		Count	23	89	522	634
Missing data = 1						
chi square= 78.8, p<0.001, CI=95%, 0						

From the above table, the statistical analysis indicates a significant relationship between practice level and the level of students, with a chi-square value of 78.8 and a p-value of less than 0.001. This suggests that the level of students (year of study) has a statistically significant association with their practice levels. The confidence interval (CI) for this relationship is 95%, indicating a strong correlation between the two variables.

IV. Discussion

The outcome of this study on the oral health knowledge among federal university students in Enugu state showed that 39.7% students had poor oral health knowledge. However, it was expected that university students based on their level of education should know more about oral health but surprisingly the outcome showed otherwise. This may be as a result of environmental factor or medium through which knowledge was passed to them. In line with this observation, a study done by Bamigboye & Akande (2007), on Oral Hygiene Status of Students in Selected Secondary Schools in Osogbo which showed that there was a high level of oral hygiene knowledge due probably to the dental education that is usually given to these students by the visiting Dental Nurses that make regular visits to these schools. Although another study done by Al-Darwish Abuhassna & Al-Thomairy (2015) on Oral Hygiene Knowledge and Sources of Oral Hygiene Information among School Children in Qatar shows that oral hygiene knowledge in Qatar is below the satisfactory level.

However, on oral health practice among students of federal university students in Enugu state, the outcome showed that there was lesser percentage of students 1.9 % with poor oral health practice compared to students' total population. These outcomes showed that there was higher percentage of students that practiced oral health. Fortunately, this outcome is not surprising, as it was expected that university students based on their level of education should have good oral health practice. Besides, this outcome is similar to a study by Akinyamoju, *et al.*, (2018) on Oral health knowledge and practice among traders in Ibadan which shows that traders utilize oral health practices that do not engender good oral health. But another study done by Okoronkwo, *et al.* (2020) on Assessment of Oral Hygiene Knowledge and Practice among Secondary School Students in Owerri Municipal Area, Imo State, showed that Secondary School Students in Owerri Municipal Area had poor oral hygiene practices. Furthermore, another study by Okeigbemen, *et al.* (2021) on Oral Health-Related Knowledge, Attitude and Practices Among Trainee Community Health Officers in A Nigerian Tertiary

Health Institution shows to evaluate the oral health-related knowledge and practices of trainee Community Health Officers showed that community health officer trainees have a good practice against oral diseases.

Furthermore, the inferential analysis of this study showed that age of the student has a statistically significant association with knowledge level among the respondents. The confidence interval (CI) for this relationship is 95%, and it ranges from 0 to 0. As well as the relationship with Gender and knowledge (chi square= 25.8, $p < 0.001$, CI =95%), knowledge and level of students (chi square= 154.2, $p < 0.001$, CI =95%), practice and age (chi square= 25.3, $p < 0.001$, CI =95%), practice and Gender (chi square= 7.4, $p < 0.05$, CI =95%, 0.018 - 0.024) and practice and level of knowledge (chi square= 78.8, $p < 0.001$, CI =95%, 0).

V. Conclusion

The study on oral health knowledge among federal university students reveals 39.7% of the students had poor knowledge, contradicting expectations from their education levels. Environmental factors or knowledge transmission mediums may influence this. However, their oral health practices, showed 1.9% having poor practice which align better with educational expectations.

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