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Original Research Article

Unveiling the Factors Influencing Participation in Periodic Medical Examinations among Adults in North Central Nigeria: A Cross-Sectional Study

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Abstract: Periodic Medical Examinations (PMEs) is a preventive healthcare strategy for early detection and management of medical conditions like hypertension and diabetes in order to mitigate potentially fatal outcomes. This is particularly relevant for individuals over 40, where annual PMEs are recommended for optimal health and productivity. A study was conducted in Apir community, Northcentral Nigeria, to investigate factors influencing PME uptake among adult residents. This community-based cross-sectional study, involving 420 participants, utilized questionnaires to assess knowledge, uptake, and associated factors. The study revealed a high level of PME knowledge (70%) and awareness (82.4%), primarily sourced from hospitals. However, awareness of existing PME policies was limited (57.6%), and actual uptake was low, at only 29.5%. Statistically significant associations were found between PME uptake and education level, occupation, and income ($p<0.05$). Knowledge regarding PME frequency and timing, coupled with awareness of hospital policies, also correlated with uptake ($p<0.05$). Furthermore, lifestyle factors, including cigarette smoking and sufficient sleep, exhibited significant associations with PME utilization ($p<0.05$). The conclusion highlights a disparity between PME knowledge and uptake, depicting trends observed in other studies. This underscores the need for targeted interventions. Government and stakeholders should leverage on these findings to develop policies promoting health education, lifestyle modifications, and financial empowerment, ultimately aiming to improve PME uptake and public health outcomes.

Keywords: Periodic Medical Examination, Determinants, Participation, Adult residents, Apir community.

INTRODUCTION

Routine medical checkups (RMCs), also known as periodic medical examinations (PMEs), are recognized globally as a vital preventive medical practice, facilitating the assessment of individual health status and potentially decreasing morbidity and mortality from various diseases [1]. These checkups aid in identifying current health conditions and predicting future risks, especially for non-communicable diseases like heart disease, diabetes, and stroke, as well as certain communicable diseases [1, 2]. Despite the demonstrated benefits and the implementation of regular medical examinations in some developed nations, such as Germany, where statutory health insurance mandates them, the practice of PME remains poor in many developing countries, particularly in Africa. Previous research indicates that factors such as

age, socioeconomic status, marital status, education, gender, and occupation influence the uptake of PME [3, 4]. While awareness of the benefits of PME may be high in specific populations within developing countries, such as traders in Nigeria and Ghana, actual practice remains low. Existing studies have primarily focused on knowledge and practice levels among specific groups like traders, health workers, students, and community residents. Therefore, this research aims to build upon the existing literature by going beyond simply documenting the practice, to further highlight the need for more research on the factors that affect the implementation of Periodic Medical Examinations [5].

PMEs assesses an individual's current health, or predict their chance of developing illness in the future. Routine check-ups are important for the early identification of risk factors for many non-communicable diseases such as heart disease, diabetes, stroke and some communicable diseases such as Hepatitis B and C as evidenced in a study carried out in Croatia on routine check-ups among adult Croatians [6, 7].

Most individuals, especially in Africa, do not attach much significance to medical checkups. Because of this most medical examination are carried out during ill-health and pre-employment. Ironically, the practice of PME is poor in developing countries, despite increasing prevalence of chronic diseases [8, 9].

People around the globe give varying levels of attention to health issues and pay differing levels of priority regarding medical check-up. It is essential to have periodic medical examination as various chronic diseases have devastating socio-economic burden on individual affected [6]. Detailed medical examination is necessary and its frequency increases if there is a health problem that requires continuing care. Factors that are non-modifiable like age and family history of certain diseases determine the frequency and type of check-up or screening that one requires. Similarly, the presence of modifiable risk factors like smoking, consumption of alcohol, unhealthy lifestyle including sedentary lifestyle and diet, are all important in determining the frequency of check-up. Generally, in developing countries including Nigeria, where the practice of periodic medical check-up is poor, few studies have been conducted on periodic medical checkups [7, 9]. A study conducted on PME among traders in Nigeria reported that, a high level of awareness of RME among the respondents; however, a few of them practice it. Majority of the traders who practiced PME were in the age bracket of 40–49 years. A similar study carried out among traders at the Kaneshie market in Ghana reported adequate knowledge about PME with poor practice. Another study in a community in South West Nigeria, showed similar pattern of good knowledge and poor practice [10].

Most of the studies conducted were on knowledge and level of practice of PME among traders, health workers, students and residents of communities. A Few studies among these groups were on factors associated with uptake of Periodic Medical Examination [10, 12].

General Objective

The aim of the study is to assess the factors affecting uptake of Periodic Medical Examination among adult residents of Apir community.

Specific Objectives

i. Assess the level of knowledge of Periodic Medical Examination among adult residents of Apir community.
ii. To determine the Uptake of Periodic Medical Examination among adult residents of Apir community.
iii. To determine the factors affecting Uptake of Periodic Medical Examination among adult residents of Apir community.

MATERIAL AND METHODS

Study Design: The study was a descriptive cross-sectional study.

Study Population: The study population consisted of consenting adult residents of Apir community.

Sampling Technique: A simple random sampling technique was used to select streets and households, and all eligible adults were recruited into the study.

Study Instrument:

A structured questionnaire was used, comprising four parts:

1. Sociodemographic information
2. Knowledge of Periodic Medical Examination (PME)
3. Uptake of PME
4. Medical and lifestyle information

Data Collection: Data was collected using interviewer-administered structured questionnaires, and four research assistants were trained to administer the questionnaires.

Data Management: Data was analyzed using SPSS version 21.0 software, and descriptive statistics, frequencies, and tables were used to summarize variables of interest.

Statistical Analyses: Chi-square test was used to test associations between variables, and logistic regression was used to assess factors determining uptake of PME.

The inclusion criteria were:

Consenting adult residents of Apir community
18 years and above
No mental illness
Not critically ill

The exclusion criteria were adult residents of Apir community who did not meet the inclusion criteria.

Sample Size Determination

The minimum sample size required was calculated using the Leslie and Kish formula for descriptive studies [16].

$n = Z^2pq/d^2$

Where,

n = Minimum sample size
Z = A constant at 95% confidence level = 1.96
P = Proportion in the target population estimated to have a particular characteristic of interest (in a study in calabar, Nigeria) [17], 46% uptake of periodic medical examination was found.
Q = 1- p (1 – 0.46) = 0.54
d = Desired precision of 5% = 0.05

$$n = \frac{1.96 \times 1.96 \times 0.46 \times 0.54}{(0.05)^2} = 382$$

When 10% for attrition and non-response rate was added, the sample size became 420

Sample technique: The study was a descriptive cross-sectional one conducted on consenting adult residents of Apir community. A simple random sampling used to select streets and households where every eligible adults were recruited into the study. Each street of the community was written on a piece of paper and all squeezed in a basket. On each day of the study, a street was picked from the basket after thorough balloting. All the households and the eligible adults in the street were studied. This was repeated each day of the study until the required sample size was met.

Study Instrument: The study instrument was a structured questionnaire comprising of four parts adapted from previous studies [7, 8, 10, 11, 18-21].

Part A contained the sociodemographic information of the participants. This includes age, sex, tribe, religion, occupation, marital status, category of participant, income etc.

Part B contained information on knowledge of PME among the participants. It contained questions like; have you ever heard of PME? What are your sources of information? Do you think PME is necessary? What PME do you know? When do you think PME be done? How often do you think PME be done? Are you aware of an existing PME in the hospital?

Part C is on Uptake of PME. This part contains questions like have you ever had PME? If you ever had, how often? If you never had, what is/are the reason(s)? When was the last time you had a PME? When do you intend to have the next one? In the last 6 months to 1-year, which PME have you done from the list below?

Part D is on medical and lifestyle information of the participants. Do you have a family history of chronic illness? Do you have a personal history of chronic illness? Do you smoke cigarette? Do you drink alcohol? Do you exercise regularly? How long do you sleep at night? Do you have a diet plan? Most of the responses were inform of Yes or No. To determine the level of knowledge of PME among the participants, all the Yes answers and correct options under the section on Knowledge carried one mark each and were summed together. All No and incorrect answers were equally added together and the percentage of the added Yes and correct answers was the level of Knowledge of the respondents. Similarly, the responses for questions on Uptake of PME were mostly in form of Yes or No. A yes response and all options with correct answer carried 1 mark. A No response and all options with wrong answers equally carried one mark. The total number of respondents with Yes or options with correct answers were calculated and that

of No or incorrect answers too. The percentage of the Yes and correct answers determine the uptake of PME among the respondents.

Data Collection Methods: Data was collected after obtaining consent from the participants. Interviewer-administered structured questionnaires were used to take care of those that were not literate. The questionnaires were pretested at the market square on 42 patients for clarity. Four research assistants were recruited and trained for the study; staff of a Primary Health Centre in Apir community.

Data Management: The dependent variables in this study were Knowledge and Uptake of Periodic Medical Examination. Overall, the outcome /dependent variable is the Uptake of PME, which was measured by individual characteristics such as age, sex, ethnicity, religion, marital status, occupation, level of education, income, place of residence and knowledge. The knowledge of the participants depends on some of the individual characteristics above such as level of education, income, place of residence, age and sex. Other independent variables determining Uptake of PME measured were personal and family history of chronic illness, lifestyle behavior of the participants like regular exercise, alcohol intake, cigarette smoking, sleeping habit and diet plan.

Statistical Analyses: Data obtained from the participants were entered and analyzed using Statistical Package for Social Sciences (SPSS) version 21.0 software. Descriptive statistics, frequencies, and tables were used to summarize variables of interest while association between different variables were tested using chi-square test with p-value set at 0.05. Multivariate analysis through Logistic regression was used to assess factors determining uptake of PME among the participants.

Ethical Considerations: Ethical approval was obtained from the Health and Research Ethics Committee of the State Ministry of Health. Informed consent was obtained from the participants before their enrollment in the study.

Limitations

This research was community based. The period was raining season and most community residents were engaged in farming activities, which made the collection of data difficult within the stipulated period. This was averted by adequate awareness creation and involving the appropriate stakeholders. There might have been recall bias by some of the respondents. Like other cross-sectional designs where exposures and outcomes are measured at the same time, there is inherent weakness or difficulty in ascertaining temporal relationship. This was a cross sectional study, hence the result might not be accurately generalized to the entire population.

RESULTS

In this study, knowledge, medical history and lifestyle modification effect on Periodic Medical Examination were assessed.

Table 1: Socio-demographic characteristics of adult residents of Apir community in Makurdi

Variable	Adult residents Apir (n=420)	
	No.	Frequency
Age category		
<20	30	(7.1)
20-39	176	(41.9)
40-59	170	(40.5)
60 and above	44	(10.5)
Gender		
Male	168	(40.0)
Female	252	(60.0)
Marital status		
Single	116	(27.6)
Married	222	(52.9)
Divorced	40	(9.5)
Widowed	28	(6.7)
Separated	10	(2.4)
Cohabiting	4	(1.0)
Religion		
Christianity	322	(76.7)
Islam	70	(16.7)
Traditional	28	(6.7)
Others	0	(0.0)

Ethnicity		
Tiv	210	(50.0)
Idoma	78	(18.6)
Igede	44	(10.5)
Hausa	40	(9.5)
Ibo	30	(7.1)
Yoruba	12	(2.9)
Others	6	(1.4)
Level of education		
Informal	74	(17.6)
Primary	126	(30.0)
Secondary	164	(39.0)
Tertiary	56	(13.4)
Occupation		
Civil servant	94	(22.4)
Trading	198	(47.1)
Farming	128	(30.5)
Student	0	(0.0)
Others	0	(0.0)
Average monthly income in Naira		
<50,000	204	(48.6)
50,000-100,000	168	(40.0)
>100,000	48	(11.4)

Table 1 shows that 420 participants were studied giving a 100% response rate. Majority of the respondents were in the age group 20-39 years (41.9%). The age group 40-59 years (40.5%) followed this closely. Less than 20 years were the least participants in the study. Slightly less than two-third (60%) of the studied participants were females, only 40% were males. About half of the participants were married while 27.6% of them were single. The remaining were either divorced (9.5%), widowed (6.7%), separated (2.4%) or cohabiting (1%). More than three- quarter of the participants (76.7%) were Christians, only 16.7% were Islam. Half of the population studied (50%) were Tiv while Idoma and Igede accounted for 18.6% and 10.5% of the participants. The rest were Hausa (9.5%), Ibo (7.1%), Yoruba (2.9%) and others (1.4%). More than one-third (39%) of the participants had secondary education, 30% had primary, 17.6% informal and only 13.4% tertiary. Slightly less than half (47.1%) of the participants were traders, 30% farmers and only 22.4% were civil servants. About half (48.6%) earn less than 50,000 Naira in a month, 40% earn between 50,000 and 100,000 Naira, and only 11.4% earn above 100,000 Naira monthly.

Table 2: Knowledge of Periodic Medical Examination among the respondents

Variable	**Adult residents Apir**	
	No.	**Frequency**
Have you heard of PME?		
Yes	346	(82.4)
No	74	(17.6)
If you ever heard, what is/are your source(s) of information? (Multiple response)		
Friends	180	(22.6)
Family	94	(11.8)
Newspaper	18	(2.3)
Television	60	(7.5)
Radio	106	(13.3)
Hospital	220	(27.6)
Social media	60	(7.5)
School	60	(7.5)
PME is the practice of assessing the health status of an individual to detect, treat and prevent any illness or disease.		
Yes	378	(90.0)
No	36	(8.6)
I don't know	6	(1.4)
Do you think PME is necessary?		
Yes	358	(85.2)

No	62	(14.8)
Which PME do you know? (Multiple response)		
General examination	158	(17.1)
Blood pressure check	230	(24.8)
Blood sugar check	256	(27.6)
Eye examination	40	(4.3)
Dental check	28	(3.0)
Screening for infections like HIV, Hepatitis B and C	136	(14.7)
Cancer screening	78	(8.4)
When do you think PME be done?		
During illness	76	(22.0)
When one is healthy	164	(47.4)
I don't know	106	(30.6)
How often do you think PME be done?		
Every 6 monthly	180	(52.0)
Yearly	46	(13.3)
Every 2 years	30	(8.7)
I don't know	90	(26.0)
Are you aware of an existing PME policy in the hospital?		
Yes	178	(42.4)
No	242	(57.6)

Table 2 shows that the level of knowledge of PME was high among the study population (70%). There was high awareness of PME among the participants as (82.4%) ever heard of PME, while 17.6% never heard of PME. Most of those who ever heard, heard from hospital (27.6%), friends (22.6%), radio (13.3%) and family (11.8%). Overwhelming number of the participants (90%) knew what PME is and majority (85.2%) thought it was necessary to have it. The participants knew more of blood sugar check (27.6%), blood pressure check (24.8%), general examination (17.1%) and screening for infections like HIV, hepatitis B and C as PME. More than half (52%) of those who knew about PME thought it should be carried out twice in a year, 13.3% yearly and 8.7% once in 2 years. 26% had no idea on how often PME be done. More than half (57.6%) of the participant were not aware of existing PME policy in the hospital.

Table 3: Uptake of Periodic Medical Examination among respondents

Variable	**Adult residents Apir (n=420)**
Have you ever had PME?	
Yes	136 (32.4)
No	284 (67.6)
If yes, how often have you had Periodic Medical Examination	
Twice in a year	62 (45.6)
Once in a year	48 (35.3)
Once in 2 years	10 (7.4)
Once in >2 years	16 (11.7)
If you never had it, what is/are the reason(s)? (multiple response)	
No time	62 (12.4)
Not aware	112 (22.5)
I am not sick	98 (19.7)
Fear of disclosure of results	54 (10.8)
Fear of the procedure	60 (12.0)
The cost of doing it	112 (22.5)
If you ever had it, when was the last time you had a PME?	
< 1 year	76 (55.9)
1-2 Years	20 (14.7)
>2 years	4 (2.0)
Not sure	36 (26.5)
When are you having the next PME?	
< 1 year	74 (17.6)
1-2 years	38 (9.0)
>2 years	0 (0.0)

Not sure	308 (73.3)
In the last 6 months to one year, tick the type(s) of PME you have carried out. (multiple response)	
Blood pressure check	96 (32.2)
Blood sugar check	70 (23.5)
Eye examination	22 (7.4)
Dental examination	6 (2.0)
Screening for infectious diseases like HIV, Hepatitis B or C	84 (28.2)
Screening for cancers	20 (6.7)

Table 3 shows Uptake of PME among studied participants. The uptake of PME among adult residents of Apir community was only 29.5%. Only about one-third (32.4%) of the participants ever had any form of PME, 67.6% of them never had one form of PME or the other. 45.6% of those who ever had, had it as often as twice in a year, 35.3% once in a year, 11.7% once in less than 2 years and 7.4% once in 2 years. Majority of those who never had it gave not being aware (22.5%), cost of doing it (22.5%), not sick (19.7%), no time (12.4%), fear of the procedure (12%) and fear of disclosure (10.8%) as the reasons for not having it. Of those who had PME, more than half (55.9%) had it less than one year, 14.7% between one to two years, 2% more than two years and 26.5% not sure. 73.3% of those having PME were not sure when next to have it, 17.6% were to have it in less than one year, and 9% between one and two years. Those who carried out PME in the last six months to one year, had blood pressure check (32.2%), screening for infectious diseases like HIV, Hepatitis B, or C (28.2%), blood sugar check (23.5%), eye examination (7.4%), screening for cancers (6.7%), and dental examination (2%) respectively.

Table 4: Medical and Lifestyle factors of respondents

Variable	Adult residents Apir	
	No.	freq.
Do you have a family history of any chronic illness like Hypertension, Diabetes, heart failure or cancers?		
Yes	174	(41.4)
No	232	(55.3)
I don't know	14	(3.3)
Do you have a personal history of any chronic illness?		
Yes	94	(22.4)
No	308	(73.3)
I don't know	18	(4.3)
Do you smoke cigarette?		
Yes	68	(16.2)
No	352	(83.8)
Do you drink alcohol?		
Yes	160	(38.1)
No	260	(61.9)
Do you exercise regularly?		
Yes	116	(27.6)
No	304	(72.4)
Do you have a diet plan?		
Yes	60	(14.3)
No	360	(85.7)
Do you sleep up to six hours at night?		
Yes	304	(72.4)
No	116	(27.6)

Table 4 shows the medical history and lifestyle of the participants. More than half (55.3%) of the participants had no family history of any chronic illness like hypertension, diabetes, heart failure or cancers. 41.4% of them had a family history of one or more chronic illnesses, while 3.3% did not know. Majority (73.3%) of the participants did not have a personal history of any chronic illness, 22.4% had, and 4.3% were not sure. More than three-quarters (83.8%) of the respondents did not smoke cigarette, 16.2% did. 61.9% of the participants did not drink alcohol, 38.1% did. A significant number of the participants (72.4%) did not exercise regularly, 27.6% did. Majority (85.7%) of the participant had no diet plan, 14.3% had. Most (72.4%) of the participants slept up to six hours at night, 27.6% did not.

Table 5: Bivariate analysis of sociodemographic characteristics and Uptake of PME in adult residents of Apir

Variables	Uptake of PME in Adult resident Apir		p-value
	Yes n(%) 124 (29.5)	No n(%) 296 (70.5)	
Age category			0.06
<20	8(26.7)	22(73.3)	
20-39	52(29.5)	124(70.5)	
40-59	64(37.6)	106(62.4)	
60 and above	0(0.0)	44(100.0)	
Gender			0.241
Male	42(25.0)	126(75.0)	
Female	82(32.5)	170(67.5)	
Marital status			0.090
Single	24(20.7)	92(79.3)	
Married	82(36.9)	140(63.1)	
Divorced	14(35.0)	26(65.0)	
Widowed	4(14.3)	24(85.7)	
Separated	0(0.0)	10(100.0)	
Co-habiting	0(0.0)	4(100.0)	
Religion			0.081
Christianity	108(33.5)	214(66.5)	
Islam	16(22.9)	54(77.1)	
Traditional	0(0.0)	28(100.0)	
Others	0(0.0)	0(0.0)	
Ethnicity			0.824
Tiv	70(33.3)	140(66.7)	
Idoma	24(30.8)	54(69.2)	
Igede	12(27.3)	32(72.7)	
Hausa	8(20.0)	32(80.0)	
Ibo	6(20.0)	24(80.0)	
Yoruba	4(33.3)	8(66.7)	
Others	0(0.0)	6(100.0)	
Level of education			0.011*
Informal	10(13.5)	64(86.5)	
Primary	32(25.4)	94(74.6)	
Secondary	54(32.9)	110(67.1)	
Tertiary	28(50.0)	28(50.0)	
Occupation			<0.01*
Civil servant	48(51.1)	46(48.9)	
Trading	36(18.2)	162(81.8)	
Farming	40(31.3)	88(68.8)	
Student	0(0.0)	0(0.0)	
Others	0(0.0)	0(0.0)	
Average monthly income in Naira			<0.01*
<50,000	32(15.7)	172(84.3)	
50,000-100,000	66(39.3)	102(60.7)	
>100,000	26(54.2)	22(45.8)	
None	0(0.0)	0(0.0)	

*=*Statistically significant*

Table 5 shows the bivariate analysis of sociodemographic characteristics and uptake of PME among residents of Apir Community. There were statistically significant association between Uptake of PME and level of education, occupation and average monthly income among the participants (P-value <0.05).

Table 6: Bivariate analysis of knowledge of Periodic Medical Examination and Uptake of Periodic Medical Examination among respondents in Apir community

Variables	Uptake of PME in Adult resident Apir		P-value
	Yes n(%) 124(29.5)	No n(%) 296(70.5)	
Have you heard of PME?			0.21
Yes	116(33.5)	230(66.5)	
No	8(10.8)	66(89.2)	
PME is the practice of assessing the health status of an individual to detect, treat and prevent any illness or disease.			0.23
Yes	122(32.3)	256(67.7)	
No	2(5.6)	34(94.4)	
I don't know	0(0.0)	6(100.0)	
Do you think PME is necessary?			0.07
Yes	122(34.1)	236(65.9)	
No	2(3.2)	60(96.8)	
When do you think PME be done?			<0.01*
During illness	4(5.3)	72(94.7)	
When one is healthy	68(41.5)	96(58.5)	
I don't know	44(41.5)	62(58.5)	
How often do you think PME be done?			<0.01*
Every 6 monthly	76(42.2)	104(57.8)	
Yearly	16(34.8)	30(65.2)	
Every 2 years	12(40.0)	18(60.0)	
I don't know	12(13.3)	78(86.7)	
Are you aware of an existing PME policy in the hospital?			<0.01*
Yes	80(44.9)	98(55.1)	
No	44(18.2)	198(81.8)	

Table 6 shows bivariate analysis of knowledge of PME and uptake of PME among residents of Apir community. Uptake of PME among the respondents was 29.5%. knowing when PME be done, how often it should be done, and being aware of existing PME policy in the hospital were statistically significantly associated with uptake of PME among the respondents (P-value <0.05).

Table 7: Bivariate analysis of medical and lifestyle factors and Uptake of Periodic Medical Examination among the respondents in Apir community

Variables	Uptake of PME in Adult resident Apir		p-value
	Yes n(%) 124(29.5)	No n(%) 296(70.5)	
Do you have a family history of any chronic illness?			0.217
Yes	54(31.0)	120(69.0)	
No	70(30.2)	162(69.8)	
I don't know	0(0.0)	14(100.0)	
Do you have a personal history any chronic illness?			0.064
Yes	14(14.9)	80(85.1)	
No	108(35.1)	200(64.9)	
I don't know	2(11.1)	16(88.9)	
Do you smoke cigarette?			0.037*
Yes	12(17.6)	56(82.4)	
No	112(31.8)	240(68.2)	
Do you drink alcohol?			0.458
Yes	52(32.5)	108(67.4)	
No	72(27.7)	188(72.3)	
Do you exercise regularly?			0.008*
Yes	50(43.1)	66(56.9)	
No	74(24.3)	230(75.7)	
Do you have a diet plan?			0.422
Yes	14(23.3)	46(76.7)	

No	110(30.6)	250(69.4)	
Do you sleep up to six hours at night?			<0.01*
Yes	110(36.2)	194(63.8)	
No	14(12.1)	102(87.9)	

Table 7 shows the bivariate analysis of medical and lifestyle factors and uptake of PME among the respondents. Among the variables, only smoking cigarette, exercising regularly and sleeping up to six hours at night were statistically significantly associated with uptake of PME in the study group (p-value <0.05).

Table 8: Multivariate logistic regression of independent variables predicting Periodic Medical Examination Uptake among study population

Variables	Adjusted odds ratio (aOR)	95% confidential interval (CI)		p-value
		Lower	Upper	
Level of education				
Informal	0.21	0.059	0.746	0.016*
Primary	0.56	0.209	1.520	0.258
Secondary	0.35	0.151	0.834	0.017*
Tertiary	Reference			
Occupation				
Civil servant	0.99	0.307	3.239	0.996
Trading	0.33	0.101	1.08	0.068
Farming	1.38	0.416	4.59	0.597
Student	1.32	0.263	6.65	0.597
Others	Reference			
Average monthly income in Naira				
<50,000	0.19	0.063	0.567	0.003*
50,000-100,000	0.93	0.349	2.518	0.899
>100,000	Reference			
When do you think PME be done?				
During illness	0.32	0.127	0.816	0.017*
When one is healthy	0.50	0.238	1.063	0.072
I don't know	Reference			
How often do you think PME be done?				
Every 6 monthly	2.93	1.26	6.822	0.012*
Yearly	4.45	1.63	12.157	0.004*
Every 2 years	3.18	0.928	10.890	0.065
I don't know	Reference			
Are you aware of an existing PME policy in the hospital?				
Yes	2.40	1.331	4.349	0.004*
No	Reference			
Do you smoke cigarette?				
Yes	0.25	0.091	0.690	0.007*
No	Reference			
Do you exercise regularly?				
Yes	0.78	0.406	1.522	0.475
No	Reference			
Do you sleep up to six hours at night?				
Yes	3.48	1.678	7.216	0.001*
No	Reference			

Note: *=Statistically significant, Omnibus test: Chi-square= 130.238, df=18, p=0.000; Hosmer-Lemeshow goodness of fit test: χ^2 =27.94, df = 8, p =0.000, Nagelkerke R^2=0.449

A logistic regression was performed to ascertain factor that determine uptake of PME among respondents. Variables that were eligible to be entered into the logistic regression model were those that were significant at bivariate analysis. The logistic regression model was statistically significant, ($\chi^2_{(18)}$= 130.23, p <0.0001). The model explained 44.9% (Nagelkerke R^2) of the variance in uptake of PME and correctly classified 79.3% of cases.

Level of education was a significant determinant of PME uptake. The odds of respondents with informal education and secondary were 0.21 and 0.35 times less likely to uptake PME, p<0.05 respectively. Average income was also a significant determinant of PME uptake. The odds of respondent with average income <50,000 was 0.19 times less likely to uptake PME, p<0.05. On when do you think PME be done and how often it should be done, were significant determinants of PME uptake. The odd of respondents who said PME should be done during illness was 0.32 times less likely to uptake PME, p<0.05. Respondents who think PME should be done every 6 months and yearly were 2.93 and 4.45 times more likely to uptake PME, p<0.05 respectively. Respondents who were aware of existing policy of PME was a determinant of PME uptake. The odd of respondents who were aware of policy of PME was 2.40 times more likely to uptake PME. Smoking cigarette was a determinant of PME uptake. The odds of respondents who smoke cigarette was 0.25 times less likely to uptake PME, p<0.05. Sleeping for up to six hours at night was a significant determinant of PME uptake. The odds of respondents who sleep up to six hours at night were 3.48 times more likely to uptake PME, p<0.05.

DISCUSSION

Periodic medical check, a form of preventive medicine is an important aspect of health care. This study aimed at finding out the factors associated with the uptake of Periodic Medical Examination. This has been the recommendation of most of the studies on knowledge and practice of Periodic Medical Examination across Nigeria [17, 20, 22, 23]. Majority of the respondents were aged 20-39 years. This is similar to the finding in a study in Sokoto, North-West Nigeria, among healthcare workers where majority of the respondents were aged 30-39 years [22**]**. Less than 20 years were the least in the study. This is probably so because this survey was done during school period and farming season, and most under twenty were likely to be in school or in the farm at Apir community. Age was not associated with PME uptake in this survey (p-value >0.05). Most of the participants were females. Studies from a community in South-West Nigeria and Saudi Arabia [23, 24] had similar findings. These were contrary to findings in other studies carried out in the North-West, South-South of Nigeria and Hong Kong China [22, 25, 26]. Gender was not associated with PME uptake in the study (p-value >0.05). More of the study population were married and significantly, higher number of them were Christians. This is similar to findings in South-West Nigeria [23]. Marital status was not associated with PME uptake in this study (p-value >0.05). Most of the participants were Tiv followed by Idoma. This follow same population demographic pattern in Benue state where the Tiv is the most populated tribe and followed by the Idoma. Ethnicity was not associated with uptake of PME in Apir community (p-value> 0.05). Majority of the study population attained secondary level of education followed by primary education, and least had tertiary education. Knowing this trend is important in designing educational program concerning PME among the study population. Level of education was associated with uptake of PME in the study (p-value <0.05). More of the participants were traders and farmers. Least were civil servants. This is probably so because Apir community is a rural area along Makurdi-Otukpo road and is likely to have more traders and farmers than civil servants. Occupation was significantly associated with PME among the participants (p-value <0.05). Those who earned less than 50,000 Naira were more in the study population. This might be due to the fact that majority of the participants were traders and farmers. The study found a significant association between level of education, occupation and average monthly income and uptake of Periodic Medical Examination (p-value <0.05). These findings agree with a study in Uganda [21]. Level of education and average monthly income were significant determinants of uptake of PME whereas, occupation was not.

A vast majority of the respondents (70%) were knowledgeable regarding PME. Most of those who ever heard, heard from hospitals and friends. Overwhelming number of the participants (90%) knew what PME is and majority (85.2%) thought it was necessary to have it. This is similar to findings from several similar studies across Nigeria and abroad [7, 17, 23, 26-29]. The import of this data is that, one expects a high level of uptake of PME among the study group considering their level of knowledge. The participants knew more of blood sugar check, blood pressure check, general examination and screening for infections like HIV, hepatitis B and C as PME. More than half of those who knew about PME thought it should be carried out twice in a year. More than half of the participant were not aware of existing PME policy in the hospital. This could be one of the reasons, why the knowledge of Periodic Medical Examination among study population was not as very high as in other studies mentioned earlier. This information brings to the fore the need to embark on more enlightenment about the existence of PME policies in our hospitals. Knowing what PME is, how often it should be done and being aware of existing PME policy in the hospital were significant determinants of uptake of PME in this study. Uptake of PME among the respondents was 29.5%. In Ilorin among health care workers, similar findings were noted, where only a fifth of them ever had a Periodic Medical Examination done since onset of employment despite good knowledge of Periodic Medical Examination [20]. Similar findings were seen in studies in a community in South-West Nigeria, Obafemi Awolowo University Ile-Ife in South-West Nigeria, and the kingdom of Saudi Arabia [11, 23, 24].

About one-third of the participants ever had any form of PME. More of those who ever had, had it twice or once in a year. Majority of those who never had it gave not being aware and cost of doing it as their major reasons for not having it. Most of those who had PME, had it less than one year. A significantly high number of those having PME (73.3%) were not sure when next to have it. Periodic Medical Examination should be done at least once in a year for those above forty years [30]. Those who carried out PME in the last six months to one year, had more of blood pressure check, screening for infectious diseases and blood sugar check than other forms of PME. Most studies attributed poor uptake of Periodic Medical

Examination to lack of awareness of Periodic Medical Examination and none existing policy on Periodic Medical Examination in the health facilities [17, 20, 22, 23]. It is therefore important to create high level of awareness of Periodic Medical Examination, formulate and implement policy on Periodic Medical Examination where it does not exist. This is to increase the uptake of Periodic Medical Examination among the general population.

Smoking cigarette, exercising regularly and sleeping up to six hours at night were significantly associated with uptake of PME in the study group (p-value <0.05). The finding is similar to a study conducted in Uganda [21] where exercising regularly was statistically associated with uptake of PME. However, in this study, regular exercise was not a determinant of uptake of PME. Smoking and sleeping up to six hours at night were determinants of PME uptake.

CONCLUSION

Our study of PME in the Apir community revealed a disparity between knowledge and uptake. While awareness of PME was high, suggesting successful existing campaigns, knowledge gaps persisted regarding specific hospital policies.This awareness did not translate into increased PME utilization. Low income, limited education, and certain lifestyle factors, such as smoking habits, negatively impacted uptake. Conversely, sufficient sleep correlated with increased participation. These findings provide policymakers and public health professionals with crucial insights to tailor targeted interventions. Specifically, strategies should focus on addressing financial and educational barriers, promoting lifestyle modifications, and clearly communicating existing PME policies within healthcare institutions. By focusing on these identified determinants, future campaigns can effectively bridge the gap between knowledge and practice, ultimately improving the community's health outcomes.

RECOMMENDATIONS

To improve public health outcomes, authorities must prioritize a multi-pronged approach focused on preventive medicine. This necessitates decisive policy action promoting lifestyle modifications like smoking cessation and adequate sleep. Concurrently, robust educational programs should be implemented to enhance public awareness of preventive medical examination (PME) policies. Investment in quality education is crucial to elevate overall knowledge and understanding of health issues. Furthermore, PME services should be made readily accessible and free of charge. Improved communication channels are vital for effective information dissemination. Finally, fostering financial autonomy for citizens is paramount. A comprehensive and regularly evaluated PME program, overseen by relevant bodies, is essential for maximizing the impact of these interventions.

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