



Periodic medical check-up among residents of three Nigerian South-western States

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ABSTRACT

Objectives: General medical examination is a common form of preventive medicine. Periodic medical check-up generally involves thorough history, physical examination and screening of asymptomatic persons by physicians on a regular basis as part of a routine health care process. Periodic medical check-up is considered effective in preventing illness and promoting health and reducing morbidity and mortality. This study is therefore designed to determine the knowledge, attitude and practice of periodic medical check-up among residents of Osun, Ondo & Ekiti States of Nigeria. It is also to determine the influence of educational status on its practice and compare the outcomes in the three states. **Materials & Methods:** The cross-sectional survey study utilizing both qualitative and quantitative method of data collection was conducted at various locations across the three states. The locations included those of public servants, private sector workers, artisans, traders, business men/women,

farmers, among others. **Results:** 1200 consenting residents participated in the study in each of the three states. 518 (43.2%) of the respondents in Ondo State are males while 682 (57.8%) are females. 465 (38.8%) of the respondents in Ekiti State are males while 735 (61.2%) are females. 494 (41.2%) of the respondents in Osun State are males while 706 (59.8%) are females. The mean age in Ondo, Ekiti & Osun were 43.8 ± 10.7 years, 44.6 ± 11.5 years and 41.7 ± 10.1 years respectively. 89.2%, 88.3% and 87.4% of the respondents are aware of periodic medical check-up in Ondo, Ekiti and Osun states respectively. **Conclusion:** There is high level of awareness of periodic medical check-up in all three states but the level of practice of routine medical check-up is low. The majority of the respondents probably don't practice it because their health insurance plan does not cover the medical check-up or due to individual/organizational financial constraints.

(Keywords: periodic medical check-up, Ekiti, Ondo, Osun, practice)

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INTRODUCTION

General medical examination is a common form of preventive medicine involving visits to a general practitioner by well feeling adults on a regular basis. This is generally yearly or less frequently. It is known under several other names, such as the periodic health evaluation, annual physical, comprehensive medical examination, general health check, or preventive health examination [1]. It typically involves a medical history, which is a brief or complete physical examination and sometimes laboratory tests. Some more advanced tests include ultrasound and mammography.

Periodic medical check-up generally involves thorough history, physical examination and screening of asymptomatic persons by physicians on a regular basis as part of a routine health care process [2]. Periodic medical check-up is considered effective in preventing illness and promoting health and reducing morbidity and mortality [3]. People around the world pay varying levels of attention to health issues and give differing levels of priority regarding medical check-up. During periodic or routine medical checkup some of the non-communicable diseases such as cancer (breast, prostate, cervical), hypertension, diabetes mellitus, among others, can be detected and any deviation from good health is noticed and managed in the form of preventive or curative services thereby reducing the mortality associated with them [4].

It is essential to have periodic medical examination as various chronic diseases have a hefty socio-economic burden on individuals affected [5]. Thorough 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 check-up or screening that one requires. Likewise the presence of modifiable risk factors like smoking, consumption of alcohol, unhealthy lifestyle including sedentary lifestyle and diet, are all paramount in determining the frequency of check-up [6]. Generally, in developing countries including Nigeria, where the practice of periodic medical check-up is poor, very few studies have been conducted on periodic medical checkups. A 2012 study on the perception and practice of periodic medical checkup by traders in South East Nigeria reported that 74.9% were aware of periodic medical checkup. 61.2% have their major source of information to be through friends with 18.2% being through mass media. The commonest known type of medical checkup was general examination (60.7%) and blood pressure measurement (55.4%). About 63.8% feel everybody needs medical checkup. Most (85.5%) feel medical checkups can improve their work efficiency. The study concluded that there is a high level of awareness of periodic medical checkup, but a very low level of practice among the group [7]. Another study on the periodic medical checkup, knowledge and practice in a community in South West Nigeria, showed that 62% have ever heard of periodic medical check-up, 79% of those who have heard had ever had it done and only 48.2% among those who had ever done it had frequent medical check-up. 50% had general medical examination, 32.2% had blood pressure check, 6.9% had visual check, 6.2% had dental check while 4.6% checked their blood sugar. 67.6% did medical check-up every six months, 9.6% did yearly while 8.1% did every two years [8]. The uptake of periodic medical check-up or preventive screening services has been shown to be poor in many developing countries and sub-optimal in countries like the USA and Britain despite its importance and potential benefits [9]. Everyone is expected to have a medical check-up at time interval

especially as he or she progresses with age as it gives a better assessment of the individual's health status. This study is therefore designed to determine the knowledge, attitude and practice of periodic medical check-up among residents of Osun, Ondo & Ekiti States of Nigeria. It is also to determine the influence of educational status on its practice and compare the outcomes in the three states.

MATERIALS AND METHODS

STUDY SITE/SUBJECT SELECTION/ STUDY DESIGN

The cross-sectional survey study utilizing both qualitative and quantitative method of data collection was conducted at various locations across the three states. The locations included those of public servants, private sector workers, artisans, traders, business men/women, farmers, among others. Participation was voluntary and informed consent was obtained by participants' signing the consent form attached to the questionnaire. Names of participants were not included in the information requested. The structured questionnaire was administered consecutively to 1200 consenting residents by interviewer in each of the three states. Simple random sampling was used to randomly select the required number of participants till the required number of willing participants is recruited, following the selection of two major towns in each of three senatorial districts in each state. The questionnaire contained sections including socio-demographic data, as well as, information about the knowledge and practice of periodic medical check-up. The data collected through the questionnaire were statistically analyzed using Statistical Package for the Social Sciences (SPSS) for windows version 20.0 software. Frequency counts were generated for all variables and statistical tests of significance was performed with chi-square test. Significance

was fixed at $P < 0.05$ and highly significant if $P < 0.01$.

SAMPLE SIZE

Sample size calculation was done using 95% confidence interval and 3 % (0.03) degree of precision. The formula for sample size when population is more than 1000 is: $n = Z^2PQ/d^2$ [10, 11]. An online sample size calculator was used to calculate the number of respondents to be included in the study based on an estimated population size of the residents of the each State using a 3% degree of precision or margin of error and 95% confidence level, which resulted a minimum required sample size (n) of 1067 respondents in each of the three states [12].

$$n = Z^2PQ/d^2 \quad \text{Where:}$$

n = minimum sample size,

Z = standard normal deviation at 95% confidence interval which is 1.96,

d = degree of precision

P = proportion of the target population or prevalence

Q = alternate proportion (1-P)

RESULTS

SOCIO-DEMOGRAPHIC DATA

1200 consenting residents participated in the study in each of the three states. 518 (43.2%) of the respondents in Ondo State are males while 682 (57.8%) are females. 465 (38.8%) of the respondents in Ekiti State are males while 735 (61.2%) are females. 494 (41.2%) of the respondents in Osun State are males while 706 (59.8%) are females. The mean age in Ondo, Ekiti & Osun were 43.8 ± 10.7 years, 44.6 ± 11.5 years and 41.7 ± 10.1 years respectively. 719 (59.9%), 612 (51.0%) & 691 (57.6%) of the respondents in Ondo, Ekiti & Osun respectively have their marital status as married. In Ondo State, 336 (28.0%) of the respondents are into trading/business, 281 (23.4%) are public servants, with 150 (12.5%) artisans while in Ekiti State, 231 (19.3%) are into trading/business, 310 (25.8%) are public

Table 1: Educational Status Of Respondents

EDUCATIONAL STATUS	ONDO STATE		EKITI STATE		OSUN STATE	
	Frequency (%)					
No formal education	113 (9.4%)	47 (3.9%)	57 (4.8%)			
Primary education	171 (14.3%)	84 (7.0%)	70 (5.8%)			
Secondary education	271 (22.6%)	231 (19.3%)	122 (10.2%)			
National Certificate in Education/Ordinary National Diploma (NCE/OND)	320 (26.7%)	402 (33.5%)	350 (29.2%)			
Higher National Diploma/Bachelor’s Degree (HND/BSc)	195 (16.3%)	311 (25.9%)	470 (39.2%)			
Master’s Degree	46 (3.8%)	51 (4.3%)	83 (6.9%)			
PhD Degree	32 (2.7%)	31 (2.6%)	36 (3.0%)			

PERIODIC MEDICAL CHECK-UP PARAMETERS

Table 2: Information About Medical Check-Up Parameters

PARAMETERS	ONDO STATE		EKITI STATE		OSUN STATE	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Aware of periodic medical check-up	1070	89.2 %	1060	88.3%	1049	87.4%
Ever deliberately had any routine periodic medical check-up	353	29.4%	624	52.0%	434	36.2%
Think everybody needs a medical check-up	1027	85.6%	1008	84.0%	1050	87.5%
Think males need medical check-up more than females	280	23.3%	213	17.8%	196	16.3%
Think females need medical check-up more than males	427	35.6%	487	40.6%	494	41.2%
Think periodic medical check-up will improve health	1038	86.5%	976	81.3%	1025	85.4%
Covered by health insurance plan	259	21.6%	306	25.5%	295	24.6%
Health insurance plan cover periodic medical check-up	209	17.4%	286	23.8%	263	21.9%

A vast majority of respondents know that there is need to have a periodic medical check-up, but vary in terms of frequency. In Ondo State, 368 (30.7%) of the respondents think it should be done monthly, 509 (42.4%) think three monthly is adequate, 143 (11.9%) preferred six monthly while 63 (5.3%) said it should be done annually. In Ekiti State, 362 (30.2%) of the respondents think periodic medical check-up should be done monthly, 458 (38.2%) think three monthly is adequate, 161

(13.4%) preferred six monthly while 90 (7.5%) said it should be done annually. In Osun State, 384 (32.0%) of the respondents think periodic medical check-up should be done monthly, 359 (29.9%) think it should be done three monthly, 199 (16.6%) preferred six monthly while 77 (6.4%) said it should be done annually. Those that have not deliberately undertaken any form of periodic medical check-up across the three states was due to reasons ranging from financial challenge, busy work schedule and steady health condition.

Table 3: Respondents Monthly Income

MONTHLY INCOME (IN NAIRA)	ONDO STATE	EKITI STATE	OSUN STATE
	Frequency (%)	Frequency (%)	Frequency (%)
< #5,000	78 (6.5%)	112 (9.3%)	117 (9.8%)
#5,001 - #18,000	164 (13.7%)	145 (12.1%)	150 (12.5%)
#18,001 - #30,000	242 (20.2%)	148 (12.3%)	151 (12.6%)
#30,001 - #50,000	280 (23.3%)	176 (14.7%)	120 (10.0%)
#50,001 - #80,000	138 (11.5%)	101 (8.4%)	91 (7.6%)
#80,001 - #100,000	64 (5.3%)	84 (7.0%)	97 (8.1%)
#100,001 - #150,000	68 (5.7%)	39 (3.3%)	85 (7.1%)
#150,001 - #200,000	25 (2.1%)	23 (1.9%)	51 (4.3%)
#200,001 - #300,000	13 (1.1%)	14 (1.2%)	21 (1.8%)
> #300,000	12 (1.0%)	24 (2.0%)	29 (2.4%)

In the last 12 months, those that have had reasons to visit their healthcare provider (HCP) reported wide-ranging average waiting time. In Ondo State, the most reported average waiting time by 287 (23.9%) respondent is one hour, followed by 154 (12.8%) who reported two hours and 149 (12.4%) who reported thirty minutes average waiting time. In Ekiti State, 214 (17.8%) reported thirty minutes average waiting time, followed by 174 (14.5%) who reported one hour and 115 (9.6%) respondents that reported two hours average waiting period. In Osun State, 251 (20.9%), 185 (15.4%) and 169 (14.1%) of the respondents reported average waiting time of one hour, two hours and thirty minutes respectively. Respondents that are covered by health insurance plan in all three states are

either registered with the government-owned National Health Insurance Scheme (NHIS) or Health Management Organization (HMO) that provides managed care for health insurance, with the managed care being a system of health care delivery that manages the cost of healthcare, the quality of the health care and access to such care. Those not covered by any health insurance plan are mainly due to non-provision by employer or individual/organizational financial constraints.

In all the three states, the healthcare providers (HCPs) used by the respondents are more in the public than private health institution. The ratio of public to private sector in Ondo, Ekiti and Osun are 717 (59.8%) to 299 (24.9%), 769 (64.1%) to 287 (23.9%) and 750

Table 4: Information About Medical Check-Up Parameters

Source of information on periodic medical check-up	ONDO STATE		EKITI STATE		OSUN STATE	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Radio	56	4.7%	134	11.2%	120	10.0%
Television	79	6.6%	145	12.1%	122	10.2%
Newspaper	112	9.3%	128	10.7%	119	9.9%
Health Worker	724	60.3%	511	42.6%	574	47.8%
Family	85	7.1%	56	4.7%	68	5.7%
Friend	47	3.9%	49	4.1%	36	3.0%
Major types of medical check-up known by respondents	ONDO STATE		EKITI STATE		OSUN STATE	
Eye check	22	1.8%	53	4.4%	53	4.4%
Dental check	26	2.2%	38	3.2%	31	2.6%
Urine test	52	4.3%	40	3.3%	36	3.0%
Blood Sugar	19	1.6%	23	1.9%	50	4.2%
Breast Examination	14	1.2%	29	2.4%	39	3.3%
Blood Pressure	39	3.3%	46	3.8%	61	5.1%
Pulse Rate	22	1.8%	29	2.4%	39	3.3%
Temperature Check	24	2.0%	59	4.9%	31	2.6%
HIV Retroviral Screening	76	6.3%	85	7.1%	98	8.2%
General Medical Check-up	500	41.7%	394	32.8%	660	55.0%
Medical check-up done by respondents	ONDO STATE		EKITI STATE		OSUN STATE	
Eye check	41	3.4%	42	3.5%	30	2.5%
Dental check	23	1.9%	43	3.6%	29	2.4%
Urine test	19	1.6%	26	2.2%	26	2.2%
Kidney Function Test	15	1.3%	24	2.0%	25	2.1%
Liver Function Test	14	1.2%	25	2.1%	20	1.7%
Lipid Profile	28	2.3%	20	1.7%	38	3.2%
Heart Function Test	16	1.3%	18	1.5%	25	2.1%
Blood Sugar	35	2.9%	48	4.0%	54	4.5%
Breast Examination	23	1.9%	40	3.3%	50	4.2%
Blood Pressure	119	9.9%	96	8.0%	83	6.9%
Pulse Rate	36	3.0%	25	2.1%	43	3.6%
Temperature Check	41	3.4%	38	3.2%	48	4.0%
HIV Retroviral Screening	66	5.5%	91	7.6%	86	7.2%
General Medical Check-up	124	10.3%	149	12.4%	208	17.3%
Medical check-up done recommendation	ONDO STATE		EKITI STATE		OSUN STATE	
Physician	247	20.6%	362	30.2%	272	22.7%
Nurse	72	6.0%	90	7.5%	79	6.6%
Other Health Professionals	44	3.7%	68	5.7%	87	7.3%
Self	41	3.4%	97	8.1%	69	5.8%
Last medical check-up done	ONDO STATE		EKITI STATE		OSUN STATE	
1 month ago	58	4.8%	114	9.5%	73	6.1%
3 months ago	34	2.8%	48	4.0%	68	5.7%
6 months ago	39	3.3%	33	2.8%	41	3.4%
1 year ago	49	4.1%	71	5.9%	60	5.0%
2 years ago	30	2.5%	31	2.6%	35	2.9%

(62.5%) to 304 (25.%)` respectively. Across the three states, those that felt males need the check-up more than females stated reasons mainly including the involvement of males in more strenuous day to day activities and ensuring common diseases in older males such as prostate cancer, among others, are constantly monitored while those that favoured females for more check-up than males stated it is because females are probably prone to more infections, due to menstrual cycle, pregnancy, general female body physiology, monitoring diseases more common in females such as breast and cervical cancers, etcetera.

DISCUSSION

The outcome of this study in table 1 shows that most of the respondents are aware of periodic medical check-up across the three states, which may probably be as a result of their formal education, with a large proportion of them having minimum of ordinary diploma, higher diploma or degree certificate. This is similar to the 2012 study that reported 74.9% were aware of periodic medical check-up [7]. Our findings reveal that respondents in Ekiti State have had the most deliberate routine periodic medical check-up than the other two states showing a huge priority probably placed on health by residents. Large proportion of the respondents felt everybody needs medical check-up. This is due to the fact that majority of them are educated to a large extent and possibly knowledgeable about the subject matter. Across the three states, majority of the respondents, think three monthly periodic medical check-up is adequate while majority` in Osun State feel it should be done monthly. This may ust` be a matter of preference of respondents. The outcome in Osun State is slightly in keeping with the 2012 study that reported 59.9% felt that monthly check-up is good enough but

the findings in Ondo & Ekiti States are in contrast [7]. Less than one-quarter of the respondents across the states reportedly covered by health insurance plan and further fewer having periodic medical check-up included in their plan is an indication that most people still don't have a managed care provision let alone the easy access or even qualitative healthcare. The most reported average waiting time in Ondo & Osun as well as a faster waiting time in Ekiti is indicative of a slightly effective healthcare system which might be due to insufficient workforce leading to overwhelming duty or could be as a result of low morale of workers due to unsatisfactory working conditions` among others. More effort will thus be required from all concerned to improve turn-around-time (TAT) in order to achieve more qualitative and better healthcare delivery. The overall average monthly income in all three states as detailed in table 3, shows that it will be an uphill task for most people not having health insurance plan to be able to make provision for such because there is high tendency that their income is not even adequate to cater for basic needs including feeding, shelter and clothing.

In all the three states, our findings revealed regarding the most important or commonest source of information on periodic medical check-up, as shown in table 4, is however not surprising because most of the respondents seek advice from their health care providers in the hospital at time interval following visit to the hospital. The major type of medical check-up known by respondents in the states is the general medical check-up of varying grade. Also, most of the medical check-up was recommended expectedly by a physician. But while many are aware of the medical check-up, only few seem to be practising it, as shown in an aspect of table 4. This poor practice might be mainly attributed to low income, non-provision of such benefit by employers. This finding is similar to the outcome of certain

previous other studies around the country and the world [7, 8, 9].

CONCLUSION

In conclusion, there is high level of awareness of periodic medical check-up in all three states but the level of practice of routine medical check-up is low. The majority of the respondents probably don't

practice it because their health insurance plan does not cover the medical check-up or due to individual/organizational financial constraints. Thus, there is need for government to promote more affordable healthcare delivery and intensify effort on public enlightenment programs & better health information to the entire populace especially as there is a significant relationship between educational status and periodic medical check-up, in order to promote the practice of routine check-up.

Table 5: Relationship Between Educational Status & Practice Of Periodic Medical Check-Up

Practice of periodic medical check-up												
	ONDO STATE				EKITI STATE				OSUN STATE			
	Yes	No	NR	Total	Yes	No	NR	Total	Yes	No	NR	Total
Educational Status												
No formal education	34	72	7	113	9	29	9	47	10	20	27	57
Primary education	45	105	21	171	26	52	6	84	21	20	29	70
Secondary education	78	174	19	271	108	98	25	231	28	36	58	122
NCE/OND	100	192	28	320	237	129	36	402	116	144	90	350
HND/BSc	70	111	14	195	194	112	5	311	203	184	83	470
MSc	14	27	5	46	27	21	3	51	41	34	8	83
PhD	12	13	7	32	23	5	3	31	15	3	18	36
Status not stated	0	0	52	52	0	0	43	43	0	0	12	12
Total	353	694	153	1200	624	446	130	1200	434	441	325	1200
	$\chi^2 = 561.491, p\text{-value} = 0.001$				$\chi^2 = 849.769, p\text{-value} = 0.001$				$\chi^2 = 82.306, p\text{-value} = 0.001$			

The relationship between educational status and practice of periodic medical check-up is statistically significant at $P < 0.05$ across the three states.

NCE is National Certificate in Education **OND** is

Ordinary National Diploma **HND** is Higher

National Diploma

NR is No Response

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