

**FACTORS INFLUENCING UTILIZATION OF ROUTINE
MEDICAL CHECK-UP SERVICES AMONG STAFF AND
STUDENTS AT THE AHMADU BELLO UNIVERSITY (ABU),
ZARIA MEDICAL CENTER.**

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Abstract

Routine medical check-ups (RMDs) are widely recognized as effective strategies for reducing morbidity and mortality from various diseases and offering a cost-effective approach to improving population health. However, despite their importance and accessibility in higher educational institutions, concerns have arisen over the underutilization among staff and students. This paper investigates the factors influencing the utilization of routine medical check-ups at the Ahmadu Bello University (ABU), Zaria Medical Center. Employing the Desire Belief Opportunity (DBO) theory as an explanatory framework, the paper utilized a mixed-methods approach, combining qualitative- through KIIS and IDIs, in addition to quantitative data collection, with 289 respondents drawn from five faculties at the A.B.U. main campus through simple random sampling. The study revealed that while a significant proportion of respondents were aware of ABU's medical centre offering routine check-ups; they primarily sought such services only when feeling unwell. Factors such as long waiting times fear of detecting abnormal diseases, and concerns about stigma hindered routine medical check-ups. The study recommends sensitizing staff and students about the importance of routine medical check-ups for early disease detection and knowledge of one's health status.

Keywords: Awareness; Desire Belief Opportunity; Mortality and Morbidity; Routine Check-Up Utilization; Routine Medical check-ups.

Introduction

Health serves as the bedrock of any society's development, as the attainment of healthy well-being by individuals and the community at large is a social concern. A society can function properly only when the majority of its members are healthy enough to perform the tasks that sustain human society, which in turn influences the economy of a given nation. Disease prevention is widely recognized as an important strategy for reducing morbidity and mortality from different diseases. It is a cost-effective way to improve population health, and routine medical check-ups are considered one of the tools for disease prevention. They allow for the early detection of most diseases and risk factors. For instance, during routine medical check-ups, non-communicable diseases such as hypertension, breast cancer, cervical cancer, prostate cancer, and diabetes mellitus can be detected, and any deviations from good health can be noticed and managed through preventive or curative services, thereby reducing associated mortality rates (Nakanishi, Tatan, & Fujiwara, 1996; Moser, Akande & Salaudeen, 2004; Patnick, & Beral, 2009).

Furthermore, routine medical check-ups provide individuals with a good understanding of their health status, which may require adjustments in lifestyle. This understanding has led to global campaigns encouraging people to undergo routine medical check-ups at regular intervals in order to prevent or detect early any diseases that have no observable physical signs or symptoms (Akande & Salaudeen, 2004). The World Health Organization (WHO) (2010) defines routine medical check-up as a form of preventive measure involving a thorough history, physical examination, and screening of asymptomatic individuals by physicians on a regular basis as part of routine healthcare.

WHO (2015) conducted a cross-sectional study revealing that the majority of people who display positive health behaviours and seek healthcare services at intervals are aged 60 years and older. Routine health check-up rates were estimated to be 81.8% in America, 79.4% in France, 84.4% in Russia, and 75.3% in Germany on a yearly basis. However, routine medical check-up rates were lower in countries like Kenya (27.2%), Nigeria (43.2%), and Ghana (47%) (WHO, 2015). In Nigeria specifically, it was estimated that only 34% of women undergo regular health check-ups, and the attention and priority given to medical check-ups vary among them (Eke, Joe-Ikechebel, & Okoye, 2012). Studies conducted in different regions of Nigeria reported varying levels of awareness and practice of periodic medical check-ups (Ilesanmi, Omotoso, Alele, & Amenkhienan, 2015).

Routine medical check-ups are preventive measures that should be adopted by individuals of all ages and genders. However, they are often neglected, especially in developing countries (Odenigbo, 2001). In Nigeria, chronic diseases are projected to account for about 24% of all deaths, some of which could have been successfully treated if detected early enough through routine medical check-ups. Hypertension, one of the most prevalent non-communicable diseases worldwide, is responsible for a significant proportion of deaths due to heart diseases and strokes (WHO, 2013).

In Nigeria, despite availability of preventive health services in most tertiary health institutions, provided at multiple service points, and varying health specialists, little attention is paid to preventive medicine, and routine medical checkup. This negligence is responsible for the increasing incidence of chronic diseases that could have been averted if regular health examination was done. Poor health care services are often poorly utilized, not only because of the lack of awareness, poor attitude towards the services and the fact that the clients are used

to accessing medical care only when they are sick but also because of the time and inconveniences of accessing the required services, at various service points in the hospitals. (Babatunde & Ikimalo 2010; Woolf & Atkins 2010)

Olarinde and Olatunji (2014) found that the health-seeking behaviours of staff and students in tertiary institutions involve various practices, including self-medication, drug misuse/abuse, visiting patent medicine stores, consulting traditional medicine practitioners, among others; typically paid for out-of-pocket. Some students also opt for private medical insurance, especially during periods when they are not attending classes. Tertiary institutions generally charge an institutional medical fee alongside tuition expenses, which grants access to the available health services on campus. However, the rate of utilization of routine medical check-ups among both staff and students is a matter of concern. Therefore, the purpose of this study is to examine the awareness and utilization of Routine Medical Check-up services specifically.

Conceptual Clarification

In this study, the following concepts are operationalized: Awareness, Assessment, Attitude, Routine Medical check-up and Utilization.

Awareness: In the context of this study, "awareness" refers to the level of knowledge and understanding among the staff and students of Ahmadu Bello University (ABU) Zaria regarding the existence, purpose, and significance of routine medical check-up services available at the institution's Medical Centre. It encompasses the extent to which individuals are informed about the benefits of regular check-ups, the procedures involved, the recommended frequency of visits, and the potential health risks associated with not undergoing routine medical examinations.

Assessment: The act of evaluating and determining the value, quality, importance, or necessity of routine medical check-ups, or the judgment and decision made regarding them.

Attitude: Refers to the behaviour of the staff and students of Ahmadu Bello University concerning the routine medical services available at the institution's Medical Centre.

Routine medical check-up: A preventive medicine practice that involves comprehensive history-taking, physical examination, and screening of asymptomatic individuals by physicians on a regular basis as part of routine healthcare.

Utilization: Simply denotes the practical and effective use of routine medical check-up services available at the Ahmadu Bello Medical Centre.

Theoretical Framework

The theoretical framework used in this study is the Desire-Belief-Opportunity Theory (DBO), which is a variant of the Rational Choice Theory. Developed by Peter Herdstrom, the DBO theory posits that desire, belief, and opportunity are the primary factors influencing an individual's actions. According to this theory, an individual's desires, beliefs, and opportunities serve as immediate causes of their actions. The theory assumes that individuals possess the innate capacity to consciously choose their actions, and their desires and beliefs act as mental

events that provide reasons for their actions. A specific combination of desires and beliefs constitutes compelling reasons for performing an action, providing the necessary motivation.

In the context of routine medical check-ups, the DBO theory helps to explain the health-seeking behaviour of staff and students at the ABU Zaria. Their desire to maintain routine check-ups is predicated on their belief in the effectiveness of medical services and the availability of opportunities to access these services. The theory allows for the examination of whether individuals lack the desire for medical services, do not believe in their effectiveness, or face limited opportunities to access them.

Materials and Methods

This study focused on staff and undergraduate students at the Ahmadu Bello University Main Campus in Zaria. A multistage sampling technique was used to select participants. The quantitative sample size was determined using the Singha (2002) sample size formula, resulting in a total of 289 participants, comprising 142 Academic and Non-teaching Staff and 147 students at the 300 and 400 levels. Additionally, nine (9) qualitative interviews were conducted with staff and students, including medical professionals and academic/non-academic staff, for In-depth and Key Informant Interviews.

The sampling process involved selecting five faculties randomly, followed by three departments from each faculty using random sampling. Stratified sampling was used to allocate respondents equally across faculties and departments. The qualitative component used purposive sampling to select nine participants, including medical professionals and academic/non-academic staff for In-depth and Key Informant Interviews.

Questionnaire data was cleaned, coded, and analyzed using the SPSS Version 20. Qualitative data from interviews were transcribed and analyzed alongside quantitative data to support the findings through triangulation.

Results

Table1: Socio-Demographic Characteristics of Respondents

Socio-Demographic Characteristics	Students	Staff	Total
Sex			
Male	76(51.7)	83(58.5)	159(55.0)
Female	71(48.3)	59(41.5)	130(45.0)
Age			
19-28 years	95(64.5)	10(7.0)	105(36.3)
29-38 years	40(31.3)	14(9.9)	54(18.7)
39-48 years	8(5.4)	26(18.3)	34(11.8)
49-58 years	2(1.4)	49(34.5)	51(17.6)
59 years and above	2(1.4)	43(30.3)	45(15.6)
Religion			
Islam	79(53.7)	97(68.3)	176(60.9)
Christianity	68(46.3)	45(31.7)	113(39.1).
Marital Status			
Single	136(92.5)	29(20.4)	165(57.1)
Married	11(7.5)	109(76.8)	120(41.5)

Widowed	-	4(2.8)	4(1.4)
Total	147(50.9)	142(49.1)	289(100.0)

Field survey, 2020

Table 1 presents the socio-demographic characteristics of the respondents. Among the 147 student participants, 51.7 percent were male and 48.3 percent were female. In the staff group, out of the 142 respondents, 72.5 percent were male and 27.5 percent were female. The data indicate a relatively balanced representation of male and female students, while the staff group has a higher proportion of male participants. Regarding age, 64.5 percent of the students fell within the 19-28 years bracket, whereas 34.5 percent of the staff was aged between 49-58 years. This suggests that the majority of staff participants were in the older age range of 49 years and above.

Regarding religion, 53.7 percent of the students identified as Muslims, while 68.3 percent of the staff were also Muslims. Similarly, 46.3 percent of students and 31.7 percent are Christians. In terms of marital status, 92.5 percent of the students were single, whereas 76.8 percent of the staff was married. This indicates that a large majority of the student participants were unmarried, which aligns with their younger age category. Conversely, a significant proportion of the staff participants were married.

Table 2: Whether Respondents are Aware of Routine Medical Check-ups

Designation	Yes	No	Total n (%)
Student	113(76.9)	34(23.1)	147(100.0)
Staff	124(87.3)	18(12.7)	142(100.0)
Total	237(82.0)	52(18)	289(100.0)

Field survey, 2020

Table 2 provides insights into the awareness of the respondents regarding routine medical checkups. Among the student participants, 76.9 percent acknowledged awareness of the need for routine medical checkups, while 23.1 percent were not aware. In the staff category, a significant majority of 87.3 percent expressed awareness, while 12.7 percent reported being unaware. In total, out of the 289 respondents, 82.0 percent indicated their awareness of routine medical checkups, while 18.0 percent stated that they were not aware. These findings highlight the fact that majority of both staff and students at the ABU have an understanding of the importance of regular medical checkups.

Table 3: Sources of Information on Routine Medical Check-up

Sources of Information	Designation n (%)		Total
	Students	Staff	
During orientation	96(65.3)	12(8.5)	108(37.3)
Friends/colleagues	24(16.3)	71(50.0)	95(32.9)
Family members	6(4.1)	5(3.5)	11(3.8)
Health workers	11(7.5)	45(31.7)	56(19.4)
Church/Mosque	7(4.8)	4(2.8)	11(3.8)
Posters/hand bill/flayers	3(2.0)	5(3.5)	8(2.8)

Total	147(100.0)	142(100.0)	289(100.0)
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Field survey, 2020

Table 3 presents the sources of information about routine medical checkups among the respondents. Among the student participants, 65.3 percent reported that they acquired information during orientation, while 16.3 percent relied on friends and colleagues. In the staff category, 50.0 percent mentioned friends and colleagues as their sources of information, followed by health workers at 31.7 percent. Other sources, such as family members, church/mosque, and posters/handbills, had lower percentages. In an interview conducted with an academic staff, he said:

I have spent between 12-14 years in service and this is where (ABU) I had my first and second degrees and became a staff. I think I am old enough to know about routine medical checkup especially in this academic environment ABU. I have friends who we did degree together and are medical doctors in the university and on several occasions, they encourage me to come for general checkups. If I had any medical issue, the first place I go to is the ABU Medical Centre. (Academic staff)

According to another non-academic staff,

There was a circular that staff and students and the general public should come and check their status on hepatitis B. so, when I got to know about that, I quickly informed my family to come and we went and did ours in ABU Medical Centre. (Non-academic staff).

In the same vein, a student interviewed also said that:

In almost all orientation of student, health issues are discussed and students are encouraged to visit the ABU Medical Centre whenever they are having any health problem and also, circular, sometimes I see circular about the outbreak of a disease and we will be advised to see the doctor for diagnoses to detect whether or not you are a carrier of the infection. (Student)

From the findings above, it can be seen that most students and staff got their information on routine medical checkups during orientations, awareness programs, and circulars among others. However, only very few of them got their information from other sources mentioned earlier.

Table 3: Whether Respondents have ever Utilized Routine Medical Check-up Services

Designation	Yes	No	Total
Student	53(36.1)	93(63.9)	147(100.0)
Staff	118(83.1)	24(16.9)	142(100.0)
Total	212(73.4)	77(26.6)	289(100.0)

Field survey, 2020

Table 3 illustrates the utilization of routine medical check-up services among the respondents. Among the student participants, 36.1 percent confirmed that they have utilized

the ABU Medical Centre for check-ups, while 63.9 percent reported not having done so. In the staff group, a significant majority of 83.1 percent stated that they have utilized the services, with only 16.9 percent indicating they have not. These findings indicate that a substantial proportion of staff members have visited the ABU Medical Centre for routine check-ups. However, among the student participants, a majority have not accessed the medical centre for check-ups, although a notable number have utilized its services.

A discussant (Lecturer) interviewed said that:

Yes, at my age, I know it is good to go for routine checkup, like 20 years ago, I don't go for routine checkup but I am aging now, I do go for checkup regularly. (Academic staff).

A Respondent (Male Doctor) said that:

It is not something staff and students commonly do and sincerely, people only do it when they have indication for it. That is, when they are sick, when going for NYSC, job interview or screening or training, documentation and postgraduate programs abroad, when applying for scholarship or a prerequisite in certain registration. So, they do it when they are compelled to but coming on their own is not something common here (Medical doctor).

Despite the awareness and understanding of the importance of routine medical checkups among the respondents, it is evident that a significant portion did not visit the ABU Medical Centre for such checkups. Various factors may have contributed to these attitudes. However, it was discovered that some individuals only seek medical checkups when they are compelled to do so, such as for job interviews/screenings, National Youth Service Corps (NYSC) requirements, or documentation purposes.

Table 4: Factors Influencing Attitudes toward Routine Medical Check-ups

Factors	Agreed (%)		Disagreed (%)		Undecided (%)	
	Students	Staff	Students	Staff	Students	Staff
Fear of stigma	108(73.5)	97(68.3)	32(21.8)	39(27.5)	7(4.7)	6(4.2)
Anxiety about the result	114(77.6)	103(72.6)	31(21.1)	34(23.9)	2(1.3)	5(3.5)
Lack of confidence	92(62.6)	105(73.9)	51(34.7)	24(16.9)	4(2.7)	13(9.2)
Laziness	132(89.8)	42(29.6)	11(7.5)	94(66.2)	4(2.7)	6(4.2)
I am busy, only attend checkup when sick	105(71.4)	116(81.7)	38(25.9)	19(13.4)	4(2.7)	7(4.9)
Belief in traditional medicine	67(45.6)	87(61.3)	64(43.5)	48(33.8)	16(10.9)	7(4.9)
Forgetting appointment time	89(60.5)	48(33.8)	52(35.4)	83(58.5)	6(4.1)	11(7.7)
Negligence/carelessness	112(76.1)	121(85.2)	28(19)	17(12)	7(4.9)	4(2.8)
Fear of embarrassment	78(53.1)	112(78.9)	59(40.1)	23(16.2)	10(6.8)	7(4.9)
I go for regular checkup because it is important	104(70.8)	116(81.7)	25(17)	16(11.3)	18(12.2)	10(7.0)

Field survey, 2020

Table 4 presents the factors influencing the attitudes of students and staff toward routine medical check-ups. According to the data, 73.5 percent of students and 68.3 percent of staff stated that fear of stigma deterred them from seeking routine check-ups. Anxiety about the results was reported by 77.6 percent of students and 72.6 percent of staff. Lack of confidence was cited by 62.6 percent of students and 73.9 percent of staff as a factor affecting their

attitudes toward routine check-ups. Laziness was mentioned by 89.8 percent of students and 29.6 percent of staff, while 66.2 percent of staff disagreed with this factor.

Additionally, 71.4 percent of students and 81.7 percent of staff stated that they only visited the hospital when they fell sick due to a lack of time for routine check-ups. Belief in traditional medicine was mentioned by 45.6 percent of students and 61.3 percent of staff as a reason for not relying on orthodox medicine. Forgetting appointment times was reported by 60.5 percent of students, while 33.8 percent of staff acknowledged this factor. Negligence and carelessness were identified by 76.1 percent of students and 85.2 percent of staff as hindrances to routine check-ups. Fear of embarrassment was mentioned by 53.1 percent of students and 78.9 percent of staff. On the other hand, the importance of medical check-ups encouraged 70.8 percent of students and 81.7 percent of staff to visit the hospital regularly.

These findings demonstrate that various factors influence the attitudes of students and staff toward seeking healthcare. Factors such as anxiety about the results, lack of time, and belief in traditional medicine, negligence, and fear of embarrassment hinder both students and staff from regularly attending routine medical check-ups. This suggests that addressing these factors could help increase the frequency of check-ups among staff and students. The qualitative data collected show varying degrees of response of the respondents' position on their attitudes towards routine medical checkups.

According to a respondent (lecturer):

Frankly speaking, even for me, I am not in the habit of going for medical checkup; I don't know whether is because of the treatment we get when we go there, we waste time so people hardly do it. Even checking my BP, I hardly do that. Seriously, we are reluctant to go to the ABU Medical Centre for checkups. A typical example is that in our faculty (Social Sciences), we have staff with the problem of heart attack; we have lost several staff in the faculty and department of political science precisely. So generally, our attitudes towards routine medical checkups is bad including me and sometimes if I want to go, my wife will say don't go before you go and look for trouble. (Academic staff).

Another respondent (non-academic staff) said that:

Considering the nature of my work is too demanding. Whether there is work or not, light or not, you need to be there because, staff will come, students will come; visitors will come, so secretary job is not easy that we don't have time to go for our private activities talk of hospital. So, most of the time, we manage our health and take for long before we go to hospital or when we are completely down that we cannot work. Even when we are on work leave or holidays, you can be called upon to come to the office. So, you find yourself in the office every day and always and that is also a major problem on my part. And again, I don't have assistant, most of the leave they give maximum of 3-4 days sick leave. Honestly, I find it difficult to go to the hospital like ABU Medical Centre despite the fact that is close to me. (Non-academic staff).

A respondent (student) said that:

The attitude of students toward routine medical checkup is negligence and I think is not just in ABU but among Nigerians as a whole. Nigerians hardly go for health checkup except they are sick. (Student).

Another respondent, (Male Medical Doctor) said:

Staff and students don't commonly come for it most at times except there is a need for it. Only a very small percentage of students has positive attitudes to routine health check but for majority is poor attitude. The staff probably because of their age, many do come even though there are handfuls of them that don't come to ABU Medical Centre. (Medical doctor)

According to a Medical Laboratory Technician in ABU Medical Centre:

We have cases of staff and students on appointment, but they will not come, there are some staff and students that do come to do a test, we will instruct them to come tomorrow for the result but many a times, some take a week, two weeks, months before coming. In fact, many will not even come for the result again and we have them kept in the files and wardrobes for references. So, you see, some of these staff and students don't even take medical checkup seriously. (Laboratory technician).

While routine medical checkup is considered important, it can be seen that the qualitative and quantitative data revealed that staff and students' attitudes to routine medical checkup is poor in ABU, Zaria. This is further evident in the staff and student's negligence to return to the ABU Medical Centre for their test results.

Discussion

The findings of the study indicate that there is a high level of awareness among both staff and students at the ABU, Zaria, regarding the importance of routine medical check-ups. This aligns with previous research conducted by Eke, Joe-Ikechebelu, and Okoye (2012), who found that a significant majority of respondents were aware of routine medical check-ups. The formal education of the participants may contribute to their awareness. It was observed that orientation programs for new students played a significant role in disseminating information about routine check-ups to students, while staff relied on information from friends and colleagues. This highlights the importance of health literacy, cognitive awareness, and available health information in shaping individuals' health behaviours, as described by Nutbeam (2008).

The study also revealed that a substantial proportion of both staff and students had utilized the ABU Medical Centre for routine check-ups. However, some respondents reported constraints and factors influencing their utilization of the services. Fylan (2008) found that psychological reactions to abnormal results and experiences influenced workers' decisions to participate in screening programs. Lack of awareness of the benefits of tests and fear of disease

detection or embarrassment were cited as reasons for non-participation. Additionally, participants mentioned factors such as lack of time, lengthy waiting times at the medical centre, and poor communication between doctors and patients as hindrances to seeking medical assistance. Similar findings by Lubbock and Stephenson (2008) highlighted the impact of poor communication or miscommunication with health professionals on individuals' understanding of healthy behaviours.

Individual attitudes and beliefs, as emphasized in the Desire Belief Opportunity theory (DBO), play a significant role in conscious decision-making for health-promoting behaviours. The survey conducted by the Centre for Health Protection (2008) supported this, as over 90 percent of respondents expressed high expectations regarding the effectiveness of medical check-ups in early disease detection. Furthermore, factors such as fear of stigma, anxiety about results, lack of confidence, laziness, belief in traditional medicine, forgetting appointment times, negligence, carelessness, fear of embarrassment, and recognition of the importance of check-ups influenced participants' attitudes toward routine medical check-ups.

Conclusion

The study concludes that although there is a high level of awareness of routine medical check-ups among staff and students at the ABU, Zaria, the actual practice of attending check-ups is low. Factors such as anxiety about the results, long waiting times and lack of time were identified as major barriers to attendance.

Recommendations

Based on the findings, the following recommendations are suggested:

- (1) The university health staff should intensify efforts to promote routine medical check-ups among staff and students by raising awareness about their susceptibility to diseases and the benefits of active and regular screening.
- (2) Universities can establish clear guidelines on screening for staff and students through documentation and ensure periodic medical check-ups are encouraged, particularly among younger adults (students).
- (3) The university should encourage staff and students to adopt a healthy lifestyle, including consuming fruits and vegetables regularly and engaging in physical activities.
- (4) The ABU management should increase the number of competent health personnel to adequately cater to the healthcare needs of the staff and students.

References

- Akande, T. M., & Salaudeen, A. G. (2004). Practice of periodic medical examination among hospital workers in a Nigerian teaching hospital. *Nigerian Quarterly Journal of Hospital Medicine*, 14(3-4), 206-210.
- Centre for Health Protection. (2008). Knowledge, attitude and practice of medical check-up. Department of Health: Hong Kong.
- Christos, P., Kourlaba, G., Paragiotakos, D., & Stefanadis, C. (2006). Factors associated with delay in seeking healthcare for hospitalized patients with acute coronary syndromes: The GREEC S Study. *Hellenic Journal of Cardiology*, 47, 327-336.
- Eke, C. O., Eke, N. O., Joe-Ikechebelu, N. N., & Okoye, S. C. (2012). Perception and practice of periodic medical check-up by traders in South East Nigeria. *Afromedic Journal*, 3(2), 110-119.

- Ilesanmi, O. S., Omotoso, B., Alele, F., & Amenkhienan, I. (2015). Periodic medical check-up: Knowledge and practice in a community in Nigeria. *International Journal of Public Health Research*, 5(1), 576-583.
- Lubbock, A. N., & Stephenson, B. R. (2008). Utilization of maternal health services in the Department of Matagalpa Nicaragua. *Rev Panam Salud Publica*, 24(2) 17-24.
- Moser, K., Patnick, J., & Beral, V. (2009). Inequalities in reported use of breast and cervical screening in Great Britain: Analysis of cross-sectional survey data. *BMJ*, 338.
- Nakanishi, N., Tatan, K., & Fujiwara, H. (1996). Do preventive health services reduce eventual demand for medical care? *Social Science & Medicine*, 43(6), 999-1005.
- Nutbeam, D. (2008). Health promotion glossary. In R. Carroll, N. R. Smith, & I. Grubb (Eds), Psychological factors associated with delay in attending hospital following a myocardial infarction. *Journal of Psychosomatic Research*, 51(6), 611-614.
- Odenigbo, C. U., & Oguejiofor, O. C. (2009). Pattern of medical admissions at the Federal Medical Centre Asaba: A two-year review. *Nigerian Journal of Clinical Practice*, 12(4), 395-397.
- Singha, P. (2002). Introductory text on biostatistics. 3rded. P205 Publishers.
- World Health Organization. (2013). Population-based study on attitudes, practices, and human rights concerns. *PLOS Medicine*, 3(7), <http://www.who.int/whr/2000/en/whrendpdf>
- World Health Organization. (1978). Alma Ata: *Report on the International Conference on Primary Health Care*. WHO Geneva.
- World Health Organization. (2002). World Health Organization antenatal care randomized trial: *Manual for the implementation of the new model*. Geneva: WHO Programme to Map Best Reproductive Health Practices.
- World Health Organization. (2003). Surveillance of non-communicable disease risk factors. Retrieved from <http://www.who.int/mediacentre/factsheets/fs273/en/>
- World Health Organization. (2010). Maternal health. http://www.who.int/topics/maternal_health/en/
- World Health Organization. (2011). WHO maps non-communicable diseases trend in all countries. *World Health Global Report*. Geneva
- World Health Organization. (2015). Health surveys - basic methods (4th ed.). Geneva: World Health Organization.
- World Health Organization. (1967). World Health Organization Technical Reports Series, 354, 16-17.
- Wilson, R. (1970). Sociology of health: An introduction. Random House, New York.
- Woolf, S. H., & Atkins, D. (2001). The evolving role of prevention in health care. *American Journal of Preventive Medicine*, 20(3), 13-20.
- World Health Organization. (2002). Current and future long-term needs. Geneva: World Health Organization.
- World Health Organization. (2008). The global burden of disease: 2004 update. Geneva.
- World Health Organization Report. (2006). Healthy systems improving performance. Geneva: World Health Organization.
- Wyss, K. (2003). Access of the urban poor and vulnerable to health care in Africa. Switzerland: *Swiss Agency for Development and Cooperation*.