Health-Seeking Behavior and Barriers to Care in Patients With Rectal Bleeding in Nigeria

abstract

Purpose Colorectal cancer (CRC) incidence rates are steadily increasing in Nigeria. Organized screening is still largely unused because of financial and logistical barriers; most CRCs are detected by symptoms. One symptom of CRC is rectal bleeding. This study sought to determine health-seeking behavior and barriers to care in patients with rectal bleeding in Nigeria. This study also surveyed physicians to determine major breakdowns in access to care.

Methods The recruitment process for this study involved patients referred for colonoscopy because of rectal bleeding as well as response to a media advertisement for a free colonoscopy. Physicians were recruited at the African Research Group for Oncology meeting. Patient responses were scored on the basis of knowledge of rectal bleeding. The physician questionnaire was supporting information and mainly descriptive in nature.

Results A total of 82 patients and 45 physicians participated in this study. Less than 40% of patients knew that rectal bleeding could be caused by cancer. Major barriers to care were resolution of the symptom (42%), no consideration of the bleeding as problematic (40%), and financial constraint (22%). Education was strongly correlated with knowledge of rectal bleeding and health-seeking behavior. Although physicians regularly saw patients with rectal bleeding, most of them provided a differential diagnosis of hemorrhoids and few referred patients for colonoscopy.

Conclusion General awareness about the signs of colorectal cancer is lacking. This demonstrates the strong need for patient education programs about this issue. Physicians should also receive additional training on differentiation of a potential cancer diagnosis from something more benign, such as hemorrhoids.

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INTRODUCTION

Colorectal cancer (CRC) is a leading cause of death worldwide. Although CRC incidence and mortality rates remain higher in high-income countries (HICs), the risk of CRC is steadily increasing in many low- and middle-income countries (LMICs).[1] For example, several review studies in Nigeria have shown an increase in the reported incidence of CRC during the past several decades.[2-4] This increase may be explained by the proliferation of oncogenic behavioral risk factors, such as smoking, poor diet, and sedentary behavior, that have typically been associated with a Western lifestyle.[1,4] Another reason for this may be the historical failure of cancer surveillance and reporting systems, which is compounded by a lack of practical screening modalities in LMICs, including Nigeria.[5] As these deficiencies slowly improve, more patients are diagnosed with CRC.

General practitioners (GPs) play a key role in screening and diagnostic practices because of their more-frequent contact with a large proportion of the population.[6] They often rely on history and routine examination alone to distinguish benign anal bleeding and more sinister etiologies, such as CRC. Use of clinical features alone to rule out a diagnosis of colorectal cancer has both low sensitivity and specificity overall, though individual studies have reported a specificity rate of up to 90%.[7-9] One systematic review evaluated the diagnostic value of rectal bleeding as a symptom of CRC.[10] The evaluation found a low pooled sensitivity (47%) but a high pooled specificity (96%); the positive predictive value was increased in combination with other factors, namely, age, change in bowel habits, and weight loss. This is an important practical finding for clinicians, because it cites the importance of a consideration of

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multiple factors when a patient presents with rectal bleeding.

The aim of this study is two-fold. First, this study investigates patient knowledge of the causes of rectal bleeding and their attitudes about seeking expert opinion for possible diagnostic testing for CRC. Second, this study seeks to examine the GP-perceived barriers to colonoscopy for patients with rectal bleeding.

METHODS

This cross-sectional pilot study, designed in partnership with an epidemiologist (A.G.O.), used survey-based methods to assess the barriers to care in patients with rectal bleeding as well as physicians' perspectives of these barriers. Institutional review board approval for both phases was obtained from the Obafemi Awolowo University Teaching Hospital (OAU). Patients were accrued from OAU, University College Hospital Ibadan (UCH), and University of Ilorin Teaching Hospital (UI).

Phase I

In phase I (conducted in 2013-2014), patients recruited for a prospective study of colonoscopy were given a questionnaire. The recruitment process was largely done through convenience sampling, whereby one author (O.I.A.) conducted two educational programs about rectal bleeding during prime time in the local media. In these advertisements, free medical consultation at OAU was offered to all people with rectal bleeding. All consenting patients were asked to complete a questionnaire. The patients who were also eligible for the prospective colonoscopy study were enrolled in that study after they completed the questionnaire. The patient questionnaire was administered by physicians and was conducted in either English or Yoruba according to patient preference.

The questionnaire had four sections. The first section gathered patient demographic data. The second section asked about patient knowledge of the causes and treatments of lower GI bleeding. This section included 16 questions with answer choices of yes, no, or don't know. The third section examined attitudes toward lower GI bleeding. Participants were asked to report their response on a scale from 1 (strongly agree) to 5 (strongly disagree) for eight questions; five of the eight questions in this section were scored and were included in a combined analysis with section two—knowledge about rectal bleeding. The fourth section determined the symptoms patients were experiencing with lower GI bleeding and ascertained patient responses to their symptoms.

Phase II

Phase II of the study was a survey of GPs affiliated with three teaching hospitals located in the southwestern and north-central regions of Nigeria: OAU, UCH, and UI. Phase II was created after the results of phase I demonstrated that although many patients reported they had consulted a physician, they were not referred for additional diagnostic testing. We wanted to test physician opinions on rectal bleeding to determine barriers to referral. All GPs located near these centers were invited to an African Research Group for Oncology meeting. All 45 of the GPs who attended completed a questionnaire at the start of the meeting.

The physician questionnaire was designed by two authors (O.I.A. and T.P.K.). The questionnaire first asked for information about the physicians' history (eg, years practiced, field of medicine). The questionnaire then inquired about the characteristics of those patients who presented with rectal bleeding: how often did the physicians treat such patients; patient age; what were the common differential diagnoses; commonly prescribed treatments; referrals or treatments offered; barriers to colonoscopy (if an option); and the number of patients who had cancer.

Analyses

Analyses were conducted separately for the patient and physician questionnaires, because they were not a matched sample. Patient characteristics were summarized and presented by frequencies and percentages. Sections two and three of the patient questionnaire (knowledge and attitudes about lower GI bleeding, respectively) were converted into a numeric score for the purposes of analysis. For section two (knowledge on lower GI bleeding), responses of "don't know" were coded as incorrect. For section three (attitudes toward lower GI bleeding), the answers "strongly agree/ agree" and "strongly disagree/disagree" were each collapsed into one category. Neutral answers (a response of 3 out of 5) were coded as incorrect. The two questions that were correctly answered by all patients were removed from the analyses. Fisher's exact tests were conducted between the scores from the patient questionnaire and select demographics. We then ran logistic regression on variables with significant associations. From the physician questionnaire, we mainly used descriptive statistics, represented by frequencies and percentages. Statistical analyses were performed by using R version 3.1.1.
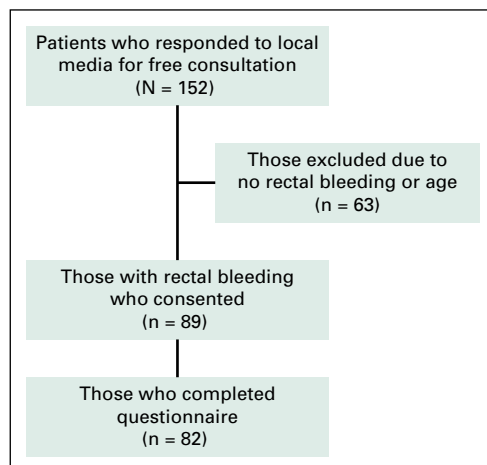
RESULTS

Patient Questionnaire

A total of 152 patients, including several individuals who did not have rectal bleeding, took advantage of the free consultation (Fig 1). Those age 45 years or older who presented with rectal bleeding were offered a free colonoscopy. All consenting patients age 45 years or older who had rectal bleeding (N = 89) were asked to complete the questionnaire, which 82 patients at OAU completed (Table 1). The median age was 45 years (range, 18 to 85 years). Sixty-four (78%) of the respondents were men; fifty-nine (72%) had completed at least secondary education. Almost all of the respondents (97.6%) were Yoruba. Overall, 65.9% of patients with rectal bleeding had no associated change in bowel habit.

Thirty (36.6%) of the respondents believed that rectal bleeding was hereditary. Seventy-four (90.2%) thought hemorrhoids caused rectal bleeding. Only 32 respondents (39%) knew that it could be caused by cancer. The majority of respondents (76.8%) associated rectal bleeding with constipation, whereas 64 respondents (78%) recognized that it could be caused by anal fissure. Also, 78% of respondents believed that increased sugar intake could cause rectal bleeding. All of the respondents acknowledged that rectal bleeding should be investigated and treated, but only 32 (39%) had consulted a physician for bleeding per rectum. Thirty-eight respondents (46.3%) knew that digital rectal examination is important, and 33 (40.2%) were aware of the importance of colonoscopy. Although 54 respondents (66%) agreed that herbs are less expensive than medical treatment, only 38% said herbs should be used before seeing a physician.

On the basis of the results of the Fisher's exact tests between the knowledge score and demographic information, we found a significant relationship between score and education ($P < .001$). When examined with logistic regression, we found that patients who had a tertiary education were more likely to have higher scores on sections that determined knowledge about rectal bleeding (odds ratio [OR], 4.13; 95% CI, 1.36 to 13.57). No other demographic information was correlated with score. Similarly, logistic regression analysis demonstrated that patients who scored higher than the median were almost four times more likely to have consulted a physician (OR, 3.82; 95% CI, 1.55 to 10.20). Although it was not statistically significant with Fisher's exact test ($P = .06$), a trend from logistic regression analysis showed that patients who said that the bleeding bothered them psychologically were approximately twice as likely to have consulted a physician (OR, 2.57; 95% CI, 0.98 to 6.96).

Patient Delay

Fear of bleeding per rectum, persistence of the symptom, and desire to obtain information accounted for the three major reasons for consultation with a physician (Table 2). The reasons given by the respondents for not seeking the expertise of a physician included no consideration of the bleeding as problematic (40%), resolution of the symptom (42%), financial constraint (22%), and belief in herbal medicine (18%).

Physician Questionnaire

All forty-five invited physicians completed the questionnaire. Of these, 41 (91.1%) were GPs. The median duration of clinical practice was 8 years (range, 1 to 35 years). Approximately 73% of the physicians saw patients who presented with bleeding per rectum at least once per month; the majority of these patients were reportedly 40 years of age or older. Twenty physicians (44.4%) reported patient who presented within 1 month of development of the symptom; ten physicians reported an even shorter duration of symptoms. In total, 69% of patients reported to physicians with a short duration of symptoms ($\leq$ 1 month) before presentation. This is similar to the patient responses about the duration of their symptoms. Fifty-seven patients (69.5%) reported that their last bleeding had occurred within the last month (or more recently).

Twenty-six physicians (57.7%) made an initial differential diagnosis of hemorrhoids for their patients who presented with bleeding per rectum;

Fig 1. Flowchart of study participation.

Patients who responded to local media for free consultation (N = 152)

Those excluded due to no rectal bleeding or age (n = 63)

Those with rectal bleeding who consented (n = 89)

Those who completed questionnaire (n = 82)

Table 1. Patient Characteristics

Characteristic	No. of Patients (%)	Median Score* on Knowledge of Rectal Bleeding % (range)	P
Age, years†			
≤ 45	41 (50.6)	42.1 (15.8-94.7)	1
> 46	40 (49.4)	44.7 (10.5-73.7)	
Sex			
Male	64 (78.1)	47.4 (15.8-94.7)	.06
Female	18 (22.0)	42.1 (10.5-63.2)	
Religion†			
Christianity	54 (66.7)	42.1 (10.5-73.7)	.35
Islam	27 (33.3)	47.4 (15.8-94.7)	
Ethnicity			
Yoruba	80 (97.6)	42.1 (10.5-73.7)	.48
Other	2 (2.4)	78.9 (36.8-94.7)	
Marital status			
Married	69 (84.2)	42.1 (10.5-73.7)	.22
Single	12 (14.6)	47.4 (15.8-94.7)	
Widow	1 (1.2)	42.1 (NA)	
Education			
No formal or primary education	23 (28.1)	42.1 (26.3-73.7)	.003‡
Secondary education	27 (32.9)	42.1 (10.5-94.7)	
Tertiary education	32 (39.0)	52.6 (15.8-73.7)	
Average monthly income, USD§			
≤ 100	49 (59.8)	42.1 (15.8-94.7)	.5
≥ 101	33 (40.2)	47.4 (10.5-73.7)	

Abbreviations: NA, not applicable; USD, US dollar.

*Scores are out of 19 total questions. The two questions all patients correctly answered were dropped from analysis.

†One patient did not respond question; percentages were calculated with 81 responses.

‡The P value from Fisher's exact test was significant at .0029.

§Monthly income converted from Nigerian Naira (actual results based on a median of 20,000 Naira).

thirty-five (77.8%) cited hemorrhoids as their most frequent diagnosis for a patient who experienced bleeding per rectum (Fig 2). Only six physicians (13.3%) made colorectal cancer as an initial differential diagnosis. The vast majority of physicians treated their patients conservatively (ie, no referral or surgery), whereas only three physicians immediately referred their patients for specialist review. Twenty-three physicians (51%) reported that they had referred their patients for colonoscopy at least monthly, but 12 physicians (26%) had never requested colonoscopy for their patients who presented with bleeding per rectum. Physician delay in request for colonoscopy was most often related to cost and limited availability and logistics (51% and 38%, respectively). Approximately 75% of the physicians did not know about the availability or cost of colonoscopy.

DISCUSSION

Colorectal cancer prevalence is still relatively low in Nigeria, although the incidence of disease is steadily increasing. Bleeding per rectum is one of the most common presentations of colorectal cancer, although there are many other causes of rectal bleeding, most of which are benign in nature.[11-15] Therefore, although rectal bleeding is common in most symptomatic CRCs, the specificity of its use as a diagnostic tool alone is low. Because of this and because of the lack of screening, most CRC diagnoses come at the later stages of disease, which leads to poorer prognoses in Nigerian patients. For example, in a study by Saluja et al,[16] overall survival was significantly lower in west Africa (Nigeria) than in North America (the United States; 35% versus 67%, respectively.) In addition, survival by stage also had worse

Table 2. Patient Reasons for Consulting (or Not) a Physician

Reason	No. of Patients (%)
Reason consulted (n = 32)	
Fear	19 (59.4)
Pain	7 (21.9)
Opportunity	4 (12.5)
Pressure	1 (3.1)
Dizziness	4 (12.5)
Persistence	14 (43.8)
Obtain information	10 (31.3)
Other	2 (6.3)
Reason not consulted (n = 50)	
Not serious	20 (40)
Symptoms cleared	21 (42)
Embarrassing	1 (2)
Fear of rectal exam	0 (0)
Knew the cause	8 (16)
Fear of unknown	3 (6)
No time	0 (0)
No money	11 (22)
Religious belief	1 (2)
Stigmatization	0 (0)
Hospital bottlenecks	5 (10)
Hate hospitals	0 (0)
Internet information	0 (0)
Information from health worker	0 (0)
Belief in herbs	9 (18)
Lack of confidentiality	0 (0)
Other	2 (4)

NOTE. Most of the 32 participants who consulted a physician did so out of fear about a serious disease, persistence of symptoms, or to obtain information. Most of the 50 participants who did not consult a physician did not because the symptoms cleared, they did not consider it a serious problem, or they did not have enough money.

outcomes in Nigerian patients than in US patients (62% *v* 88%, respectively, for stage III cancers and 10% *v* 45%, respectively, for stage IV cancers). Unfortunately, in low-income settings such as Nigeria, it is not practical to screen all adults, unlike the approach in many HICs. Colonoscopy plays a vital role for CRC screening in HICs. It identifies patients with CRC or preclinical disease by finding adenomatous polyps, and it allows for risk reduction through polypectomy during the procedure. As the infrastructure for colonoscopy continues to improve in LMICs, the traditional thinking that colorectal polyps are rare in African populations is being disproved.[17] For example, a study by Alatise et al[17] observed approximately 415 patients who had a colonoscopy for any indication from 2007 to 2013. Sixty-seven of these patients (16.1%) had polyps, the majority of which were adenomatous polyps. Although there are no clinical data on the effect of screening in LMICs, this finding suggests a combination strategy of early diagnosis programs and screening in high-risk groups may be warranted.

There are multiple barriers to screening, including the limited numbers of health care providers; education of patients and providers; availability and affordability of testing materials; transportation resources for patients; personnel to process and interpret the specimens; availability of secondary testing; endoscopy materials, facilities and skill levels; and personnel and facilities to process pathology specimens. In addition, there is often a breakdown in the referral process when patients are required to travel long distances to physicians with whom they have no relationship. There are no electronic medical records, so it is also easy for a breakdown in communication to occur (ie, between a community-based GP and a hospital-based surgeon or gastroenterologist). Another major barrier to care in patients who present with rectal bleeding is a low level of health-seeking behavior.

This pilot study demonstrated that there are some large issues with both patient and physician understanding of rectal bleeding. For example, in the sections on knowledge and attitudes of lower GI bleeding, the median score was less than 50% (42.1%). This demonstrates the deficiency in patient education and general awareness about the signs and symptoms of colorectal cancer. There is a need for patient education as a means to boost general awareness about the signs and symptoms associated with CRC. Interestingly, there was a strong correlation between health-seeking behavior and higher score on the patient questionnaire. This suggests that a greater understanding of the causes and treatments for rectal bleeding motivates health-seeking behavior, which again demonstrates the need for stronger patient education.

In addition, although all of the respondents reported that rectal bleeding should be both investigated and treated, only 39% of them actually sought medical consultation for their symptoms. This may demonstrate that the majority of patients seek alternative treatment from traditional or religious healers. Surprisingly, however, the majority of respondents disagreed with the idea that herbs should be used before they see a physician. In
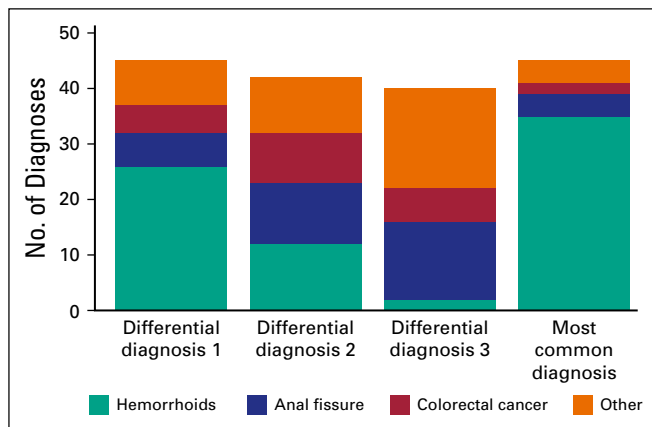
Fig 2. Top three differential diagnoses versus the most common diagnoses.

addition, only 18% cited belief in local herbs and/or traditional healers as a reason for not consulting a physician when symptoms appeared; this may suggest that belief in traditional medicine is declining, contrary to the argument that this belief is a major cause of patient delay in seeking care.

One major reason for not consulting a physician was the cost, a finding corroborated in the physician questionnaire. Most patients pay for health care out of pocket, but there is an increasing population who are covered by insurance through government jobs—an improvement that has begun during the past couple of years.[18] We hope that, with additional insurance expansion in the future, cancer screening will be more affordable. In parallel, it is vital to continue to study ways to improve cancer awareness in the general population.

Similarly, it is clear that physicians often do not consider CRC as a potential diagnosis for rectal bleeding. As it stands, GPs are the first physicians contacted by patients, so their ability to triage those who require specialist care is invaluable for the prompt treatment of CRC. As we have seen, most GPs diagnosed hemorrhoids in their patients with rectal bleeding and gave few referrals. In addition, GPs seemed largely unaware of how to manage their patients' barriers to care. The importance of GPs and community health workers for the early diagnosis of cancer has been demonstrated by a study in Tanzania.[19] In this study, the intervention village had a cancer facilitator, and the control village did not. During a 3-year period, the stage of disease presentation in patients in the intervention village significantly decreased for both breast and cervical cancers.

This study had several limitations. The first is the sample size. Although we had several significant findings, because only 82 patients and 45 physicians participated in the study, these findings

should be extrapolated conservatively. However, these preliminary results are in keeping with many of the issues already known anecdotally among physicians in Nigeria. In addition, there was sampling bias, because we used a convenience sampling method for patients; there may also have been selection bias among the physicians. For the patients, this meant that our sample represented only those patients who heard the advertisement, had symptoms, and were nudged to visit the physician at that time. The findings herein demonstrate the positive effects of a health education campaign—152 patients responded to the campaign—as well as free and accessible health care when barriers are removed, such as bureaucratic and financial barriers as evidenced by the fact that some patients sought care who may have otherwise not done so, and that most respondents had not previously consulted a physician for their symptoms. Their questionnaire responses are likely not generalizable to patients who seek treatment on their own or to those who have insurance coverage (only seven patients [8.5%] who completed the questionnaire were enrolled in health insurance). There are many more people who never seek treatment, and those patients are not represented here either. Another limitation was that the patient questionnaire was physician administered, which may have introduced a social desirability bias. Finally, the questionnaires were not given to a matched sample, so analyses could not be conducted to directly compare the two data sets.

Despite its limitations, this pilot study shows good preliminary evidence of the need for greater education and awareness about rectal bleeding. We observed that those who knew more about rectal bleeding were more likely to seek treatment of the symptom. These findings provide evidence that a future health promotion campaign about this topic is warranted. This campaign would also be beneficial to physicians as most of them seem to discount rectal bleeding as a symptom of something benign. However, because of the increasing prevalence of CRC in Nigeria, physicians should receive more training on how to differentiate a potential cancer occurrence from less dangerous etiologies. Future research to determine the best ways to remove barriers to care and increase health-seeking behavior in those with rectal bleeding in Nigeria also would be beneficial.

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REFERENCES

1. Torre LA, Bray F, Siegel RL, et al: Global cancer statistics, 2012. CA Cancer J Clin 65:87-108, 2015

2. Irabor D, Adedeji OA: Colorectal cancer in Nigeria: 40 years on—A review. Eur J Cancer Care (Engl) 18:110-115, 2009

3. Rotimi O, Abdulkareem FB: Fifty-three years of reporting colorectal cancer in Nigerians: A systematic review of the published literature. Niger Postgrad Med J 21:68-73, 2014

4. Irabor DO: Diet, environmental factors and increasing incidence of colorectal cancer in Nigeria. Ann Nigerian Med 8: 58-64, 2014

5. Sankaranarayanan R: Screening for cancer in low- and middle-income countries. Ann Glob Health 80:412-417, 2014

6. Demyati E: Knowledge, attitude, practice, and perceived barriers of colorectal cancer screening among family physicians in National Guard Health Affairs, Riyadh. Int J Fam Med 2014:457354, 2014

7. Fijten GH, Starmans R, Muris JW, et al: Predictive value of signs and symptoms for colorectal cancer in patients with rectal bleeding in general practice. Fam Pract 12:279-286, 1995

8. Ford AC, Veldhuyzen van Zanten SJ, Rodgers CC, et al: Diagnostic utility of alarm features for colorectal cancer: Systematic review and meta-analysis. Gut 57:1545-1553, 2008

9. Olde Bekkink M, McCowan C, Falk GA, et al: Diagnostic accuracy systematic review of rectal bleeding in combination with other symptoms, signs and tests in relation to colorectal cancer. Br J Cancer 102:48-58, 2010

10. Tong GX, Chai J, Cheng J, et al: Diagnostic value of rectal bleeding in predicting colorectal cancer: A systematic review. Asian Pac J Cancer Prev 15:1015-1021, 2014

11. Adelstein BA, Macaskill P, Chan SF, et al: Most bowel cancer symptoms do not indicate colorectal cancer and polyps: A systematic review. BMC Gastroenterol 11:65, 2011

12. Astin M, Griffin T, Neal RD, et al: The diagnostic value of symptoms for colorectal cancer in primary care: A systematic review. Br J Gen Pract 61:e231-e243, 2011

13. John SK, George S, Primrose JN, et al: Symptoms and signs in patients with colorectal cancer. Colorectal Dis 13:17-25, 2011

14. Majumdar SR, Fletcher RH, Evans AT: How does colorectal cancer present? Symptoms, duration, and clues to location. Am J Gastroenterol 94:3039-3045, 1999

15. Vega P, Valentín F, Cubiella J: Colorectal cancer diagnosis: Pitfalls and opportunities. World J Gastrointest Oncol 7: 422-433, 2015

16. Saluja S, Alatise OI, Adewale A, et al: A comparison of colorectal cancer in Nigerian and North American patients: Is the cancer biology different? Surgery 156:305-310, 2014

17. Alatise OI, Arigbabu AO, Agbakwuru AE, et al: Polyp prevalence at colonoscopy among Nigerians: A prospective observational study. Niger J Clin Pract 17:756-762, 2014

18. Adekola L: Health insurance in Nigeria, 2015. http://www.medicalworldnigeria.com/2015/02/health-insurance-in-nigeria-by-dr-lawumi-adekola#.V0NHhOSHjYp

19. Ngoma T, Mandeli J, Holland JF: Downstaging cancer in rural Africa. Int J Cancer 136:2875-2879, 2015