

# Evaluation of the Diagnostic Accuracy of Three Measures for Assessing Chronic Constipation Among Older Patients Attending a Geriatric Care Facility in Oyo State, Nigeria

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## Abstract

**Background:** Chronic constipation is a symptom-based disorder that negatively impacts the quality of life of older people. Its definition is mainly subjective, resulting in wide estimates. Few empirical reports exist on chronic constipation among older Nigerians.

**Aim:** To determine the point prevalence and diagnostic accuracy using self-report, Bristol Stool Form Scale (BSFS) and Rome IV criteria for measuring chronic constipation among older patients (60 years and above) at a geriatric care facility in Nigeria.

**Methods:** A cross-sectional, hospital-based study was carried out among 232 patients. An interviewer-administered, semi-structured questionnaire was to collect data on chronic constipation, sociodemographic characteristics, dietary and bowel habits. Data were analysed using the Statistical Package for Social Sciences (SPSS) version 27. Descriptive and inferential statistics were done at  $p < 0.05$ .

**Results:** The mean age was  $70.9 \pm 7.2$  years, and 154 (66.4%) were females. Point prevalence of chronic constipation were self-report (22.0%), BSFS (13.4%) and Rome IV criteria (6.9%). In comparison with Rome IV criteria (the standard), the area under the curve (AUROC) for the self-report was 71.8% (95% CI: 57.4-86.1%) with a sensitivity (62.5%) and specificity (81.0%). For BSFS, the AUROC was 64.3% (95% CI: 48.0-80.6%) and sensitivity and specificity were 40.0% and 88.7%, respectively. The agreement was weak between self-report and Rome IV criteria (kappa: 0.22), BSFS and Rome IV criteria (kappa: 0.20), and self-reported and BSFS (kappa: 0.34).

**Conclusions:** Chronic constipation is common among older men. The three diagnostic tools yielded different prevalence with a weak agreement. Rome IV criteria are advocated for the diagnosis of chronic constipation among older Nigerians.

**Keywords:** Chronic constipation, older patients, Geriatric Clinic, Nigeria

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**Key Messages:** Chronic constipation among older adults is often overlooked, difficult to diagnose and may result in disability. The recommended tools for measurement are the Rome IV criteria to avoid delays in management.

## Abstrait

**Contexte:** La constipation chronique est un trouble basé sur les symptômes qui a un impact négatif sur la qualité de vie des personnes âgées. Sa définition est essentiellement subjective, ce qui donne lieu à des estimations larges. Il existe peu de rapports empiriques sur la constipation chronique chez les Nigériens âgés.

**Objectif:** Déterminer la prévalence ponctuelle et la précision du diagnostic à l'aide de l'auto-évaluation, de l'échelle de forme des selles de Bristol (BSFS) et des critères de Rome IV pour mesurer la constipation chronique chez les patients âgés ( $\geq 60$  ans) dans un établissement de soins gériatriques au Nigeria.

**Méthodes:** Une étude transversale en milieu hospitalier a été menée auprès de 232 patients. Un questionnaire semi-structuré administré par un intervieweur a recueilli des données sur la constipation chronique, les caractéristiques sociodémographiques, les habitudes alimentaires et intestinales. Les données ont été analysées à l'aide du package statistique pour les sciences sociales (SPSS) version 27. Les statistiques descriptives et inférentielles ont été réalisées à  $p < 0.05$ .

**Résultats:** L'âge moyen était de  $70.9 \pm 7.2$  ans et 154 (66.4%) étaient des femmes. La prévalence ponctuelle de la constipation chronique était autodéclarée (22.0%), BSFS (13.4%) et selon les critères de Rome IV (6.9%). En comparaison avec les critères de Rome IV (la norme), l'aire sous la courbe (AUROC) pour l'auto-évaluation était de 71.8% (IC à 95% : 57.4-86.1%) avec une sensibilité (62.5%) et une spécificité (81.0%). Pour le BSFS, l'AUROC était de 64.3% (IC à 95% : 48.0-80.6%) et la sensibilité et la spécificité étaient de 40.0% et 88.7%, respectivement. La concordance était faible entre les critères autodéclarés et Rome IV (kappa : 0.22), les critères BSFS et Rome IV (kappa : 0.20), et les critères autodéclarés et BSFS (kappa : 0.34).

**Conclusions:** La constipation chronique est fréquente chez les hommes âgés. Les trois outils de diagnostic ont donné des prévalences différentes avec un accord faible. Les critères de Rome IV sont préconisés pour le diagnostic de la constipation chronique chez les Nigériens âgés.

## Introduction

Chronic constipation is part of the functional gastrointestinal disorders (FGIDs) common among older people [1,2]. The disorder is symptom-based, and its definition is mainly subjective [3]. In this regard, there is often a lack of agreement between the physician and the patient's perception when defining constipation [3]. To better characterise the condition, physicians conceive constipation objectively using defecation frequency, with a normal range of between three and 21 bowel movements per week [3].

The definition of constipation has evolved over the past three decades, starting with the release of the Rome III criteria, which defined constipation as having fewer than three bowel movements per week. The Rome III criteria have a western-culture focus different from the more recent Rome IV criteria, which are evidence-based, multicultural-oriented, and have clinical applicability [3,4].

Common methods of assessing chronic constipation in the primary care setting include self-reports and using tools such as the Bristol Stool Form Scale (BSFS) and the diagnostic Rome IV criteria. The BSFS is useful in routine clinical practice as it uses visual descriptors to illustrate common stool forms and regularity on a 7-point scale [2,5]. The BSFS also complements the self-reported assessment in a patient with chronic constipation [2,5]. The Rome IV criteria is a widely recognised tool that uses standardised symptom-based criteria to diagnose chronic constipation [4,6]. In Nigeria, the self-reported assessment is commonly used to measure chronic constipation. The measure is based on subjective complaints and is influenced by cultural and social customs. However, the self-reported assessment has been reported to make evaluating the actual prevalence of constipation difficult. This difficulty is because the assessment is neither sensitive nor specific compared with symptom-based criteria such as the Rome IV [3].

Globally, the prevalence of constipation ranges between 2.6% - 30.7% due to the differences in the assessment criteria, dietary habits, and settings [2,7]. Among young adults, a recent systematic review showed the prevalence of chronic constipation for self-report (less than three bowel movements per week) as 2.7 – 17.4%, BSFS as 7.2%, and Rome IV criteria as 6.3 – 8.9% [8]. However, older adults have reported higher figures because the prevalence of constipation increases with age [1].

One in three community-dwelling older Americans reported constipation, while a prevalence of 80% was found among older persons in the UK, USA and Spain [1]. Few studies have emanated from Nigeria on the frequency of chronic constipation

among older persons. Adebusoye *et al.*, 2012 found a self-reported prevalence of 25% among ambulatory older patients at a tertiary hospital in southwestern Nigeria [9]. A previous study by Bakare *et al.* found 15.7% of community-dwelling older Nigerians reported having regular constipation [10].

Constipation is often overlooked by healthcare practitioners and underreported by older persons [11]. Health problems that do not inflict pain or limit their functionality are often not reported [11]. Also, healthcare practitioners seldom initiate discussion on constipation until older patients report it. It is not surprising that there is a lack of studies on this important health problem among older Nigerians. This study determined the prevalence of chronic constipation. The diagnostic accuracy and agreement of Self-report and BSFS compared to with Rome IV criteria among older patients at the pioneer geriatric centre in Nigeria.

## Subjects and Methods

**Study site:** This study was conducted at the Chief Tony Anenih Geriatric Centre (CTAGC), University College Hospital (UCH), Ibadan. Ibadan is the capital city of Oyo State in the southwestern area of Nigeria and has a population of 3.6 million [12]. The CTAGC is a purpose-built facility for the care of older patients in Nigeria, established on Nov 17 2012. The centre has facilities for outpatient care, in-patient care, surgery, physiotherapy, dietetics, ophthalmology, old age psychiatry, and dental care.

**Study design:** This was a cross-sectional hospital-based study.

**Study Population:** All newly registered male and female patients aged 60 years and above who presented consecutively at CTAGC between February and May 2021 were included in the study. Their ages were determined by the direct recall and the use of Ajayi-Igun's table of historical landmarks in Nigeria [13,14]. Those who did not consent or were too ill to participate in the study were excluded.

**Sample size:** The sample size was calculated using the Leslie and Kish formula for a single proportion with the best estimate for the prevalence of chronic constipation among older Nigerians (15.7%) [10] at a precision level of 5%. Thus, 232 older patients at the CTAGC were recruited.

**Procedure:** The respondents were interviewed using a semi-structured, pretested questionnaire to obtain information on the respondents' sociodemographic characteristics, lifestyle, and dietary habits. Anthropometric measurements included height,

measured to the nearest 0.1 meters using a measuring stand manufactured by Seca Corporation (Columbia, Maryland, USA). Weight was measured to the nearest 0.1 kilograms using a measuring scale manufactured by Hana, China. The Body Mass Index (BMI) was calculated from the weight in kg divided by height in m<sup>2</sup>. The World Health Organisation (WHO) anthropometric classification was used to classify the BMI as underweight (< 18.5kg/m<sup>2</sup>), normal (18.5 – 24.9 kg/m<sup>2</sup>), overweight (25.0 – 29.9 kg/m<sup>2</sup>) and obesity (> 30 kg/m<sup>2</sup>) [15].

**Assessment of Chronic constipation:** This was assessed with the self-report assessment, Bristol Stool Form Scale (BSFS) and Rome IV criteria. The self-report assessment was both self-defined and self-reported. Respondents were asked: “How often have you been constipated had difficulty passing stools in the past one month.” We did not provide them with any definition of constipation. The respondents were also asked: “Have you used a stimulant or osmotic laxative or enema at least once a week for the four weeks before the interview” [16] and “How often do you open your bowel in a day?” [16].

The Bristol Stool Form Scale (BSFS) is a useful visual aid designed to evaluate patients with constipation. BSFS is particularly useful in patients with self-reported constipation as it uses visual descriptors to illustrate common stool forms and regularity on a 7-point scale [2]. Constipation is indicated by Types 1 and 2 stool descriptions; Types 3 and 4 are considered normal, being easy to defecate with no excess liquid, while Types 5, 6 and 7 represent diarrhoea [2].

The Rome IV diagnostic criteria, which has been accepted as the gold standard, was used [6]. To make a diagnosis of chronic constipation, a patient must have experienced at least two of the following symptoms over the preceding three months:

- (a) Fewer than three spontaneous bowel movements per week
- (b) Straining for more than 25% of defecation attempts
- (c) Lumpy or hard stools for at least 25% of defecation attempts
- (d) A sensation of anorectal obstruction or blockage for at least 25% of defecation attempts
- (e) A sensation of incomplete defecation for at least 25% of defecation attempts

- (f) Manual manoeuvring is required to defecate for at least 25% of defecation attempts
- (g) The Rome IV criteria also stipulate that a patient should not meet the suggested criteria for irritable bowel syndrome (IBS) and that loose stools are rarely present without the use of laxatives [4,6].

**Ethical consideration:** Approval for the study was obtained from the University of Ibadan/University College Hospital Institution Ethical Review Board (Approval number: UI/EC/20/0243). Informed consent was obtained from each respondent before the examination and administration of the questionnaire.

**Data Analysis:** The administered questionnaires were checked, sorted and coded serially on each study day. Data entry, cleaning and analysis were carried out using the Statistical Package for Social Sciences (SPSS) version 27. Descriptive statistics were used for the sociodemographic characteristics of the respondents. Chi-square statistics were used to assess the association between categorical variables, and Student’s t-test was used for the continuous variables. The Cohen kappa coefficient evaluated the agreement among self-report assessment, BSFS and Rome IV criteria. Using the Rome IV criteria as the gold standard, the diagnostic performance of self-report assessment and BSFS was compared using receiver operating characteristics (ROC) curve analyses based on area under curve (AUC) values. The sensitivity and specificity of self-report assessment and BSFS were reported. The level of significance was set at p-value  $\leq 0.05$ .

## Results

Two hundred and thirty-two older patients were interviewed with a female: male ratio of 1.97. The mean  $\pm$  SD age of the respondents was 70.9  $\pm$  7.2 years (males > females = 71.7  $\pm$  7.3 > 70.6  $\pm$  7.2 years). A similar proportion of respondents were currently married (61.2%) and presently not working (62.5%). Most of the respondents did not live alone (93.5%). The children were the main source of financial support (75.0%) and their care needs (54.7%). (Table 1).

**Table 1: Sociodemographic Characteristics (N = 232)**

Variables	n	%
<b>Age group (years)</b>		
60-69	103	44.4
70-79	99	42.7
≥ 80	30	12.9
<b>Sex</b>		
Male	78	33.6
Female	154	66.4
<b>Marital Status</b>		
Currently married	142	61.2
Not currently married	90	38.8
<b>Educational Level</b>		
No formal education	48	20.7
Primary	46	19.8
Secondary	35	15.1
Tertiary	103	44.4
<b>Occupation</b>		
Presently working	87	37.5
Presently not working	145	62.5
<b>Living arrangement</b>		
Alone	15	6.5
Spouse/Children/Grandchildren	196	84.5
Relative and friends	21	9.0
<b>Number of living children</b>		
0 - 4	103	44.4
≥ 5	129	55.6
<b>Financial support**</b>		
Self	102	44.0
Spouse	38	16.4
Children	174	75.0
<b>Support for daily activities/Care needs**</b>		
Self	103	44.4
Spouse	87	37.5
Children	127	54.7
Relatives and friends	30	12.9

\*\*Multiple sources of support

The majority (70.7%) had 0 - 1 bowel opening daily, while 3.9% had three or more bowel openings each day. The median daily bowel opening was 1 (IQR = 1 -2) times. Only 4.3% of the respondents (females: 3.2% and Males: 6.4%) used stimulants/ osmotic laxatives or enemas to facilitate defecation. Less than a quarter (22.0%) engaged in self-medication. The majority (97.4%) of the respondents adopted the sitting position while defecating, while others squatted (2.6%). The most used toilet type is the water closet system (94.4%). The least common was the pit latrine and the use of a bucket or pan (1.3%).

The prevalence of self-reported chronic constipation was 22.0% (95% CI: 16.8 – 27.9), Bristol Stool Form Scale (BSFS) was 13.4% (95% CI: 9.3 – 18.4), and the Rome IV criteria were 6.9% (95% CI: 4.0 – 11.0). Using the Rome IV criteria, a significantly higher proportion of men reported constipation compared to females ( $p < 0.05$ ). Also, more respondents who drank coffee reported constipation compared to non-coffee drinkers. ( $p = 0.001$ ). However, there were no statistically significant factors with self-report and BSFS assessment methods. (Tables 2 and 3)

Table 2: Factors associated with constipation using self-report, Bristol stool chart and Rome IV criteria

Variables	Self-reported			Bristol stool			Rome IV criteria		
	Yes = 51 n (%)	No = 181 n (%)	p-value	Yes = 31 n (%)	No = 201 n (%)	p-value	Yes = 16 n (%)	No = 216 n (%)	p-value
<b>Sex</b>									
Male	20 (25.6)	58 (74.4)	0.34	14 (17.9)	64 (82.1)	0.14	9 (11.5)	69 (88.5)	0.04*
Female	31 (20.1)	123 (79.9)		17 (11.0)	137 (89.0)		7 (4.5)	147 (95.5)	
<b>Age group (years)</b>									
60-69	19 (18.4)	84 (81.6)	0.37	14 (13.6)	89 (86.4)	0.10	6 (5.8)	97 (94.2)	0.33
70-79	23 (23.2)	76 (76.8)		13 (13.1)	86 (86.9)		6 (6.1)	93 (93.9)	
≥ 80	9 (30.0)	21 (70.0)		4 (13.3)	26 (86.8)		4 (13.3)	26 (86.7)	
<b>Marital Status</b>									
Currently married	37 (26.1)	105 (73.8)	0.06	20 (14.1)	122 (85.9)	0.66	11 (7.7)	131 (92.3)	0.52
Not currently married	14 (15.6)	76 (84.4)		11 (12.2)	79 (87.8)		5 (5.6)	85 (94.4)	
<b>Educational Level</b>									
No formal	10 (20.8)	38 (79.2)	0.83	7 (14.6)	41 (85.4)	0.78	3 (6.2)	45 (93.8)	0.84
Formal	41 (22.3)	143 (77.7)		24 (13.0)	160 (87.0)		13 (7.1)	171 (92.9)	
<b>Occupation</b>									
Presently working	16 (18.4)	71 (81.6)	0.31	8 (9.2)	79 (90.8)	0.15	4 (4.6)	83 (95.4)	0.28
Presently not working	35 (24.1)	110 (75.9)		23 (15.9)	122 (84.1)		12 (8.3)	133 (91.7)	
<b>Number of children</b>									
0-4	25 (24.3)	78 (75.7)	0.45	13 (12.6)	90 (87.4)	0.77	8 (7.8)	95 (92.2)	0.64
≥ 5	26 (20.2)	103 (79.8)		18 (13.9)	111 (86.1)		8 (6.2)	121 (93.8)	
<b>Living arrangement</b>									
Alone	3 (20.0)	12 (80.0)	0.42	2 (13.3)	13 (86.7)	0.86	1 (6.7)	14 (93.3)	0.37
With Spouse/Children/Grandchildren	41 (20.9)	155 (79.1)		27 (13.8)	169 (86.2)		12 (6.1)	184 (93.9)	
Relatives and Friends	7 (33.3)	14 (66.7)		2 (9.5)	19 (90.5)		3 (14.3)	18 (85.7)	
<b>Financial support**</b>									
Self-supporting	18 (17.6)	84 (82.4)	0.43	15 (15.3)	83 (84.7)	0.32	9 (8.8)	93 (91.2)	0.73
Spouse	6 (15.8)	32 (84.2)		3 (8.1)	34 (91.9)		2 (5.3)	36 (94.7)	
Children/Grandchildren	40 (23.0)	134 (77.0)		17 (9.9)	155 (90.1)		12 (6.9)	162 (93.1)	
<b>Support for daily activities/Care needs**</b>									
Self-supporting	23 (22.4)	80 (77.7)	0.62	14 (14.0)	86 (86.0)	0.30	8 (7.8)	95 (92.2)	0.84
Spouse/Children/Grandchildren	42 (19.6)	172 (80.4)		26 (12.4)	184 (87.6)		15 (7.0)	199 (93.0)	
Relatives and friends	8 (26.7)	22 (73.3)		1 (3.4)	28 (96.6)		3 (10.0)	27 (90.0)	

\*\*Multiple sources of support

\*Statistically significant at p<0.05

Table 3: Lifestyle habits and nutritional factors associated with constipation using self-report, Bristol stool chart and Rome IV criteria

Variables	Self-reported			Bristol stool			Rome IV criteria		
	Yes = 51 n (%)	No = 181 n (%)	p-value	Yes = 31 n (%)	No = 201 n (%)	p-value	Yes = 16 n (%)	No = 216 n (%)	p-value
<b>Alcohol use</b>									
Yes	18 (21.2)	67 (78.8)	0.82	15 (17.6)	70 (82.4)	0.15	7 (8.2)	78 (91.8)	0.54
No	33 (22.4)	114 (77.6)		16 (10.9)	131 (89.1)		9 (6.1)	138 (93.3)	
<b>Coffee intake</b>									
Yes	43 (20.4)	168 (79.6)	0.06	26 (12.3)	185 (87.7)	0.14	11 (5.2)	200 (94.8)	0.001*
No	8 (38.1)	13 (61.9)		5 (23.8)	16 (76.2)		5 (23.8)	16 (76.2)	
<b>Level of Physical Activity</b>									
Active	42 (22.8)	142 (77.2)	0.54	23 (12.5)	161 (87.5)	0.45	11 (6.0)	173 (94.0)	0.28
Not Active	9 (18.8)	39 (81.2)		8 (16.7)	40 (83.3)		5 (10.4)	43 (89.6)	
<b>Declined food intake in the past 3 months</b>									
Yes	24 (16.2)	124 (83.8)	0.001*	17 (11.5)	131 (88.5)	0.27	12 (8.1)	136 (91.9)	0.33
No	27 (32.1)	57 (67.9)		14 (16.7)	70 (83.3)		4 (4.8)	80 (95.2)	
<b>Daily fruit/ vegetables intake</b>									
Yes	11 (22.4)	38 (77.6)	0.93	3 (6.1)	46 (93.9)	0.09	5 (10.2)	44 (89.8)	0.30
No	40 (21.9)	143 (78.1)		28 (15.3)	155 (84.7)		11 (6.0)	172 (94.0)	
<b>Frequency of meals per day</b>									
1-2	22 (24.2)	69 (75.8)	0.52	11 (12.1)	80 (87.9)	0.65	8 (8.8)	83 (91.2)	0.36
≥3	29 (20.6)	112 (79.4)		20 (14.2)	121 (85.8)		8 (5.7)	133 (94.3)	
<b>Mode of feeding</b>									
Self	48 (21.4)	176 (78.6)	0.28	30 (13.4)	194 (86.4)	0.94	15 (6.7)	209 (93.3)	0.52
With assistance	3 (37.5)	5 (62.5)		1 (12.5)	7 (87.5)		1 (12.5)	7 (87.5)	
<b>Body Mass Index</b>									
Underweight	0 (0.0)	2 (100.0)	0.57	0 (0.0)	2 (100.0)	0.66	0 (0.0)	2 (100.0)	0.38
Normal	20 (25.0)	60 (75.0)		9 (11.3)	71 (88.7)		8 (10.0)	72 (90.0)	
Overweight/Obesity	31 (20.7)	119 (79.3)		22 (14.7)	128 (85.3)		8 (5.3)	142 (94.7)	

\*Statistically significant at p&lt;0.05

\*\*Multiple sources of support

Figure 1 shows the frequencies of symptoms of chronic constipation experienced over the preceding three months using the Rome IV criteria. The most common symptom reported was having fewer than

three spontaneous bowel movements per week (17.2%). Few respondents (1.3%) reported that manual manoeuvring was required to aid defecation for at least 25% of their defecation attempts.

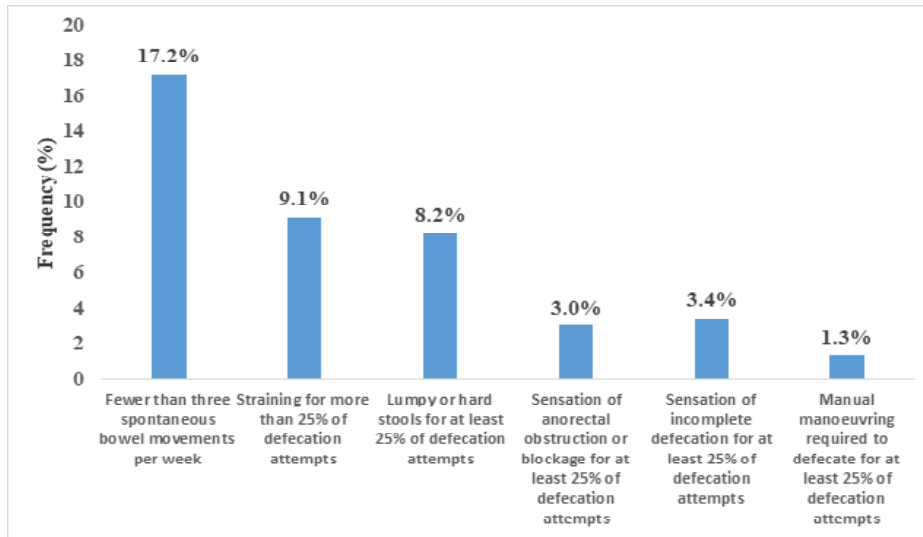


Figure 1: Frequency of symptoms of constipation (ROME IV criteria)

Using Rome IV as the diagnostic standard, the ROC curves (Figure 2a & 2b) show an accuracy of 71.8% (95% CI: 57.4 - 86.1%) for Self-report assessment and 64.3% (95% CI: 48.0 - 80.6%) for BSFS. The sensitivity was 62.5% while the specificity was 81.0% for the Self-report assessment. At the same time,

the sensitivity and specificity were 40.0% and 88.7%, respectively, for the BSFS. The level of agreement was weak between self-report and Rome IV criteria (kappa: 0.22), BSFS and Rome IV criteria (kappa: 0.20), and self-reported and BSFS (kappa: 0.34).

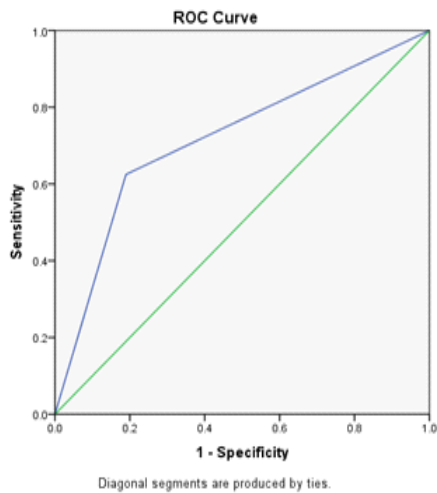


Figure 2a: ROC curve for Self-report and Rome IV criteria

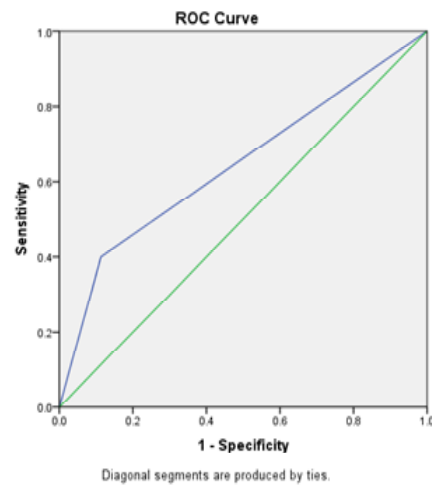


Figure 2b: ROC curve for Bristol Stool Form Scale and Rome IV criteria

## Discussion

The present study uses three common assessment measures to investigate the prevalence of constipation among older persons attending a geriatric centre in Oyo State, southwestern Nigeria. There were few reports on chronic constipation among older Nigerians for comparison. Similar to the findings in the literature, the prevalence of chronic constipation in our study by self-report was highest, followed by the assessment using the Bristol Stool Form Scale (BSFS), while the assessment using the Rome IV criteria was the least diagnostic [3,5,7,8,17,18]. Compared to the gold standard (Rome IV) criteria and based on the Youden index, the performances of self-report and BSFS were moderate, with the area under the ROC curve (AUROC) of 71.8% and 64.3%, respectively. The sensitivity of self-report assessment and BSFS with the Rome IV criteria was poor, though their specificities were good. The level of agreement among the tools was also weak. This finding was not surprising as the self-report assessment has been found to have poor sensitivity and specificity to the Rome IV criteria. The self-report assessment method is strongly influenced by its definition, which varies with individual perception, period of the symptoms, dietary and cultural differences [3,8]. Many persons who self-report chronic constipation are more focused on difficulties with bowel movements, such as straining, and do not meet the Rome IV diagnostic criteria for functional constipation [1,3]. Similarly, older adults may have difficulty with memory involved in retrieving relevant information and thus interpreting differently their constipation symptoms, such as sporadic constipation, which is as common in older persons as chronic constipation [8].

Research from a high-income setting suggests that constipation is not necessarily a physiologic consequence of normal ageing [19]. But rather a consequence of many age-related problems such as reduced ambulation, chronic morbidities, increased use of constipation precipitating medications and changes in dietary habits [19]. A study in Nigeria by Nwokediuko *et al.* suggests that the increase in chronic constipation with age may be explained by several factors. These factors include comorbidities, polypharmacy and sedentary lifestyle. Other factors that increase the likelihood of constipation in older individuals include using medications such as antidepressants and opioids [20]. In our study, two of the three measures employed (self-report and Rome IV criteria) showed increased prevalence with increasing age. However, the association was not statistically significant.

## Conclusion

To our knowledge, this was the first study among older Nigerians to determine the prevalence of chronic constipation and evaluate the diagnostic accuracy of the Self-report and Bristol Stool Form Scale (BSFS) with the Rome IV criteria. The subjective criteria (self-report assessment) yield is greater than that determined by objective criteria (Rome IV). Healthcare professionals in the primary care setting need to be aware of and assess chronic constipation with Rome IV criteria in the older population, especially at first contact consultation. Our study showed a weak agreement among the assessment methods. We advocate further research to examine the impact of different definitions on the prevalence estimates to help determine the best definitions for future epidemiological studies in older Nigerians.

## Limitations

The hospital-based nature of the study was likely to yield a higher prevalence of chronic constipation than expected in the general population. Also, our findings were based on self-reports among older adults who could have been subjected to recall biases.

**Conflict of interest declaration:** None

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