

Prevalence of irritable bowel syndrome: A community survey in an African population

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Abstract

Background: Irritable bowel syndrome (IBS) has been reported to be common in the West. Community surveys are lacking in the African setting. We determined the prevalence of IBS in a rural community setting in Nigeria.

Method: Questionnaires were administered to consenting individuals. Subjects satisfying the Rome II criteria for IBS were invited for physical examination at a health center to identify the presence of "alarm factors."

Results: One hundred forty (31.6%) of the 443 evaluated individuals fulfilled the Rome II criteria for IBS, with a male-to-female ratio of 1.37:1 ($P = .11$). The prevalence of IBS was highest (39.3%) in the third decade, followed by 25% in the fourth decade ($P = .009$). Ninety-six (67%) IBS individuals had the alternating pattern of diarrhea and constipation, whereas 28 (20%) and 19 (13%) had constipation and diarrhea subtypes, respectively.

Conclusion: IBS as diagnosed by the Rome II criteria has a high prevalence in the African rural population, as obtained elsewhere.

Keywords: Africans, Community, Irritable Bowel Syndrome

Résumé

Contexte: Irritable Syndrome (IBS) a été signalé à être commune à l'Ouest. Enquêtes communautaires font défaut dans le contexte africain. Nous avons déterminé la prévalence de IBS dans un milieu rural. communauté définition dans le Nigéria.

Méthode: Questionnaires ont été administré aux personnes consentantes. Sujets de satisfaction de la Rome II critères d'IBS ont été invités pour l'examen physique dans un centre de santé à identifier la présence de "alarme les facteurs".

Résultats: Un cent et quarante (31,6 %) des individus évaluées 443 rempli le Rome Critères II IBS avec un mâle à ratio féminin de 1.37:1 ($p = 0,11$). La prévalence IBS était plus élevé dans la troisième décennie (39.3 %), suivie de 25 % dans le quatrième dix ans ($p = 0.009$). Quatre-vingt-seize (67 %) IBS personnes avaient le modèle d'alternance de la diarrhée et constipation, alors que 28 (20 %) et 19 (13 %) avaient constipation et la diarrhée subtypes respectivement.

Conclusion: IBS comme un diagnostic par les critères de Rome II a une haute prévalence dans la population rurale africaine comme obtenu ailleurs.

Mots cles: Irritable Syndrome de la communauté, africains

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Introduction

Irritable bowel syndrome (IBS) is an indolent nonprogressive bowel disorder. It has significant

morbidity resulting in absenteeism at work and school and a reduced quality of life. It is a chronic disorder of unknown etiology clinically consisting of altered bowel habits, abdominal pain and the

absence of any detectable organic pathologic process. It is a disorder of young people between ages 20 and 50 years.^[1] The age of onset varies but is unusual after the age of 50.^[2] The incidence appears to increase during adolescence and peaks in the third and fourth decades of life.^[2]

IBS has been extensively studied in the western world. It has been shown that 15% of adults in the United States of America and a similar number in Europe report symptoms consistent with the diagnosis of IBS, while the figures for Asia and Africa are much lower.^[1,3] Eight percent of patients attending a clinic in Kenya and 33% of individuals seeking care in primary care settings in Nigeria were found to have IBS.^[4,5] A report from western Nigeria showed 30% prevalence in a select population of students.^[5] Recently, we reported a prevalence of 26.1% in a similar youthful population.^[6]

Generally, studies from Africa are hospital based^[3-6] and may not reflect the true prevalence of the disease. We describe the prevalence and characteristics of IBS in a rural community in Nigeria.

Methods

Study population

The study population consisted of consecutive willing individuals from Gindiri, a rural community located in Plateau State, Nigeria. They were individuals aged 15 to 50 years.

Study area

Gindiri is a district in Mangu Local Government Area of Plateau State. It has a population of 40,400 (2006 National Population Census Survey). It is mainly populated by peasants and farmers. It has several dispensaries and a Comprehensive Health Center that is supervised by the Community Health Department of the Jos University Teaching Hospital.

Ethical consideration

The ethics committee of the Jos University Teaching Hospital approved the study. Verbal informed consent was obtained from the subjects.

Study design

This was a descriptive study. Subjects were randomly selected for this study. A house-to-house visit was embarked upon, and individuals aged 15 to 50 years were offered the right to participate in the study. Subjects were interviewed using a standard questionnaire, as reported previously.^[6,7] Subjects satisfying the Rome II criteria^[8] for IBS were then invited to the Comprehensive Health Center for physical examination to identify the presence of

“alarm factors.” Microscopy of stools was carried out on all subjects for ova and cysts of intestinal parasites. Excluded from the study were pregnant women and subjects with “alarm factors.”

Statistical analysis

The minimum sample size was determined based on the prevalence reported in the literature, using the following formula:

$$N = \frac{(Z_{1-\alpha})^2(P)(1-P)}{d^2}$$

where

N = minimum sample size,

P = best estimate of prevalence of IBS from the literature review expressed as a fraction of 100 (in this case, 30% = 0.3),^[5]

Z_{1-α} = a constant at 95% confidence interval for a two-tailed descriptive study (= 1.96),

d = absolute precision, i.e., value required (in percentage points) which in actual terms describes the maximum difference between the population rate and the sample rate that can be tolerated. Five percent (0.05) is adapted for this study.

$$\text{Thus, } N = 1.96^2(0.3)(0.7) = 323 (0.05)^2$$

Consequently, 460 subjects were recruited for this study to improve the power of the study.

Data was analyzed using the Epi Info 2004 statistical program.

Means and standard deviations were used to describe continuous variables and proportions for categorical data. Two-tailed Student *t* test was used for comparison of means, while the significance of observed differences (proportions) was determined using chi-square test.

A *P* value of < 0.05 was considered statistically significant.

Results

Of the 460 subjects recruited, 17 were excluded (2 had incomplete records, 5 had blood in their stools, and 10 had parasitic infestations). Thus, 443 subjects (52.6% females and 47.4% males) were analyzed. The mean age of the population was 32.3 ± 10.9 years (range, 15-50 years), with mean age of the females being 33.4 ± 11.1 years and the mean age of males being 31.1 ± 10.7 years (*t* = 2.25; *P* = 0.02).

Prevalence of IBS

One hundred forty (31.6%) out of the 443 evaluated individuals fulfilled the Rome II criteria for IBS. Of the 140 IBS patients, 47.1% were females and 52.9%

Table 1: Distribution of the irritable bowel syndrome population and age group of the studied population demonstrating the relationship between them

Irritable bowel syndrome	Age group				Total (%)
	10-20(%)	21-30(%)	31-40(%)	41-50(%)	
Yes	23(16.4)	55(39.3)	35(25)	27(19.3)	140(31.6)
No	71(23.4)	74(24.4)	78(25.7)	80(26.4)	303(68.4)
Total	94(21.2)	129(29.1)	113(25.5)	107(24.2)	443(100)

($\chi^2 = 11.50$; $df = 3$; $P = 0.009$)

were males. The prevalence of IBS was highest in the third decade [Table 1], being 39.3%, followed by that in the fourth decade, being 25% ($\chi^2 = 11.50$; $P = 0.009$).

IBS subtypes

Ninety six (67%) IBS individuals had, characteristically, the alternating pattern of bowel habit, comprising diarrhea and constipation; whereas 28 (20%) and 19 (13%) had constipation and diarrhea subtypes, respectively.

Discussion

The prevalence of IBS in this community survey was 31.6%. This is higher than the rates of 10%-20% reported from Western communities^[9-11] and 4% in Singapore.^[12] There have been no community surveys in Africa to compare our results with. This rate is however comparable to the 30% prevalence reported by a previous study in western Nigeria,^[4] as well as an earlier report of 26.1%^[6] in Jos, Nigeria, although these studies were in a subset of the population. We had demonstrated a similar prevalence of 33% among patients seeking health care at primary health facilities within Jos, Nigeria.^[13] This suggests that IBS is about as prevalent in health care seekers as in non-health care seekers in Nigeria. Previous workers have shown that the rates of IBS are higher among patient populations relative to community samples.^[14] This finding shows that IBS is not rare among native Africans.

The prevalence of IBS was highest among subjects in their third decade of life when compared with subjects of other age groups. This is in agreement with the natural history of IBS, which has shown that the incidence of the disorder rises around adolescence and peaks in the third and fourth decades of life.^[1,2] However, other studies of the epidemiology of the disease in Bangladesh,^[15] Croatia^[16] and Turkey^[17] did not find any significant relationship between age and IBS. Generally, IBS is a disease of young adults. Subjects presenting with IBS-like symptoms in the older age have high chances of organic disease and should have colonoscopy performed.

Gender had no significant relationship to IBS in this study. This is similar to the finding in Iran by Hoseini and others.^[18] Studies in the western world and a similar study in the southern part of Nigeria show a female preponderance of IBS.^[19,20] In contrast, Indian and Kenyan investigators^[5] reported male preponderance. Our finding in this study agrees with our previous findings among a student population in Nigeria.^[6] These differences may be due to differing characteristics of the subjects; and the diagnostic criteria, as some of the studies used the Manning criteria.^[6]

Our study was not without limitations. The Rome criterion has not been validated in the African population even though it is widely used in clinical practice within the region. We attempted improving the accuracy of the diagnosis of IBS in this population by conducting stool microscopy, but it did not eventually change significantly the results with regard to prevalence when compared to those in previous reports from Nigeria.

In conclusion, IBS diagnosed by the Rome II criteria is quite common among our population. Clinicians need to be aware of this so as to help reduce the burden on already overstretched health facilities as well as manage the sufferers appropriately.

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