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a Tertiary Institution in Ekiti State, Nigeria**


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Abstract

Purpose: Dyspepsia is a common medical presentation especially in primary care with great impact on the quality of life of those affected with accompanied higher utilization of healthcare resources during investigations and treatment. Dyspepsia symptoms interfere with daily activities, with significant effect on quality of life, necessitating urgent need for the sufferers to seek relief either within established healthcare set up or other avenues. This study set out to observe health seeking behaviour and health related quality of life among dyspeptic students of a tertiary institution of Ekiti state.

Methodology: A descriptive and cross-sectional study among the students of Ekiti State University (EKSU). Students aged 16 and above who consented and were not acutely or chronically ill were randomly selected for the study, while those who were pregnant or showed signs of hepatic or pancreatic disease (such as yellow eyes) were excluded. Data were analyzed with IBM SPSS version 26. Main outcome measures in this study were the prevalence of uninvestigated dyspepsia, pattern of treatment practises of respondents when they had dyspepsia, the effect of dyspepsia on the quality of life of the respondents by Short Form of Nepean Dyspepsia Index (SF-NDI). Results were shown as proportions and means with 95% confidence; the P value was 0.05. Bivariate analysis of dyspeptic and non-dyspeptic groups association with health-related quality of life determined with Chi Square,

Findings: Three hundred and sixty-four respondents were enrolled. Dyspepsia was present among 169, 46.4% of the respondents. There was significant poor health seeking behaviour among the respondents with dyspepsia as 70 (41.4%) did nothing when they experienced dyspepsia and 64.6% reported significant reduction in health-related quality of life which was worse in the tension and anxiety subdomains.

Unique Contribution to Theory, Practice and Policy:

This study observed high prevalence of uninvestigated dyspepsia among the undergraduates with associated significant poor health seeking behaviour, and significant reduction of health-related quality of life, worse within the psychological domain. We recommend health education about dyspepsia and other chronic medical conditions among undergraduates during their enrolment in the university's healthcare system.

Keywords: *Health Seeking Behaviour, Health-Related Quality of Life, Dyspepsia, Undergraduate Students*

JEL Codes: *I10, I12, I19*

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INTRODUCTION

Dyspepsia is a common medical presentation especially in primary care. It is associated with great impact on the quality of life of those affected with accompanied higher utilization of healthcare resources during investigations and treatment. It could be associated sometimes with serious underlying conditions or with no organic cause on investigation. (Solomon et al., 2023; Fraser et al., 2007). It is a syndrome that is known to “having one or more of the following symptoms: epigastric pain, burning, postprandial fullness, or early satiation. (Solomon et al., 2023).

These symptoms interfere with daily activities, with significant effect on quality of life, necessitating urgent need for the sufferers to seek relief either within established healthcare set up or other avenues that this study seek to explore. (Khademolhosseini et al., 2010).

Health-related quality of life (HRQoL) assesses the impact of disease on health status based on patients’ perception themselves, with its negative demonstrable effects observed on the physical, social and psychological domains. (Egbo et al., 2024). It determines the burden of chronic ailments and effect of their treatment on individuals. (Egbo et al., 2024; CDC, 2000; El-Serag et al., 2004). Majority of patients with dyspepsia present in subacute form or have the disease in chronic state despite treatment. (Tack et al., 2004).

There were very few studies on HRQoL in dyspepsia and majority of these were in developed countries. (Egbo et al., 2024). A study from Africa, Rwanda by Bitwayiki et al. (Bitwayiki et al., 2015), revealed impaired HRQoL among dyspeptic health workers. Different studies on dyspepsia regardless of the aetiology, had reported impaired HRQoL in patients.^{9,10}(Masoumi, et al., 2015; Aro et al., 2011).

Dyspepsia has been known to be responsible for significant outpatient attendance, admission into the hospital and man-hour loss at work among hospital attendees, hence further compromising family income with added burden on already frail health system like Nigeria’s (Omar & Sholeye, 2017). There is little or no insight on the effect of dyspepsia among Nigeria undergraduates and their productivity; such knowledge will assist policy makers to know how seriously dyspepsia impact the quality of life among undergraduate dyspeptic in Nigeria.

This study set out to observe health seeking behaviour and health related quality of life among dyspeptic students of a tertiary institution of Ekiti state.

METHODOLOGY

This was a descriptive and cross-sectional study carried out among the students of Ekiti State University (EKSU), which is one of the tertiary education institutions within Ekiti state, it’s non-residential and about 1km to the town and 15km to the state capital.

Consenting students 16 years and above who were not acutely or chronically ill were recruited into the study by simple random sampling while those pregnant and those with yellowness of eyes signifying hepatic and/or pancreatic diseases were excluded.

Sample size was calculated using the formula; $n = (Z\alpha)^2 p q / d^2$, where $p=64\%$ (being the proportion of dyspepsia among undergraduate students of a tertiary institution in Lagos) (Omar & Sholeye, 2017), to determine the study population for the prevalence of uninvestigated dyspepsia among

student of a tertiary institution. A minimum sample size of 354 was arrived at. The questionnaires were distributed to those that met inclusion criteria using simple random technique.

Ethical approval was obtained from ethics and research committee of Ekiti state university teaching hospital.

The instrument used for this study was questionnaire that was self-administered by respondents and made up of 3 sections:

Section 1: Sociodemographic data.

Section 2: Short Form-Leeds Dyspepsia Questionnaire (SF-LDQ) is an abridged and revised version of Leeds Dyspepsia Questionnaire (LDQ). It had four questions from the LDQ and one question about the most troublesome symptom for the patient which had been found to be of greatest validity. (Fraser et al, 2007).

Each of the four questions in SF-LDQ has two stems to assess for the presence and severity of dyspepsia by measuring the frequency and severity respectively, of upper abdominal pain/discomfort (indigestion), heartburn, regurgitation and nausea during the last 2 months. Possible scores range from 0 to 32 with higher values corresponding with increasing severity of dyspepsia. The developers of the SF-LDQ have defined a score of 0 as 'no dyspepsia' a score of 1 - 4 as 'very mild dyspepsia', a score of 5 - 8 as 'mild dyspepsia', a score of 9 - 15 as 'moderate dyspepsia' and a score >15 as indicative of 'severe/significant dyspepsia'. (Bitwayiki et al., 2015).

Bitwayiki et al in their study, analysed these results using the continuous variables but also dichotomised, with those in the 'no dyspepsia' and 'very mild dyspepsia' groups defined as non-dyspeptic (i.e., those with an SF-LDQ score of <5) while those with a score equal or greater than 5 were classified as dyspeptic. (Bitwayiki et al., 2015). This was used to determine, prevalence of dyspepsia in this study.

Section 3: This had questions relating to treatment practises and Short Form of Nepean Dyspepsia Index (SF-NDI).

The SF-NDI is a ten-item questionnaire with five subscales, each assessing two aspects of how dyspepsia affects patient quality of life: tension/anxiety, disruption of daily activities, eating/drinking, disease symptoms knowledge and control, and interference with work/study. It is adapted from the original Nepean Dyspepsia Index designed for quality of life in functional dyspepsia research. (Egbo et al., 2024; Bitwayiki et al., 2015).

Each item is measured by a 5-point Likert scale ranging from 1 ('not at all' or 'not applicable') to 5 ('extremely'). Individual items in each subscale are added to obtain a score range from 10 (lowest score) to 50 (highest score). A higher score on the SF-NDI is indicative of a poorer quality of life, with patients with total scores ≥ 15 having been shown by the designers of this instrument to have significantly reduced health-related quality of life. The NDI and SF-NDI have been used in other studies and have been validated in various populations as accurate and reliable tools to measure the impact of dyspepsia on quality of life. (Egbo et al., 2024; Bitwayiki et al., 2015).

Data was entered, cleaned and analysed using SPSS version 26 developed by IBM.

Main outcome measures in this study were the prevalence of uninvestigated dyspepsia, pattern of treatment practises of respondents when they had dyspepsia, the effect of dyspepsia on the quality of life of the respondents by SF-NDI. Categorical and continuous variables were treated with use of frequency tables and result presented in proportion and means respectively with 95% confidence. Bivariate analysis of dyspeptic and non-dyspeptic groups association with treatment practises and health related quality of life determined with Chi Square. P value was set at 0.05.

RESULTS

Total of 364 respondents were enrolled for this study, with mean age of 22 ± 1.68 yrs.

There was a female preponderance among the respondents with a M:F ratio of 1:1.4. one hundred and sixty-six (45.6%) of respondents, drink water from public well while 322 (88.5%) live on less than National minimum wage of ₦ 70,000. (Table 1)

Table 1: Sociodemographic Characteristics of Respondents

Variable	Frequency	Percentage (%)
Age		
< 20 years	130	35.7
21-30 years	224	61.6
> 30 years	10	2.7
Mean Age = 22 ± 1.68 yrs		
Gender		
Male	155	42.6
Female	209	57.4
Religion		
Christianity	344	94.5
Islam	17	4.7
Traditional	3	0.8
Water Supply		
Borehole	59	16.2
Private well	103	28.3
Public Tap	28	7.7
Public Well	166	45.6
Water Tanker	8	2.2
Toilet Facility		
Water Closet	269	73.9
Pit Latrine	82	22.5
Open Defecation	13	3.6
Average Monthly Income		
<N30,000	213	58.5
N30,000 – N70,000	109	30.0
N 70,000 -N149,999	24	6.6
N150,000 –N300,000	8	2.2
>N300,000	10	2.7

Table 2: Comparison of Sociodemographic Characteristics by Dyspepsia

Variable	Dyspeptic	Non-Dyspeptic	P Value
	Frequency (%)	Frequency (%)	
Age			
< 20 years	52 (40.0)	78 (60.0)	0.28
21-30 years	111 (49.6)	113 (50.4)	
> 30 years	6 (60.0)	4 (40.0)	
Gender			
Male	71 (45.8)	84 (54.2)	0.83
Female	111 (53.1)	98 (46.9)	
Religion			
Christianity	155 (45.1)	189 (54.9)	0.05
Islam	6 (35.3)	11 (64.7)	
Traditional	0 (0.0)	3 (100.0)	
Water Supply			
Borehole	41 (69.5)	18 (30.5)	0.00*
Private well	34 (33.0)	69 (67.0)	
Public Tap	13 (46.4)	15 (53.6)	
Public Well	77 (46.4)	89 (56.3)	
Water Tanker	4 (50.0)	4 (50.0)	
Toilet Facility			
Water Closet	127 (47.2)	142 (52.8)	0.87
Pit Latrine	36 (43.9)	46 (56.1)	
Open Defecation	6 (46.2)	7 (53.8)	
Accommodation			
Flat	5 (33.3)	10 (66.7)	0.50
Self-Contained	58 (51.3)	55 (48.7)	
Hostel	96 (45.1)	117 (54.9)	
Multiroom	10 (43.5)	13 (56.5)	
Average Monthly Income			
<N30,000	94 (44.1)	119 (55.9)	0.72
N30,000 - N65,000	56 (51.4)	53 (48.6)	
N 65,000 -N149,999	12 (50.0)	12 (50.0)	
N150,000 –N300,000	3 (37.5)	5 (62.5)	
>N300,000	5 (50.0)	5 (50.0)	

Among all the socio-demographic characteristics considered like age, sex, religion, type of accommodation, type of toilet facility and water source, surprisingly only water sourced from borehole was significant with the presence of dyspepsia. (Table 2)

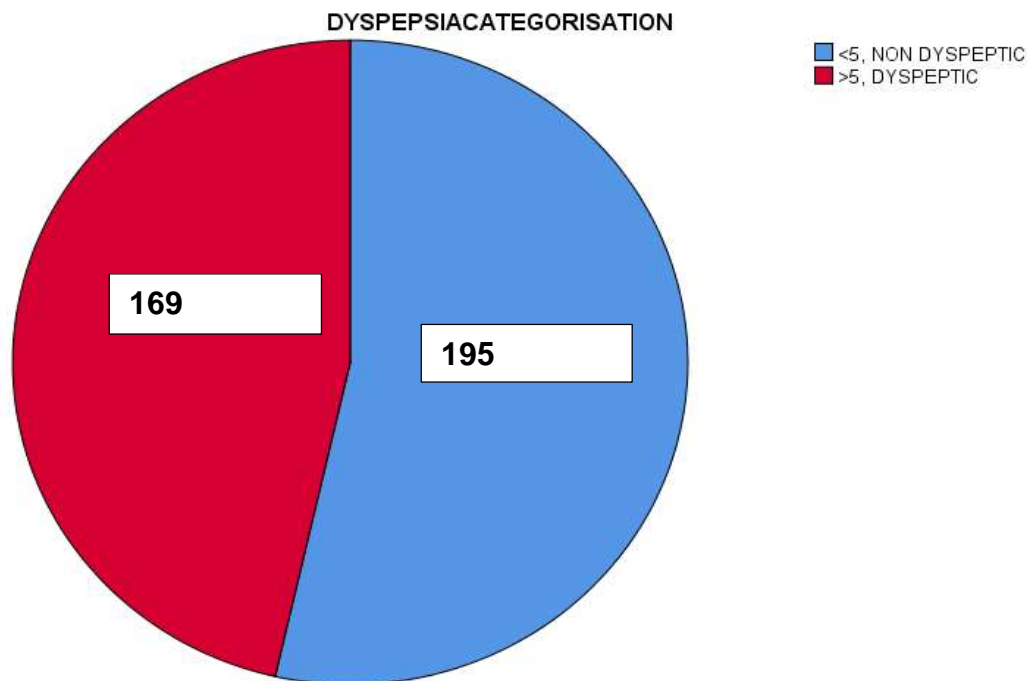


Figure 1: Prevalence of Dyspepsia among Respondents

Dyspepsia was observed to be significantly present among the students of Ekiti state university with 169, 46.4% of the respondents reported to have dyspepsia. (Fig. 1)

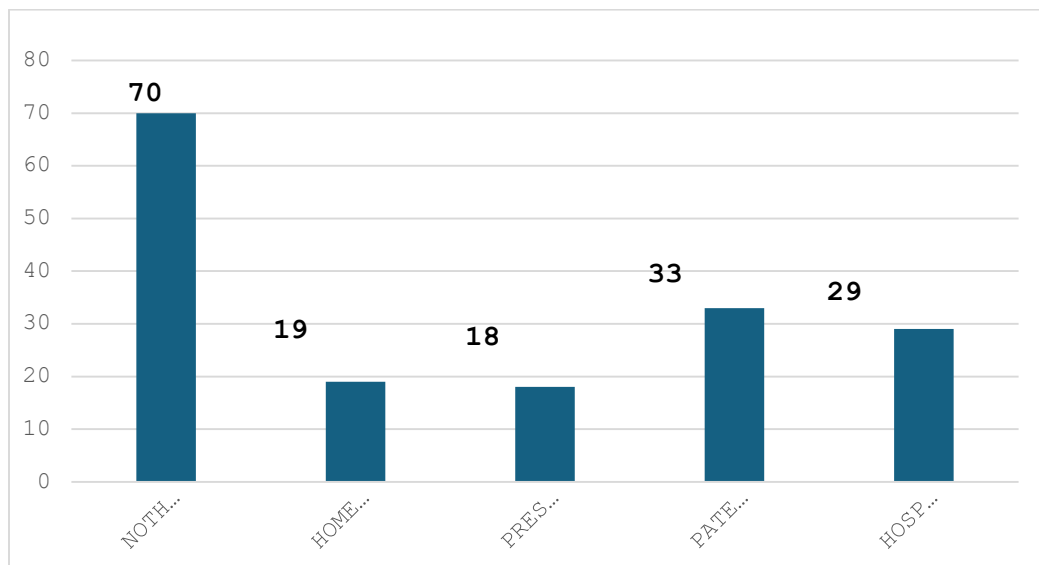


Figure 2: Health Seeking Behaviour among Respondents

There was significant poor health seeking behaviour among the respondents with dyspepsia as 70 (41.4%) did nothing when they experienced dyspepsia, while 19(11.2%), 18(10.7%), 33(19.5%), and 29(17.2%) use home remedies, prescription given to others, patronised patent medicine outlets and hospitals/clinics respectively. (Fig 2)

Total of 325 of the respondents completed the Nepean Dyspepsia Index measuring the health-related quality of life. The total mean HRQoL of patients with dyspepsia was 16.9 ± 7.3 . Subdomain analysis showed that affectation of tension domain was worst with score of 3.52 ± 1.69 followed by 3.50 ± 1.72 , 3.41 ± 1.78 , 3.34 ± 1.80 and 3.24 ± 1.59 for eating/drinking, interference, work/study and knowledge domains respectively.

Table 3: Relationship between Quality of Life and Dyspepsia in Respondents

Quality of Life	Dyspepsia	Non-Dyspepsia	P value
Poor Quality of Life (NDI ≥ 15)	84 (64.6%)	46 (35.4%)	< 0.00
Good Quality of Life (NDI < 15)	80 (41.0%)	115 (59.0%)	

Among dyspeptic respondents, 164 out of 169 (97.0%) completed the health-related quality of life questionnaire. 84 (64.6%) of the dyspeptics reported significant reduction in health-related quality of life (poor) compared to 46 (35.4%) of non-dyspeptics. This is significant when compared with those with insignificant reduction. ($p = 0.00$) Table 3.

Table 4: Comparison of Health-Related Quality of Life by SF-NDI between Dyspeptic and Non-dyspeptic Respondents

SF-NDI domains	Dyspeptics	Non-dyspeptics	P- value
Tension/Anxiety	3.52 ± 1.689	2.88 ± 1.249	< 0.001
Interference in regular activities	3.41 ± 1.782	2.71 ± 1.263	< 0.001
Affectation of eating /drinking	3.50 ± 1.721	2.60 ± 1.039	< 0.001
Knowledge and control	3.24 ± 1.589	2.47 ± 1.157	< 0.001
Interference with work/study	3.34 ± 1.801	2.6 ± 1.357	< 0.001

Table 4 compared the mean scores based on SF-NDI among dyspeptic and non-dyspeptic respondents. It was observed that feeling of Tension/Anxiety scored marginally highest, 3.52 ± 1.689 , followed by affectation of eating/drinking, 3.50 ± 1.721 . The mean scores were significantly higher among the dyspeptics in all the domains tested by SF-NDI compared to non-dyspeptics ($p = < 0.001$)

Discussion

Dyspepsia substantially affects quality of life and contributes to considerable societal expenditures, including direct medical costs—such as physician consultations, diagnostic procedures, and medications—and indirect expenses related to workplace absenteeism or

diminished productivity. Accordingly, this study aimed to evaluate health-seeking behaviours and examine the effect of uninvestigated dyspepsia on students' health-related quality of life. (Jemilohun &, Fadare, 2013).

Participants' mean age in this study of 22 ± 1.68 yrs is comparable to that of participants of the study among the undergraduate students of Lagos state polytechnic of 23 ± 3.31 years, (Jamiu & Oluwafolahan, 2017), and college students in Zhejiang Province, China with mean age of 21.3 years. (Li et al., 2014). This similarity between our study and the Lagos study could be because of the study location being in the same southwestern geopolitical zone of Nigeria where undergraduate enrolment is highest among the geopolitical zones, (Emmanuel, 2019).

This study reports a prevalence of 46.4% of uninvestigated dyspepsia among undergraduate students of Ekiti state this is lower than 64.6% observed in Lagos (Jamiu & Oluwafolahan, 2017) and significantly higher than the prevalence of 5.67% and 16.86% of uninvestigated dyspepsia observed in the Zhejiang (Li et al., 2014). and Guangdong (Huang et al., 2020), provinces of China. These difference in the prevalences may be because of different geographical locations.

The health seeking behaviour of this study participants seem worse as 41.1% of those with uninvestigated dyspepsia "did nothing" while 47.4 % use one form of western medicine or the other, when compared with 24% and 9.6 % of respondents who "did nothing" and use herbal medicine respectively in a study among rural dweller of eastern Uganda. (Yang et al., 2019) This observation despite the expected low health literacy level among rural dwellers compared undergraduates. (Chiweta-Oduah, O., & Buchanan, S. 2025) could be because of poor attitude towards health and peer influence already documented among adolescents and young people that formed majority of this study population according to Andersen's Behavioural Model. (Lawal et al., 2023)

The finding is lower than 56 % utilisation of one western medicine or the other in an Hong Kong study. (Hu, 2002). The increased utilisation value could be because of the associated anxiety observed in the study.

The total mean SF-NDI among dyspeptic in our study was 16.9, this is like the total mean SF-NDI score of 15.20 found among healthcare workers with uninvestigated dyspeptic participants in Rwandan study. (Bitwayiki et al., 2015). The comparativeness of this finding could be because of the populations studied were both community-based and were among uninvestigated dyspeptic participants.

This is much lower than that among dyspeptic patients referred for upper gastrointestinal endoscopy at the University of Benin Teaching Hospital of 31.3 ± 9.1 . (Egbo et al., 2024). This could be because of the difference in the populations studied, while our study was community based with uninvestigated dyspepsia where a larger proportion have not benefited from appropriate care based on western medicine, the Benin study was among those that have been diagnosed and treated for more than 6 months and were referred for upper GI endoscopy mostly because of symptom un-abatement.

This study observed significant elevation between the mean scores in the different domains of health-related quality of life using SF-NDI with most significant elevation being in the tension/anxiety and eating/drinking domain, compared to the non-dyspeptic participants. This

significant difference between the scores among dyspeptics and non-dyspeptics could be attributed to presence of dyspepsia as both groups operated within same environment and had no significant difference in their sociodemographic factors. The finding is comparable to that in Bitwayiki et al. (Bitwayiki et al.,2015). This similarity could be because both populations were uninvestigated dyspeptics compared to the higher mean score in Egbo et al study that was among chronic dyspeptics within hospital setting and diagnosis being a mixture of functional dyspepsia, gastritis, peptic ulcer disease (PUD), gastroesophageal reflux disease (GERD) amongst others. (Egbo et al., 2024).

CONCLUSION AND RECOMMENDATION

Conclusion

This study observed high prevalence of uninvestigated dyspepsia among the undergraduate students of a tertiary education institution of Ekiti state with associated significant poor health seeking behaviour as majority this may lead to higher burden of chronic dyspepsia later in life. The dyspeptic respondents were also observed to have significant reduction of health-related quality of life within the psychological domain represented by highest mean score of feeling of anxiety and tension, this may impact their academic performance with reduced opportunity in the future.

Introduction student health insurance and health education about dyspepsia and other chronic medical conditions among undergraduate students especially during their enrolment in the university's healthcare system in order to mitigate the possible psychological affectation and subsequent effect on their studies.

Recommendation

We recommend further studies to monitor the progress of dyspepsia among its sufferers in higher institution, its impact on their educational performance and quality of life over time.

Limitation

1. The findings of this study may not be generalizable being cross sectional in design.
2. Although dyspepsia in this study was diagnosed by self-reported symptoms using LDQ with evidenced good validity and reliability, the diagnosis may not be as accurate as with clinical consultations.

Conflict of Interest

The authors declare that there is no conflict of interest in the design and execution of the research work.

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