

Medical Morbidity Profile of Adults in a Rural Community in Enugu, Southeast Nigeria: A Cross Sectional Survey

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Abstract

Introduction: People in rural communities are exposed to the risk factors for non-communicable disease as those in urban areas. Correct interpretation and management of symptoms are important in primary care especially in rural communities where diagnostic facilities are not readily available. **Materials and Methods:** This was a cross-sectional study carried out in a village in Enugu South Local Government area of Enugu State. Thorough medical history was taken from all eligible participants who gave their consent. Data were analyzed using SPSS version 26. **Results:** Data from a total of 1019 (64.7%) out of 1576 participants were analysed. Fever was by far the most common presenting complaint 580 (56.9%) of all participants and 67.9% of medical complaints seen in the clinic. This was followed remotely by musculoskeletal problems and neurological problems 15.6% and 3.8% of the participants respectively. Across all age groups, febrile illness was more than non-febrile illness except in those 65 years. Generalized body pains 74 (7.3%), back pains 55 (5.1), headache 33 (3.2%) and abdominal pains 24 (2.4%) were the commonest symptoms presented by the participants. About 15 (1.5%) of the population surveyed had had trauma/surgery in the past. This was twice the number who presented to the clinic with symptoms related to injury and trauma 7 (0.7%). **Conclusions:** Fever and musculoskeletal pains are the dominant medical complaints presented by adults in a rural community clinic. This may be related to the season of the year and the occupation of the popu-

lation studied.

Keywords

Symptoms, Infectious Diseases, Non-Communicable Diseases, Rural Community, Southeast Nigeria

1. Introduction

Past few decades have brought tremendous changes in the lifestyles of Nigerians as well as in their health status. These changes are reflected in the pattern of medical disorders in both urban and rural populations [1] [2] [3]. For example, across the country modes of transportation have changed, more people have access to refined food, consumption of alcohol and smoking of cigarette has also increased. Thus, people in rural communities are exposed to the risk factors for non-communicable disease as those in urban areas. As in many other developing countries, these changes have resulted in mixed outcomes because of sustained use of alternative medical practices and dearth of qualified medical personnel especially in rural areas [4]. The emergence of COVID-19 even among rural dwellers shows that modern travel and population mix-up plays a strong role in development and spread of diseases irrespective of geographical location [5].

Surveys of medical admissions into Nigerian health institutions indicate a rising burden of non-communicable diseases without a significant decline in infectious diseases in our communities [6]-[13]. Studies that focused on rural communities have not shown any consistent pattern primarily because of study methodology and the populations studied [14] [15] [16]. A study in Southwest Nigeria by Umar *et al.* [7] showed that malaria and upper respiratory tract infections were the most common ailments for which the community members sought health care.

In southeast Nigeria, people often relocate to their villages after retirement and elderly individuals are known to have more health needs and may have multiple coexisting chronic medical conditions [13] [15] [17] [18] [19]. A study from South Africa reported that at least 69.4% of elderly people surveyed had at least two conditions [19]. In Nigeria, Abdulraheem *et al.* [18] reported a multi-morbidity rate of at least 68.4%, and also demonstrated that multi-morbidity increased with age.

Hospital based studies have reported varying pattern of medical disorders in various regions of the country [8]-[13] [17] [18]. Cardiovascular disease and its complications such as stroke have often emerged as the commonest reason for medical admission or clinic visit. Egbi *et al.* [9] reported that cardiovascular and infectious diseases were the commonest causes of medical admission which was in keeping with reports by Akoria and Jimoh [12] in another part of the country. Ezeala-Adikaibe *et al.* [8] reported neurological diseases as the commonest cause of medical ward admissions. In community-based surveys, definitive diagnosis

may not always be possible as seen in hospital-based studies thus most diagnoses are symptom-based. For example, while malaria admissions may be few in hospital-based studies, cases of acute febrile illness in the community are often presumed to be malaria. Furthermore, non-communicable diseases such as diabetes, arthritis and dyspeptic symptoms may be relatively more frequent in community settings because such cases are often managed as outpatients [18] [19].

Correct interpretation and management of symptoms are important in primary healthcare especially in rural communities where diagnostic facilities are not readily available. Generally, because of limitations in vocabulary to explain their symptoms, people tend to use different phrases to explain their symptoms and this may constitute a challenge in rural practice. Furthermore, many people visit patent medicine dealers and pharmacists for care, where they are treated based on symptoms. Studies on symptomatology and morbidity patterns are important because they provide information on the health status of the population and data for healthcare managers. Such information is also useful for epidemiologists and public health specialists for research, training, and allocation of resources. Such data also provide insight into the health status of the poor and the elderly; and may also be a surrogate to occupational diseases.

2. Materials and Methods

This study was carried out in Ugwuomu Village in Enugu South Local Government area of Enugu State. Before the study we could not gather any reliable data on the population of the Village. The village is located about 25 - 30 kilometers from Enugu metropolis, the capital city of Enugu State in Southeast Nigeria. The village has one primary and one secondary school which also serves the people from surrounding villages. There was a health center in the village at the time of the study. Although most healthcare needs within the village are tended by auxiliary nurses, most of the population still has access to health care facilities in the city. Source of drinking water is mainly well water. Formal sewage disposal system is non-existent in the village, but several homes have either pit latrines or water closet system.

Study design and recruitment of participants.

This was a three-phase cross-sectional descriptive study carried out to survey the pattern of presenting complaints/symptoms among residents of the village. The first phase of the study was sensitization of the community through meetings with elected community leaders, churches, and town announcer. The first phase of the study was carried out in the first week but also continued into the second phase (3 weeks in all). All consecutive consenting adults 18 years and above were included in the study. The duration of the study was 4 weeks (1st to the 4th week of August 2019).

In the second phase of the study, participants were visited in their homes and basic health information obtained. All consenting individuals were also invited to come to the clinic on any day of their choice within the stipulated time and

for follow up where necessary. This phase of the study started on the second week and lasted till the end of the third week (2 weeks in all).

The third phase of the study was carried out in a field clinic during the fourth week of the study; however, it also overlapped with the last week of the second phase. During this phase, medical history was confirmed, and treatment given to participants depending on their health needs. The third phase of the survey lasted for one week.

The duration of the study was 4 weeks. All consecutive consenting adults 20 years and above were included in the study. The study protocol was reviewed on behalf of the State (Enugu State) Ministry of Health by the Ethics committee of the Enugu State University of Science and Technology Teaching Hospital and University of Nigeria Teaching Hospital, Enugu. All participants gave their informed consent after reading or having the consent form read for and explained to them.

2.1. Data Collection

Thorough medical history was taken from all eligible participants who gave their consent. If a household have more than one eligible person all were recruited and interviewed. All the doctors that participated in the study were either senior residents or consultants in the department of medicine. Blood pressure measurements were obtained from the non-dominant arm using a standard cuff with an inflatable bladder of $22 \times 12 \text{ cm}^2$ if the arm circumference was 32 cm, and cuffs with a $35 \times 15 \text{ cm}^2$ bladder on larger arms. The average value of three blood pressure measurements was used for the analysis. Fasting blood glucose was measured using a glucometer (Fine test premium; Infobia Co. Ltd., Dongan-gu, South Korea). The waist and hip circumference were measured using a standard centimeter tape, by standard method.

2.2. Definition of Terms

Medical history of hypertension was defined as reporting use of antihypertensive drug therapy. Medical history of diabetes was defined as reporting use oral hypoglycemic agents or use of insulin. Definitions of other medical conditions were based on medical history of the disease condition either diagnosed by a medical practitioner (medical doctor or a nurse) or use of appropriate medications or both. Occupation was defined as the respondent's primary job and or source of income in a month. An artisan was defined as a skilled manual worker in a particular trade or craft, such as masonry, mechanics, tailoring, welding, metal working and other crafts. Professional drivers were also grouped as artisans. Office workers included teachers, civil servants and individuals that spend most of their working hours in the office. Level of education was the highest educational attainment (primary education, secondary, and tertiary) at the time of the study. Artisans and farmers were grouped as manual laborers. A complaint was regarded as chronic (grouped as past medical history) if the symptoms have lasted more than 4 weeks.

2.3. Sample Size

Since the population of the village was not known, we assumed that 50% of the adults in the village will have at least one medical disorder. The sample size was therefore calculated using the formula:

$$N = (Z^2 pq) / d^2$$

where N = desired sample size and population.

P = prevalence rate of hypertension, d = desired precision limit assumed at 5%

$$N = (1.96^2 \times 0.50 \times 0.50) / 0.0025 = 384.2$$

$N = 384$. Adding 10% of the sample size to mitigate for attrition of participants, we obtained a minimum sample size of 422 participants.

2.4. Statistical Methods

For database management and statistical analyses, we used the SPSS version 26 (IBM Corporation, New York, NY, USA). Data were presented in tables and figures. For continuous variables, mean values and standard deviation were calculated. Prevalence of medical complaints/symptoms was expressed as percentages. Other statistical methods also included Student's T-test for unpaired observations to compare means. In all, P -value < 0.05 was regarded as statistically significant. Conclusions were drawn at the level of significance. The confidence level was kept at 95%.

3. Results

3.1. Characteristics of the Participants

A total of 1019 (64.7%) out of 1576 participants who were initially surveyed volunteered their medical history and their data were analysed. Females were significantly more than males (653 (64.1%) versus 366 (35.9%)). The age distribution of the participants is shown in **Table 1**. The mean age of the participants was 42.1 ± 16.1 years.

The age and sex distribution showed that males and females were evenly distributed. At the time of the study most of the participants were farmers 399 (39.2%) and had at least completed primary school 393 (38.6%).

Mean systolic and diastolic blood pressures were similar in both sexes. Fasting blood glucose was higher in males (112 ± 36.3) than in females (106.7 ± 25). $P = 0.03$.

3.2. Morbidity

Only 165 (16.2%) of the participants did not present with any medical complaints (**Table 2**). Fever was by far the most common presenting complaint 580 (56.9%) of all participants and 67.9% of medical complaints seen in the clinic. This was followed remotely by musculoskeletal problems 15.6% (or 18.6% of those who were sick) and neurological problems 4.2% (or 4.8%) of the participants respectively.

Table 1. Sociodemographic and other variables of the population.

| Variables | Male | Female | Total | P-value |
|---|--------------|--------------|--------------|---------|
| Age (years) | | | | |
| Mean (SD) | 41.8 (16.3) | 42.2 (15.9) | 42.1 (16.1) | 0.72 |
| Median | 40 | 39 | 39 | |
| Interquartile range | 26 | 25 | 73 | |
| <45 | 212 (57.9) | 395 (60.5) | 607 (59.6) | |
| 45 - 54 | 65 (17.8) | 92 (14.1) | 157 (15.4) | |
| 55 - 64 | 44 (12) | 90 (13.8) | 134 (13.2) | |
| ≥65 | 45 (12.3) | 76 (11.6) | 121 (11.9) | 0.4 |
| Mean waist-hip ratio | 0.89 (0.21) | 0.91 (0.18) | 0.9 (0.19) | 0.17 |
| Occupation | | | | |
| Not working | 15 (4.1) | 29 (4.4) | 44 (4.3) | |
| Trading | 91 (24.9) | 151 (23.1) | 242 (23.7) | |
| Farming | 122 (33.3) | 277 (42.4) | 399 (39.2) | |
| Artisans | 21 (5.7) | 24 (3.7) | 45 (4.4) | |
| Students | 56 (15.3) | 83 (12.7) | 139 (13.6) | |
| Teaching/Civil servants | 58 (15.8) | 87 (13.3) | 145 (14.2) | |
| Others | 3 (0.8) | 2 (0.3) | 5 (0.5) | |
| Manual laborers | 143 (39.1) | 301 (46.1) | 444 (43.6) | |
| Non-manual laborers | 223 (60.9) | 352 (53.9) | 575 (56.4) | 0.03 |
| Level of education | | | | |
| Primary | 145 (39.6) | 248 (38) | 393 (38.6) | |
| Secondary | 56 (20.8) | 138 (21.1) | 194 (19) | |
| Tertiary | 10 (2.7) | 17 (2.6) | 27 (2.6) | |
| Not indicated | 135 (36.9) | 250 (38.3) | 385 (37.8) | |
| Hemodynamic and blood glucose measurements | | | | |
| Mean systolic Blood pressure | 127.1 (17.7) | 126.6 (17.9) | 126.9 (17.8) | 0.67 |
| Mean diastolic blood pressure | 68.9 (10.8) | 68.6 (11.5) | 68.7 (11.3) | 0.71 |
| Mean Fasting Blood glucose | 112 (36.3) | 106.7 (25) | 108.7 (29.8) | 0.03 |
| Chronic medical complaints | 123 (33.6) | 220 (33.7) | 343 (33.7) | |
| Total | 366 (35.9) | 653 (64.1) | 1019 (100) | <0.01 |

Table 3 shows the sex distribution of symptoms. While gastroenterological complaints were 3 times more frequent among females, respiratory complaints were two times more common among males occurring in 9 (2.5%) of males and 7 (1.1%) of the female. Endocrine and skin complaints were more common among females. Fever was the commonest complaint in the field clinic and was seen in 375 (57.4%) of the females and 205 (56%) of the males.

Table 2. Distribution of presenting complaints reported at the clinic.

| ICD 10 classification | Freq (% of all Participants) | Freq (% of sick participants) |
|-----------------------------------|------------------------------|-------------------------------|
| Healthy | 165 (16.2) | - |
| Fever | 580 (56.9) | 580 (67.9) |
| Musculoskeletal disorders | 159 (15.6) | 159 (18.6) |
| Neurological disorders | 41 (4.2) | 41 (4.8) |
| Cardiovascular disorders | 27 (2.6) | 27 (3.2) |
| Gastroenterology disorders | 24 (2.4) | 24 (2.8) |
| Respiratory disorders | 16 (1.6) | 16 (1.8) |
| Endocrine disorders | 8 (0.9) | 8 (0.9) |
| Skin diseases disorders | 7 (0.7) | 7 (0.8) |
| External causes of injury | 7 (0.7) | 7 (0.8) |
| Others | 3 (0.3) | 8 (0.9) |
| Total | 1019 | 854 |

Table 3. Sex distribution of patients' complaints by systems affected*.

| System affected | Female | Males | Total | Male:Female |
|------------------|------------|------------|------------|-------------|
| No complaints | 93 (14.2) | 63 (17.2) | 156 (15.3) | 0.68 |
| Febrile illness | 375 (57.4) | 205 (56) | 580 (56.9) | 0.55 |
| Musculo skeletal | 100 (15.3) | 59 (16.1) | 160 (15.7) | 0.59 |
| Neurological | 26 (4) | 15 (4.1) | 41 (4) | 0.58 |
| Gastroenterology | 20 (3.1) | 4 (1.1) | 24 (2.4) | 0.20 |
| Cardiovascular | 12 (1.8) | 7 (1.9) | 21 (2.1) | 0.58 |
| Respiratory | 7 (1.1) | 9 (2.5) | 16 (1.6) | 1.29 |
| Endocrine | 7 (1.1) | 1 (0.3) | 8 (0.8) | 0.14 |
| Skin | 5 (0.8) | 1 (0.3) | 6 (0.6) | 0.20 |
| Total | 653 (64.1) | 366 (35.9) | 1019 (100) | |

*Multiple complaints reported.

Table 4 shows the specific symptoms that the participants presented with. Non-specific generalized body pains 74 (7.3%), back pains 55 (5.1%), headache 33 (3.2%) and abdominal pains 24 (2.4%) were the commonest complaints presented by the participants. Within the musculoskeletal system, 9 (09%) participants complained of non-specific leg pains and 14 (1.4%) complained of chest pains.

Table 5 shows the distribution of past medical history reported by the participants. **Table 5** shows the pattern of chronic illness reported among the population studied. Musculoskeletal 163 (16%) pain was the commonest chronic illness reported among the participants and this was followed by neurological disorders 83 (8.1%). The distribution of chronic illness showed that 123 (33.6%) of the

Table 4. Distribution of symptoms according to systems.

| System affected | Medical complaint | Freq (% Participants) | Freq (% of sick participants) |
|----------------------------------|------------------------------------|-----------------------|-------------------------------|
| Musculoskeletal | Generalized body pains | 74 (7.3) | 74 (46.5) |
| | Back pains | 52 (5.1) | 52 (32.7) |
| | Knee pains | 10 (1) | 10 (6.3) |
| | Chest pains | 14 (1.4) | 14 (8.9) |
| | Leg pains | 9 (0.9) | 9 (5.6) |
| Sub Total | | 159 (15.6) | 159 (100) |
| Neurologic disorders | Headache | 33 (3.2) | 33 (80.5) |
| | Stroke | 3 (0.3) | 3 (7.3) |
| | Memory loss | 2 (0.2) | 2 (0.5) |
| | Internal heat | 2 (0.2) | 2 (0.5) |
| | Loss of consciousness (? seizures) | 1 (0.1) | 1 (0.2) |
| Sub Total | | 41 (4) | 41 (100) |
| Cardiovascular | Hypertension | 21 (2.1) | 21 (77.8) |
| | Leg swelling | 5 (0.5) | 5 (22.2) |
| Sub Total | | 27 (2.6) | 27 (100) |
| Gastroenterology | Abdominal pains | 24 (2.4) | 24 (100) |
| Respiratory | Cough | 16 (1.6) | 16 (100) |
| Endocrine | Diabetes | 8 (0.9) | 8 (100) |
| Skin diseases | Rashes and itching | 7 (0.7) | 7 (100) |
| External causes of injury | Trauma/surgery | 7 (0.7) | 7 (100) |
| Others | Generalized body weakness. | 3 (0.3) | 3 (37.5) |
| | Others | 5 (0.5) | 5 (62.5) |
| Total | | 1019 | 1019 |

Table 5. Distribution of past medical history.

| System affected | Medical complaint | Freq (% Participants) |
|-----------------------------|--|-----------------------|
| Musculoskeletal | Generalized body pains/ Back pains/Knee pains | 163 (16) |
| | Headache | 74 (7.3) |
| Neurologic disorders | Stroke | 3 (0.3) |
| | Memory loss | 2 (0.2) |
| | Internal heat | 2 (0.2) |
| | Dizziness | 1 (0.1) |
| | Loss of consciousness (? seizures) | 1 (0.1) |
| Sub Total | | 83 (8.1) |

Continued

| | | |
|----------------------------------|----------------------------|-----------------|
| Cardiovascular | Hypertension | 21 (2.1) |
| | Leg swelling | 1 (0.1) |
| Sub Total | | 23 (2.3) |
| Gastroenterology | Abdominal pains | 22 (2.6) |
| Respiratory | Cough | 15 (1.5) |
| Endocrine | Diabetes | 8 (0.9) |
| Skin diseases | Rashes and itching | 6 (0.6) |
| External causes of injury | Trauma/surgery | 15 (1.5) |
| Others | Generalized body weakness. | 3 (0.3) |
| | Others | 5 (0.5) |
| Sub Total | | 343 |

males and 220 (33.7%) of females presented with chronic medical complaints. Table not shown.

Although the pattern of chronic symptoms closely resembles that of those who had acute symptoms especially in those with musculoskeletal disorders (16% of past medical history and 15.6% presenting complaints). About 15(1.5%) of the participants surveyed had had trauma/surgery in the past. This was twice the number who presented to the clinic with symptoms related to injury and trauma 7 (0.7%).

Figure 1 shows the distribution of symptoms in those involved in manual labor. The distribution showed that symptoms related to musculoskeletal system was the highest reported among manual workers (50.9%). Cardiovascular complaints were also reported by 40.7% of the respondents. The age distribution of medical complaints showed that the rate of musculoskeletal pain increased modestly with age while cardiovascular related complaints increased by almost 4-fold from 1.3% in those <45 years to 5% in those 65 years and above (**Figure 2**).

4. Discussion

In our study population, 854 (83.8%) participants presented with at least one complaint and 320(31.4%) reported a medical history of at least one chronic illness. The commonest presenting complaint was fever 580 (56.9%) followed by musculoskeletal pains 159 (15.6%) Musculoskeletal pain was more in manual laborers, while cardiovascular disease while neurological was commoner among non-manual workers. The most common symptoms in both sexes were fever and musculoskeletal pain. Respiratory symptoms were 1.3 times more in males than females.

The pattern of presenting complaints reported in this study supports the theory of double burden of disease in sub-Saharan Africa [1] [2] [3]. We found a high rate of febrile illnesses as well as modest levels of non-febrile illnesses. The causes of fever in this rural community are most likely to be malaria and/or viral

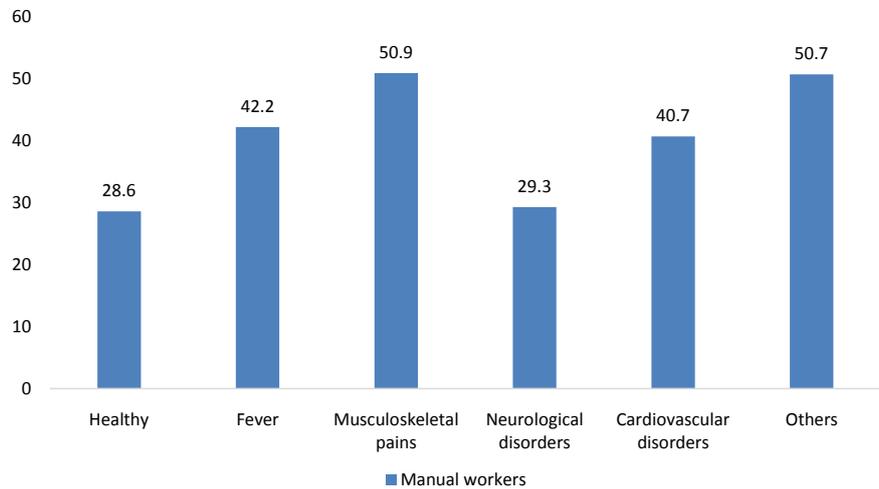


Figure 1. Frequency of symptoms in participants engaged in manual labor.

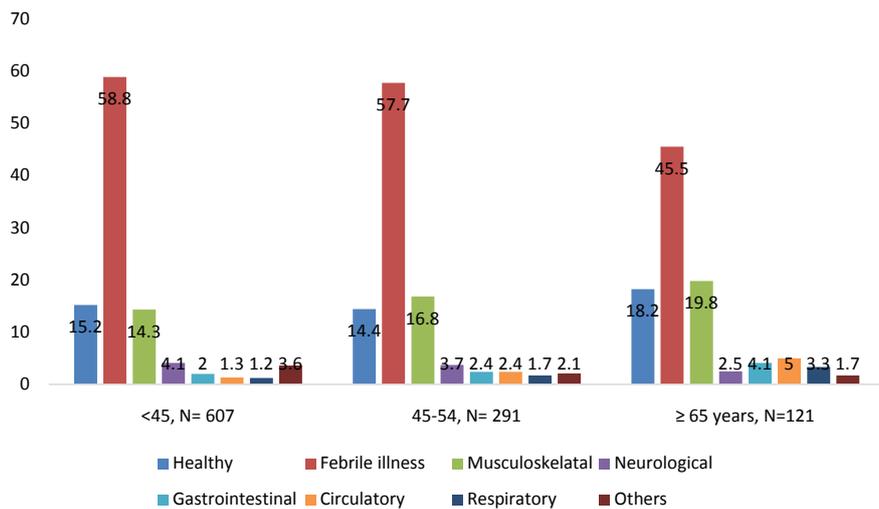


Figure 2. Age distribution of presenting complaints.

infections considering that none of the participants reported fever in their past medical history. Nevertheless, this does not rule out diseases like tuberculosis and chronic upper respiratory tract infections considering the high rates of cough (acute and chronic) reported in the study. It is important to realize that having a febrile illness did not exclude having other medical problems since malaria is endemic in our region. Thus, many of the participants in this study have double burden of illness at the time of study.

Overall, about 86.5% of total symptom/complaints were fever and musculoskeletal pains. The high rates of musculoskeletal pains may reflect the type of jobs engaged in by most of the people in the rural setting which are farming and artisanal work. On the other hand, these symptoms will also limit the ability of the people to carry out their job, and consequently their income. Patients' care seeking pattern and symptomatic morbidity is an important finding and offers a window into the health care needs of rural dwellers because in many cases the

management at the primary care is symptom-based. The downside of this will include the abuse of medications such as non-steroidal anti-inflammatory drugs which may lead to other severe complications.

Headache was the most common neurological complaint noted in the study. This may reflect the high rates of febrile illness, nevertheless headache is a common neurological symptom in the community. In rural areas without qualified health personnel, the burden of headache is likely to be very high considering its association to limitations in daily activity and family life. Other possible contribution to relatively high frequency of headache in the community will include abuse of non-steroidal anti-inflammatory drugs which are commonly used in the treatment of musculoskeletal pains [20]. Studies have shown that headache affects up to 67% of people in southeast Nigeria [21].

In this study, 2.1% presented as having hypertension, 0.3% participants had stroke, and 0.9% had diabetes. The reported prevalence of hypertension in the index study is far lower than prevalence of hypertension in rural Nigeria thus suggesting high rates of undiagnosed hypertension as also reported in several other studies [22] [23] [24]. Undiagnosed hypertension may be one of the drivers of higher rates of complications in the Nigeria and especially in rural settings. Several factors may contribute to high rates of undiagnosed hypertension in rural Nigeria. Generally, the knowledge and practice of hypertension low in Africa [25] [26], furthermore, low educational attainment and low socio-economic class [27] may also be contributory. The potential effects of cultural beliefs in the index study should not be underestimated as poverty makes people resort to other inappropriate therapy such as local herbs with unproven efficacy [28]. In rural southeast Nigeria, people associate sickness (including hypertension and diabetes) with all forms of supernatural beliefs [29]. Ikpa and Amadi looked at the disease profile of elderly people in a rural community in Nigeria and found that most had hypertension (51.3%) [14]. This is different from our study where we focused presenting complaints and not physical examination.

Like hypertension, there are high levels of undiagnosed diabetes in Nigeria. Data suggest that Nigeria has the highest number of people with diabetes in Nigeria may be as high as 1.997.8 million with only about 225,000 (21.4%) being aware of their condition [30]. The prevalence of diabetes in Nigeria from 0.8 to 11.7% [31]-[38]. In a study conducted in southeast Nigeria a high prevalence of 25.2% was reported by Mezie-Okoye *et al.* [39]. Some factors that may contribute to high rates of undiagnosed diabetes in rural settings may include paucity of symptoms (especially early in the disease), poverty, cultural beliefs [30]. Low socioeconomic status has been associated with both incidence and mortality in diabetes [40] [41] and most of the participants in this study fall into that category.

Another interesting finding in our study is the number of those with trauma and surgical related complaints. Trauma in rural communities may be related to farm work, fall from height and road traffic accidents from motorbikes and bicycles.

About 13.5% of symptoms reported in this study may likely be due to chronic disorders. This finding thus gives some insight into the burden of chronic communicable and non-communicable diseases in our rural settings. Chronic diseases affect the physical and mental health of an individual [42].

Most studies in Nigeria that worked on morbidity patterns of medical cases in Nigeria are hospital or clinic based using medical records or in-patients. A recent hospital-based study from south-south region of Nigeria reported that cardiovascular and infectious diseases as the commonest causes of medical admissions in the region but this pattern has not been found to be universal in the country [9]-[14]. In the index survey, although febrile illnesses were by far the commonest causes of presentation, they were unlikely to be due to HIV as reported in hospital based studies [9] [10] [11] [12] [13]. Furthermore, fever in HIV is often chronic. Hospital based studies rarely report malaria as a common cause of adult admission in Nigeria because most cases are often treated at primary care level. Thus, it is expected that findings in the index study should differ from hospital-based studies which disorders such as stroke, hypertension and heart disease rank topmost [8] [9].

In community-based studies that were similar to the index study, authors have reported varying patterns depending on methodology. For example, studies that derived data from established rural general outpatient clinics show different patterns from studies that derived their data on temporary clinic like ours. In a study that reported the pattern of medical morbidities after a one year follow up of voluntary health worker consultations in Idere, Oyo State, Nigeria. Umar *et al.* [7] reported the annual morbidity rates were malaria 25.4%, upper respiratory tract infection 6.0%, accidents 3.2%, and diarrhoea 2.7%. This is like our index study where febrile illnesses were the commonest reasons for presentation. The frequency of cough in the index was 1.6% much lower than 6% reported in that study. The frequency of accidents and trauma in our study was 0.7% compared to 3.2% which was reported by the authors. The primary reason for these differences includes the duration of their study which was about one year. Furthermore, it is important to bear in mind the symptoms presented by patients in rural setting may vary with age, and the season when the study was conducted [43]. Abdurraheem *et al.* [18] reported on the prevalence and pattern of multi-morbidity among elderly people in rural Nigeria. They found that among 1650 rural elderly in Nigeria the most common chronic diseases were hypertension (84.2%), diabetes mellitus (26.8%) and osteoarthritis (37.9%). Their study was not only based on history taking but they also consulted medical records.

In the index study chronic non-febrile complaints increased with age affecting 45.5% of those ≥ 65 years and above. The high rates of body, joint and back pains reported in this study may not reflect the age of the participants and the manner of job they do and was reflected in the high rates of body pains reported among those involved in manual labor. Although this does not suggest a cause-and-effect relationship, it offers some insight into the limitations that these patients may face in their jobs and daily activities.

Documentation, interpretation, and management of symptoms play crucial role in primary healthcare settings especially in rural communities with paucity of manpower and diagnostic equipment. In rural settings, people may find it difficult to explain their symptoms because of limitations in vocabulary thus many cases maybe without specific diagnosis. This problem has not been given priority in research. Proper interpretation and management of symptoms will not only help in eliminating certain differential diagnosis but may even lead to outcomes in the future.

5. Limitations

This study has all the limitations of a cross sectional surveys. However, this was anticipated in designing the study methodology which was to find out disease-symptom burden in the community. Furthermore, investigations were done to confirm all provisional diagnosis. Lastly, although the study was carried out in the rural setting without much privacy, thus some people with certain chronic illness such as epilepsy may not come out because of stigma. In addition to that, the probability of attracting more privileged members of the community in such open clinics is small. These limitations notwithstanding, our findings provide much needed information about the morbidity profile in a rural community with emphasis of their complaints and symptoms.

6. Conclusion

Fever and musculo-skeletal pains are the dominant medical complaints presented by adults in a rural community clinic. This may be related to the season of the year and the occupation of the population studied. Efforts should be made by health administrators to tailor the health needs of the people depending on the disease pattern reported.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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