

Intra-Urban Variations in the Prevalence of Self-Reported Common Mental Disorders in a Traditional City

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ARTICLE INFO	ABSTRACT
Submission: Dec 09, 2021	<p>Studies of intra-urban variations of self-reported Common Mental Disorders (CMD) are still emerging in most developing cities. This present study, thus sought to determine if variations exist in the prevalence of self-reported CMDs along the lines of gender and residential densities in a traditional urban city. Using the Neuman's probability sampling method, 1200 respondents were selected and an adapted SRQ-20 was employed for the study. ANOVA and ArcGIS methods were employed to examine the variations, mapping and identification of the localities of high Self-reported CMD prevalence respectively. The result showed that overall prevalence was 32.5%. Females (35.1%) reported more cases of Self-reported CMD than males (30.1%). The analysis of variance shows a significant variation in Self-reported CMD across the residential densities ($F=22.620$, $p=0.000$). This implies that the prevalence of self-reported CMD varies across the residential densities. Post-hoc test result shows that Self-reported CMD varies across the residential densities as the mean score of high residential density area (5.1956) was higher than those of medium (3.9859) and low (3.5766) density areas. CMD is a major public health burden in and there is need for increased public sensitization on its causative factors. The high density localities should also be targeted as areas requiring immediate mental health and social service intervention.</p>
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Introduction

The field of geography is interested in examining a lot of things that vary over space. Beyond just mapping, inquiry into the processes underlying the phenomenon in different population and space has proven to be crucial to understanding the spatial pattern as there are usually processes underlying the spatial patterns. Research into how individual mental health varies within the urban space is still receiving attention and of particular interest is how mental health outcomes vary across the urban space (O'Campo et al., 2015). This is especially so in the developing countries. The living and working conditions of urban residents in the cities of most developing countries pose serious mental health challenges to residents (Gureje et al, 2007; Gelaye et al, 2012). There seems to be different levels of vulnerability and by implication, health outcome as it relates to the mental health of both males and females, young and old. Variations in health status can be observed along different dimensions for example, seasonal or temporal, gender, climatic regions, socio-economic or ethnic groups and even residential areas (World Health Organization, 2011).

Studies have shown that women often report higher prevalence rates for mood and anxiety disorders while men have higher prevalence rates for substance use disorders (Alem et al, 1999; Kebede, 1999). In fact, it has been well documented that women are twice likely to be diagnosed with major depression than men. Just like in the general African society, the vulnerability and disproportionate health burden of women has been observed in urban settings (Trivedi et al, 2008). In fact, literature review of publications on men and depression are outnumbered by those focusing on women by a ratio of over three to one (Addis, 2008).

The density of residential areas is another major determining factor of the health outcome of the residents. There are divergent findings as regards residential area density; while some have found high density to be deleterious to health, others have found it to be beneficial. For example, higher urban residential densities were observed to increase social interactions that may decrease the risk of psychotic disorders (Kawachi and Berkman, 2001). Conversely, Sariaslan et al, (2015) confirms that people living in densely populated and socially disorganized areas have higher rates of psychiatric morbidity. In addition, density in neighbourhoods and households has been recognized as a major stressor for individuals developing psychosis (Vassos et al., 2012). There is also yet to be a direct evidence on residential density and children's psychological health (Evans et al, 2001). This study seeks to examine variations in the prevalence of self-reported CMD among in a traditional city, Ibadan.

The study considered the following research questions: what is the prevalence rate of self-reported CMD? Is there gender variation in the pattern of prevalence of self-reported CMD? Is there any variation in the pattern of self-reported CMD across residential densities? In which localities are self-reported CMD mostly prevalent?

Statement of Research Problem

City residents in most developing countries are bedevilled with myriads of health problems and common mental disorders are at the forefront in the list. With growing urbanization in a city with poor planning, there is increased exposure to risk factors emanating from the urban social and physical environment which contribute to increased stress and adversely affects mental health (Diez Roux and Mair, 2010; Blair et al., 2014; Tost et al., 2015). Mental health disorders

make a sizeable contribution to the global burden of disease, affecting approximately 450 million people worldwide (WHO, 2005).

Earlier, large variations in psychiatric morbidity across geographic areas were carried out within a country in the 19th century. Later studies also suggested that the observed variation was patterned in line with the degree of social disorganization in residential areas (Farris and Dunham, 1948). This implies that residential densities can affect morbidity. Densely populated areas which are often inundated with high rates of social fragmentation and deprivation appeared to have the highest rates of psychiatric morbidity. Observed mental health inequality is not only evident in the physical and structural conditions of urban housing but also noticeable in terms of health status of residents. In Nigeria, an estimated 20%–30% of our population are believed to suffer from mental disorders (Suleiman, 2016; Onyemelukwe, 2016). Also, World Health Organization, (2001) noted that one out of four people in the world will be affected by mental or neurological disorders at some point in their lives.

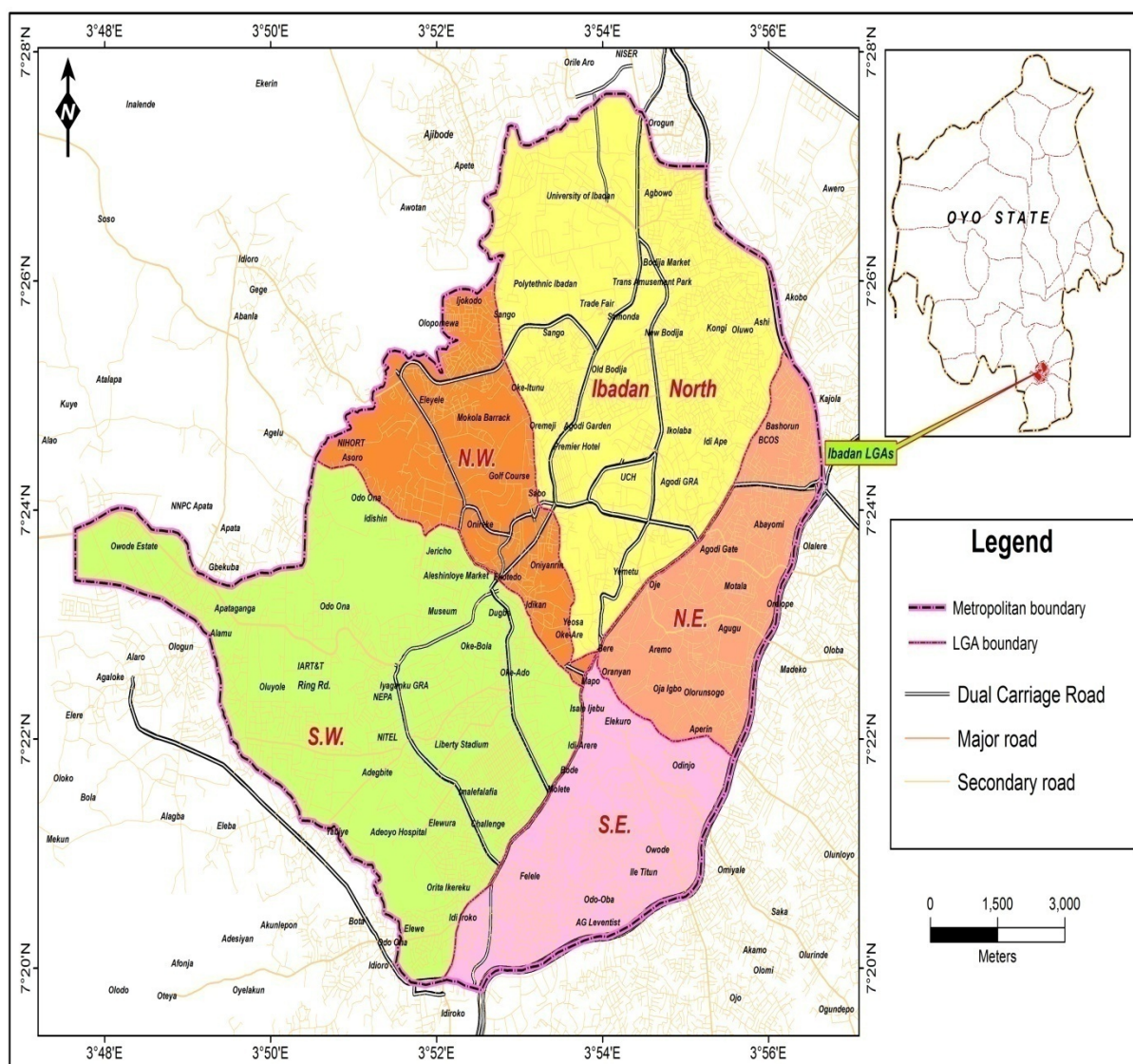
Research in the African setting shows that socially constructed differences between women and men in roles and responsibilities, status and power, interact with biological differences to determine mental health outcomes (Addis, 2008). Evidence of gender and spatial differential in the pattern of physical health problems abound in the literature but little is known about the pattern of mental health problems in urban areas of developing countries. Adequate identification of places with a higher risk of disease can be very helpful in targeting health intervention programmes. The focus of this study is on the pattern of prevalence of self-reported CMD along the divides of gender and residential areas categorized into low, medium and high density residential areas as it is yet to be clearly understood the nexus of gender and mental health problems especially in the urban setting of a developing country.

Proper understanding of spatial and gender analysis of self-reported CMDs can help to improve understanding of the epidemiology of mental health problems, influence public and individual decisions and treatment of these problems in the identified cohorts of the population.

Methodology

The research design of this study is the survey method. This is due to the nature of CMDs which are usually under-reported and not easily detected in clinical settings. Although, there is a wide range of self-reported screening tools that detect CMDs, SRQ-20 was adopted for CMD screening. The self-reporting questionnaire-20 (SRQ-20) was developed as part of a collaborative study coordinated by the WHO. It consists of twenty yes/no questions with a reference period to the previous 30 days. The instrument contains 20 questions which are divided into 4 symptom groups namely: depressed/anxious mood, somatic symptoms, a decrease in vital energy and depressive thoughts and is basically meant for population-based surveys. Respondents refer to the last 30 days and responses are dichotomized into either “yes” or “no” and the final score is obtained through the sum of affirmative responses, where each question receives one point. The scores obtained vary from zero (no probability) to 20 (highest probability).

Fig.1 The Study Area. Ibadan Metropolis.



The cut-off score for Self-reported CMD for both sexes is seven or more affirmative responses (Lucchese, Simoes, Monteiro, Vera, Fernandes, Castro, Silva, Evangelista, Bueno and Lemos, 2017). It has been earlier validated in Nigeria by studies in medicine, epidemiology and public health for instance, Adebowale and James, (2018) adapted the SRQ-20 to determine the prevalence, patterns and the relationship between psychoactive substance use risk severity and psychiatric morbidity. Ola, Crabb, Tayo, Ware, Dhar and Krishnadas, (2011) also adopted SRQ-20 in examining the factors associated with antenatal mental disorder in West Africa. Also, in the study of Osasona et al, (2015), SRQ-20 was employed to examine the prevalence and correlates of depression and anxiety disorder in a sample of inmates in a Nigerian prison. The tool has also been used in so many African countries like Ethiopia, South Africa and also in South American countries like Brazil and Mexico (Parreira et al (2017).

In this particular study, the Cronbach's alpha; which is an indicator of scale reliability and internal consistency for SRQ in this study is 0.77. The respondents feedback were classified based on the cut-off or threshold into dichotomous outcome of 'case' (7 and above) and non-

case (below 7). Self-reported CMD cases were treated as continuous outcome. The total number of Self-reported CMD cases for the localities were aggregated for the purpose of mapping and illustration. Prevalence formula is given as $= N/P \times 100$; Where N= Number of existing cases; P = Total population multiplied by 100.

Conceptual framework/literature review

Whitehead and Dahlgren, (2006) observed that the fundamental cause of health inequalities is the unequal distribution of income, power and resources resulting in patterns of material and social disadvantage that are linked to differences in health outcomes. Some studies have also shown that income inequality causes health and social problems. The theories of health inequalities provide the framework for this study include; social causation, social drift and the mental health inequalities concepts which serve to support the dual relationship that characterizes mental health outcomes and social inequalities. Inequalities have a direct bearing on mental health and the various predictors of mental health can explain these mental health inequalities. For example; if there is higher incidence of a certain infection, attribute or disease say D in group G and same is compared with group Z of population Q. Hence, if a particular disease is distributed randomly or equally among all the groups within the population, then no health inequality exists in that population (Kawachi, et al, 2002).

Embedded in the complexities of mental health inequalities are the social causation and social selection theories. Social causation theory explains that mental health problems are socially produced, and therefore more prevalent among those who are lower on the social ladder. The social selection theory posits that mental health problems contribute to social and health inequalities by pushing people down the social ladder. Also, the framework of Kindig and Stoddart's (2003) identified three dimensions of population and mental health nexus; first considers mental health outcomes of the population, and also their distribution within subgroups of the population. Secondly, it considers the determinants of mental health and their distribution across the population. Finally, focuses on the policies and interventions that link mental health outcomes and mental health determinants, in order to promote mental wellbeing in the population and equity in mental health outcomes. Interestingly, there are evidences that low income and material deprivation may affect the cognitive and brain development of children, resulting in an inverse correlation between low socio-economic status (SES) and different cognitive domains, such as language skills, cognitive control, memory and attention (Noble et al, 2007).

The concept of mental health inequality stemming directly from the broader focus of health inequality guides the general framework of this study. Mental health problems are not equally distributed across the population. Socially disadvantaged people have an increased risk of developing mental health issues. The link between social status and mental health problems is thought to result from the level, frequency and duration of stressful experiences and the extent to which social and individual resources and sources of support reduce their impact. In Nigeria, as in many other African settings, there is a vivid divide between male and female, rich and poor in terms of access to health and this is the exact focus of this study. The study posits that mental health problems are a product of the widening of the inequality gap in the population. In other words, mental health outcome can be a product of inequality. Drawing from the

literature, the study tested two (2) research hypotheses. The first is that there is gender variation in the prevalence of self-reported CMD and secondly, that there is variation in the prevalence of self-reported CMD across residential densities.

Table 1: Socio-Economic Characteristics of Respondents.

Variables	Category	Male (%)	Female (%)
Age	Less than 40 years	148 (23.6)	163 (28.5)
	40-59 years	417 (66.4)	360 (62.9)
	60-79 years	62 (9.9)	49 (8.6)
	above 79 years	1 (0.2)	0 (0)
Education	Primary School	138 (22)	143 (25)
	Secondary School	223 (35.5)	215 (37.6)
	Higher Institution	267 (42.5)	214(37.4)
Ethnicity	Yoruba	521 (83)	494 (86.4)
	Hausa	24 (3.8)	12 (2.1)
	Igbo	83 (13.2)	66 (11.5)
Monthly income	Less than N30,000	123 (19.6)	174 (30.4)
	30,000-49,999	228 (36.3)	213 (37.2)
	50,000-69,999	150 (23.9)	97 (17)
	70,000 and above	127 (20.2)	88 (15.4)
Marital Status	Single	3 (0.5)	1 (0.2)
	Married	596 (94.9)	532 (93)
	Widowed	18 (2.9)	21 (3.7)
	Separated	11 (1.8)	18 (3.1)
Employment status	Employed	207 (33)	207 (36.2)
	Unemployed	1 (0.2)	7 (1.2)
	Retired	17 (2.7)	9 (1.6)
	Self-employed	403 (64.2)	349 (61)
Employment Type	Informal sector	433 (68.9)	380 (66.4)
	Formal sector	195 (31.1)	192 (33.6)

Table 2: Prevalence of self-reported CMD in the study area, Analysis of Gender Variations in the Prevalence of Self-Reported CMDs

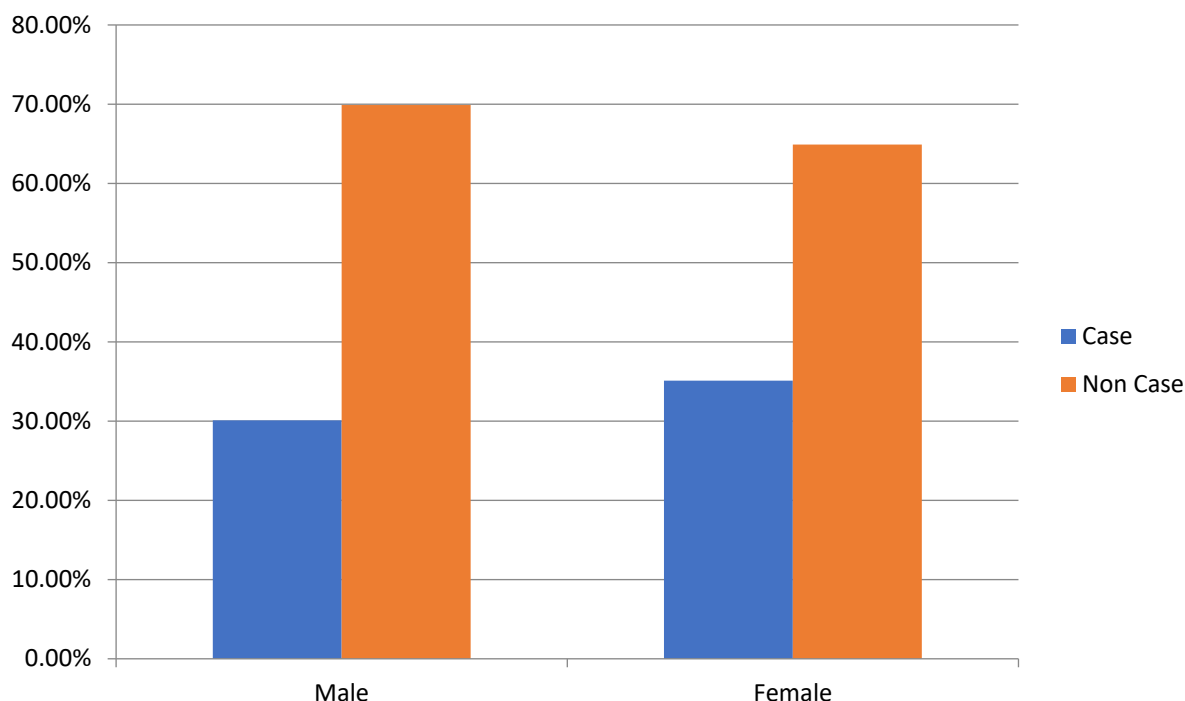
Summary of Male and Female Prevalence of Self-reported CMD			
Self-Reported CMD	Male	Female	Total
Case	189(30.1%)	201(35.1%)	390 (32.5)
Non Case	439(69.9%)	371(64.9%)	810 (67.5)
Total	628	572	1200

This table depicts the prevalence of self-reported CMD in the study area. From the results, overall prevalence of common mental disorders in this study is 32.5%. Further, the prevalence of common

mental disorder is for 30.1% for males and 35.1% for females. The result is similar to a study which also identified gender differences in the prevalence of Self-reported CMD (Steel et al., 2014).

The graphical illustration in Fig 1.0 further depicts the difference in the prevalence of self-reported CMD in the population. The case reported is more pronounced for the females than males. Conversely, the non-case reported is more pronounced for males than females.

Fig.2 Case vs. Non Case of self-reported CMD by Gender.



In order to examine the foregoing statistically, the T-test method was employed and the result of the analysis in Table 3. reveal that there is no significant difference in the prevalence of common mental disorders across gender ($F = 1.973$, $p = 0.008$). This suggests that self-reported CMDs did not differ significantly between males and females in the study area. Thus, the null hypothesis is not rejected: there is no difference in the means of the self-reported CMD between males and females.

Table 3: Results of T-Test.

Variable	Gender	N	Mean	Standard deviation	Standard error	F	P
Self – reported CMD	Male	628	4.2611	3.449	0.137	1.973	0.008
	Female	572	4.5685	3.585	0.150		

The result further reveal that self- reported CMD was higher in female (Mean = 4.5685) than male (Mean = 4.2611)

Spatial Pattern

- 4
- Male with CMD
- Female with CMD
- Ibadan boundary
- Locality boundary

0 1 2 Kilometers

Map showing the spatial pattern of COVID-19 cases by Local Government Area (LGA) in Ibadan, Oyo State, Nigeria. The map displays the distribution of cases across various LGAs, with a legend indicating the spatial pattern (Male with CMD, Female with CMD, Ibadan boundary, Locality boundary). The map is bounded by coordinates 3°50'0"E to 3°56'0"E and 7°20'0"N to 7°28'0"N.

Residential density is often used as a measure of spatial concentration of human populations. In most urban settlements, it can be classified into three types namely; high, medium and low density residential areas. Urbanization has been observed to be a major public health challenge

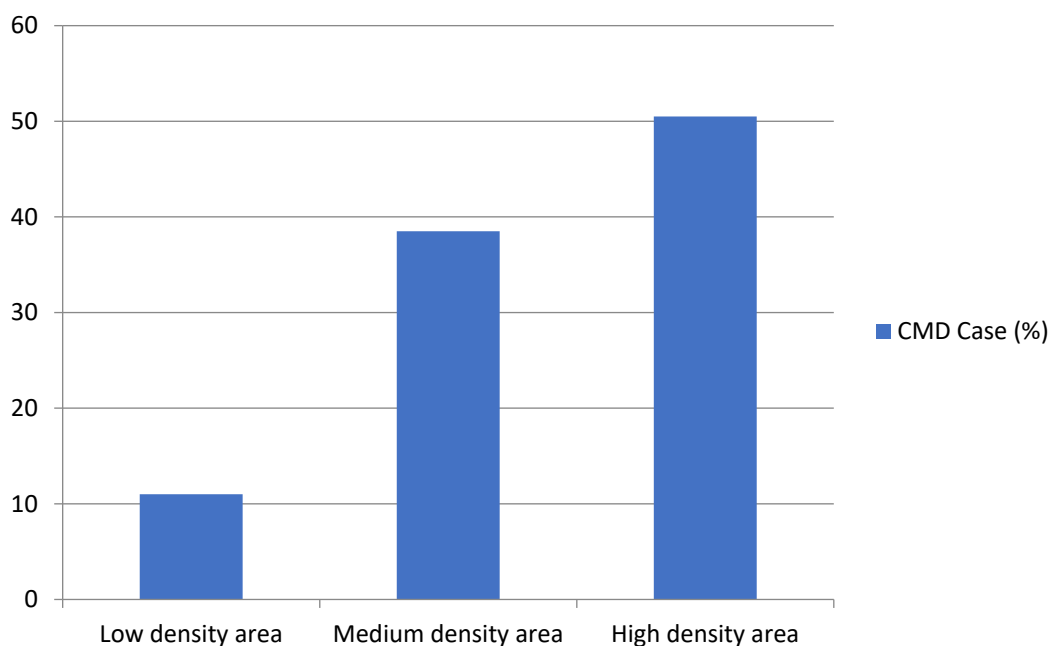
of the 21st century (Aliyu and Amadu, 2017). As the population swells in most cities, there is no corresponding increase in infrastructure and socio-economic inequalities have become pronounced on a daily basis. This study, further investigated whether there is any relationship between the characteristics of environments where people live or residential densities and the prevalence of self-reported common mental disorders. Amongst the respondents, 43.3% of those residing in high density areas showed symptom of self-reported CMD; this is closely followed by respondents who reside in medium density with 30.2% while only 17.3% of low density residents has cases of Self-reported CMD.

Table 4: Residential density and prevalence of Self-reported CMD.

Residential density and prevalence of Self-reported CMD			
Residential Densities	Self-reported CMD		
	Case (%)	No Case (%)	Total
Low density area	43(11)	205(25.3)	248
Medium density area	150(38.5)	347(42.8)	497
High density area	197(50.5)	258(31.8)	455
Total	390(32.5)	810(67.5)	1200

The cases of Self-reported CMDs reported across the residential densities are depicted in Fig. 3. High density areas presented the highest number of cases; this is followed by medium density and low density respectively. It can thus be inferred that there is some sort of association between the type of residential density and Self-reported common mental disorder.

Fig.4 Residential Variations in Self-reported CMDs.



To further establish the variation in the prevalence of Self-reported CMD across the residential densities, ANOVA test was carried out and the results depicted in Table 5.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	539.443	2	269.722	22.62	0.000
Within Groups	14273.04	1197	11.924		
Total	14812.48	1199			

Table 5: Results of Analysis of Variance.

The results of the analysis of variance shows a significant variation in Self-reported CMD across the residential densities ($F=22.620$, $p=0.000$). This implies that the prevalence of Self-reported common mental disorder varies across the residential densities.

Residential Densities	N	N	Subset for alpha = 0.05	
		1	1	2
Duncan	low density area	248	3.5766	
	medium density	497	3.9859	
	high density area	455		5.1956
	Sig.		0.11	1
Waller-Duncan	low density area	248	3.5766	
	medium density	497	3.9859	
	high density area	455		5.1956

Table 6: Post-Hoc Test Analysis.

The result of the post-hoc test shows health disorder across the residential density as the mean score of high density area (5.1956) was higher than those of medium (3.9859) and low (3.5766) density areas. Hence, it can be inferred from the finding that CMD is more prevalent among residents of high density areas than those in medium and low density. As shown in Fig 5a, 5b and 5c, the overall pattern of self-reported CMD is observed to be prevalent in medium and high density localities like Adamasingba, Oremeji, Oje and Molete. For the females, the identified localities with high cases reported also include mainly high and medium density localities and are as follows; Yemetu-Igosun, Adamasingba, Inalende, Gbagi, Oje, Ring Road and Molete. The localities with the highest case reported for males are Oremeji and Oje also medium and high density residential areas respectively.

[illegible]

Female with CMD

0 - 1
2 - 3
4 - 5
6 - 9

Residential Density

High Density
Medium Density
Low Density

Legend

- Ibadan boundary
- Residential density boundary

0 1 2
Kilometers

[illegible]

Conclusion and recommendations.

The gender prevalence of self-common mental disorders in the study showed that CMD is a major public health risk in the study area. Although male-female differences exist in the prevalence of self-reported common mental disorders, this difference is not statistically significant. The gender variation results are similar to the result of other studies in Nigeria and other parts of Africa like; Jenkins et al (2012), here CMD prevalence was found to be 10.8% and no gender difference was found. On a general observation, Jablensky et al (2001) observed that the prevalence rate of CMD in Africa ranges between 8% and 43% depending on the instrument used and population sampled. In Nigeria, Gureje et al., (2006) also found that no difference existed between genders. Studies in Britain (Jenkins et al, 1998) and other parts of the world such as Brazil (Lima et al., 1996). To this end, the results of this study showed that women are often at the receiving end of the different forces that interact to affect their mental health. However, there is no statistically significant gender variation in the prevalence of common mental disorders.

In other words, comparing the population of males to female in the gender analysis, it can be said that although females reported more CMD cases than males, since the statistical analysis is not significant, it can be said that there is no mental health inequality from the gender point of analysis. Conversely, in another view, using the lens of residential density, the variation is striking with the low residential density reporting the least CMD cases followed by the medium and the high density with the highest cases. It can thus be said that in the population studied there is observable inequalities in mental health as observed across the three residential density areas (low, medium and high).

However, marked differences were observed across residential densities the residential densities. Generally, most cases of CMD for both male and female are pronounced around the medium and high density localities. The low density residential areas have zero or low cases of CMD. This further affirms that CMD can be correlated with socio-economic status. In almost all nations the poor are at a higher risk of developing mental disorders compared to the non-poor and as such, poverty is both a determinant and a consequence of poor mental health (Murali & Oyebode, 2004). Studies on the relevance of urban planning and development, health care interventions, population awareness and sensitization on the patterns and correlates of common mental disorders in the rapid growing urban areas of developing countries are of immense benefit.

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