

# SOCIO-ECONOMIC STATUS AND THE RISK OF MENTAL MORBIDITY: A CROSS SECTIONAL STUDY OF TWO SOCIO-ECONOMICALLY DISSIMILAR NIGERIAN COMMUNITIES”

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## ABSTRACT

Previous cross-sectional studies, mostly in the western countries, have shown that people in lower socioeconomic groups have an increased prevalence of mental morbidity. More studies are needed in the developing countries to examine this relationship. This study examined the relationship between socio-economic status (SES) and mental morbidity in two socio-economically dissimilar communities.

Four hundred residents of Uwelu and BDPA (Ugbowo) communities in the Benin City metropolis, aged 18years and above who were selected by multistage sampling technique participated in the cross-sectional study. Mental morbidity was assessed by means of the 28-item General Health Questionnaire (GHQ – 28), and SES by self-reported monthly income, educational attainment, occupation, and type of housing accommodation. Chi-square and multiple regression analysis were used to analyze the data. There were statistically significant differences between the two communities on all the indices of SES, Uwelu being more socio-economically disadvantaged than BDPA(Ugbowo). The prevalence of probable mental morbidity was higher amongst respondents in Uwelu than BDPA respondents (28.5% and 19.5% respectively;  $P = 0.03$ ). Mental morbidity was significantly associated with low monthly income ( $P = 0.003$ ), education ( $P = 0.000$ ), and type of accommodation ( $P = 0.001$ ). The odds of developing mental morbidity for respondents in Uwelu is 1.72 times higher than for those in BDPA ( $P = 0.075$ ). The study found a significantly higher prevalence of mental morbidity among residents of Uwelu, the more socioeconomically disadvantaged community. The need for intervention and preventive efforts targeting socioeconomic adversities, as well as preventing persons with mental illness from downward social mobility was discussed.

## Introduction

Socio-economic status SES is commonly conceptualized as the social standing or class of an individual or group. It is often measured as a combination of educational attainment, income, standard of housing

and professional prestige.<sup>1</sup> A negative association has consistently been found between low SES and a higher frequency of a wide range of health problems generally,<sup>2</sup> but specifically the negative relationship between SES and mental illness is a very consistent research finding.<sup>3</sup>

Assessing SES on the basis of community income, education, and occupational status, Hudson<sup>3</sup> found that the poorer the socio-economic condition of an individual the higher the risk for mental disability. This relationship was found,

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regardless of what economic hardship or type of mental illness the person suffered. Levinson and his colleagues<sup>4</sup> found that the relationship between SES and both psychiatric disability and admission rate differed between the lower and the higher poles of the SES scale, and that the need for psychiatric hospitalization was higher in the poorer communities. According to a meta-analysis focusing on SES and depression, the odds of reporting depression for persons in the lower social strata are about 1.81 times higher than for those in the higher social strata.<sup>5</sup>

Among Japanese men and women, inversely linear associations were found between subjective and objective SES and poor subjective mental health.<sup>6</sup> The United States population study revealed that most mental disorders declined with higher SES.<sup>7</sup> In Nigeria, Famuyiwa and his colleagues<sup>8</sup> in their study found that rates of psychiatric morbidity were significantly different in two urban communities that were distinguishable on key macro-indicators of SES. A study of the socio-economic and diagnostic profile of psychiatric patients treated at a mental hospital in Nigeria over a period of 6 months showed that most disorders were found to have been diagnosed more often among under privileged persons from lower socio-economic classes.<sup>9</sup>

Although the inverse relationship between SES and mental illness has been captured by many studies, the causal direction between them still remains a subject of debate.<sup>10</sup>

Two theories have been at the fore front of this debate, the “social causation” theory hypothesizes that the stress (and adversity) associated with low SES may damage the psychological functioning of individuals and increase the risk of

mental illness.<sup>11</sup> The “social selection” theory on the other hand hypothesizes that the relationship between mental illness and SES is primarily the result of mental illness leading to lower attainment.<sup>12</sup> Eaton<sup>13</sup> opined that mental disorders may cause downward mobility among individuals and cause them to “drift” into the lower socio-economic strata. A general consensus is that the two hypothesized causal mechanisms account for the vast majority of the correlation between SES and mental illness.<sup>14</sup>

Most of the studies conducted to examine the relationship between SES and mental morbidity were conducted in the developed countries; studies that examined this relationship appear sparse in sub-Saharan Africa.

Empirical evidence of this relationship portends important implication for effective community mental health policy and services as well as minimizing socio-economic inequality.

Thus, the aim of this study is to examine the relationship between SES and mental morbidity by comparing two socio-economically dissimilar communities on the bases of prevalent rate of mental morbidity and macro-indices of SES. While previous studies in Nigeria have made significant contributions to the data base on this subject it is believed that findings of this study will further contribute to the paucity existing database.

#### Methods

The study was conducted in Uwelu and BDPA communities, both in Egor local government area of Benin metropolis, Edo State. These communities are socio-economically dissimilar urban communities. The study is descriptive, cross-sectional in type, 411 adults, males and females

aged 18 years and above who are permanent residents of the communities participated in the study. Permission to conduct the study was gotten from the local government authority and the leaders of the two communities. Informed verbal consent was obtained from potential participants and confidentiality was assured.

The minimum sample size was estimated using the formula for sample size for comparing binomial proportions in a two-tailed test, where the sample sizes are expected to be equal.<sup>15</sup>

$$N = n_1 + n_2 = \frac{4(p_1 - p_2)^2 (p_1)(1 - p_1)}{d^2}$$

#### Sampling technique

Multistage sampling method comprising 6 stages was used to select participants. Stage 1: Selection of LGA; simple random sampling method by balloting was used to select Egor, one of the 3 LGAs in Benin metropolis. Stage 2: Selection of Wards; two wards (wards 5 and 6) were selected from the 10 wards in the LGA by balloting. Stage 3: Selection of Census Enumeration Areas (CEA); in each of the two wards, 1 CEA was selected using simple random sampling method. Stage 4: Selection of Houses; in BDPA community, all the 83 houses in the selected CEA were included in the study. In Uwelu Community, using systematic sampling technique, 85 houses were selected out of the 261 houses in the CEA using a sampling interval of 3. The first house was selected by balloting. Stage 5: Selection of Households, in houses where there were more than one household, simple random sampling by balloting was used to select one household. Stage 6: Selection of respondents, a maximum of three eligible respondents were selected from each household by balloting to participate in the study.

#### Measures

Probable mental morbidity (a measure of gross mental impairment rather than specific disorders) was assessed by means of the 28-item general health Questionnaire (GHQ-28).<sup>16</sup> A validated<sup>17</sup> instrument which has been widely used in Nigeria.<sup>8</sup> Participants with GHQ score of 5 or greater were defined as having mental morbidity. A socio-demographic questionnaire was designed to obtain the relevant information.

Socioeconomic status was assessed by self-reported monthly income, highest educational attainment, housing and occupational prestige.<sup>1</sup>

The 16<sup>th</sup> version of SPSS<sup>18</sup> was used for data analysis. Chi-square and logistic regression analysis were used to evaluate the data.

#### Results

A total of 411 participants completed the questionnaires in the two communities with overall response rate of 97.3%. After rejecting some questionnaires on account of incomplete information, data from 400 respondents; 219 (54.7%) females and 181(45.3%) males were analyzed. One hundred and twenty seven (63.5%) of the respondents in BDPA had tertiary level of education as against 60(30.0%) in Uwelu. More respondents in BDPA (43.0%) than Uwelu (13.0%) belonged to the three top ranking professions (legislator/senior officials, professionals, and associate professionals). The proportion of the Unemployed in BDPA (23.0%) was slightly lower than that in Uwelu (24.5%). Generally, higher proportion of respondents in BDPA belonged to the higher income groups. While 22(10.0%) of BDPA respondents reported monthly income of N206,000.00 and above only

**Table 1: Socio-Demographic Characteristics of Respondents of both communities**

Variable	BDPA frequency (%)	Uwelu frequency (%)
<b>Age group (years)</b>		
18-27	39(19.5)	69(34.5)
28-37	49(24.5)	44(22.0)
38-47	40(20.0)	43(21.5)
48-57	45(22.5)	29(14.5)
58-67	16(8.0)	9(4.5)
>67	11(5.5)	6(3.0)
<b>Sex</b>		
Male	94(47.0)	87(43.5)
Female	106(53.0)	113(56.5)
<b>Educational Level</b>		
None	9 (4.5)	18 (9.0)
Primary	14 (7.0)	44 (22.0)
Secondary	50 (25.0)	78 (39.0)
Tertiary	127(63.5)	60 (30.0)
<b>Occupation</b>		
Legislators/Senior Officials	7 (3.5)	0 (0.0)
Professionals	68 (34.0)	24 (12.0)
Technicians/Asso. Professionals	11 (5.5)	12 (6.0)
Clerks	17 (8.5)	14 (7.0)
Service Workers/ Market Workers	38 (19.0)	49 (24.5)
Skilled Agricultural/Fishery Workers	0 (0.0)	4 (2.0)
Craft/Trade Workers	0 (0.0)	7 (3.5)
Plant Operators/Assemblers	1 (0.5)	12 (6.0)
Elementary Occupation	11 (5.5)	27 (13.5)
Armed Forces	1 (0.5)	2 (1.0)
Unemployed	46 (23.0)	30 (24.5)

**Socio-Demographic Characteristics of Respondents of both communities cont'd**

<b>Variable</b>	<b>Frequency (%) BDPA(n=200)</b>	<b>Frequency (%) Uwelu(n=200)</b>
<b>Monthly Income (Naira)</b>		
< 6,000	21 (10.5)	26 (13.0)
6,000 – 55,999	94 (47.0)	147 (73.5)
56,000 –105,999	36 (18.0)	17 (8.5)
106,000 –155,999	19(9.5)	5 (2.5)
156,000 – 205,999	8 (4.0)	3 (1.5)
≥ 206,000	22 (11.0)	2 (1.0)
<b>Type of Accommodation</b>		
Single-room apartment	38 (19.0)	49 (24.5)
A room and a Parlour	19 (9.5)	36 (18.0)
Two bed-room flat	46 (23.0)	54 (27.0)
3-4 bed-room flat	93 (46.5)	59 (29.5)
Above 4 rooms	4 (2.0)	2 (1.0)
<b>Number of Persons per Room</b>		
1 person	83 (41.5)	45 (22.5)
2 people	101 (50.5)	81 (40.5)
3 people	10 (5.0)	40 (20.0)
4 people	5 (2.5)	21 (10.5)
5 or more persons	1 (0.5)	13 (6.5)

**Table 2: Comparison of the two communities on some indices of social economic status**

Variable	BDPA frequency (%)	Uwelu frequency (%)	Statistics
<b>Educational Level</b>			X <sup>2</sup> =48.06
None	9 (4.5)	18 (9.0)	df = 3
Primary	14 (7.0)	44 (22.0)	P <0.001
Secondary	50 (25.0)	78 (39.0)	
Tertiary	127(63.5)	60 (30.0)	
<b>Occupation</b>			Fisher's Exact =58.07
Legislators/Senior Officials	7 (3.5)	0 (0.0)	
Professionals	68 (34.0)	24 (12.0)	P <0.001
Technicians/Asso. Professionals	11 (5.5)	12 (6.0)	
Clerks	17 (8.5)	14 (7.0)	
Service Workers/Market Workers	38 (19.0)	49 (24.5)	
Skilled Agricultural/Fishery Workers	0 (0.0)	4 (2.0)	
Craft/Trade Workers	0 (0.0)	7 (3.5)	
Plant Operators/Assemblers	1 (0.5)	12 (6.0)	
Elementary Occupation	11 (5.5)	27 (13.5)	
Armed Forces	1 (0.5)	2 (1.0)	
Unemployed	46 (23.0)	30 (24.5)	
<b>Monthly Income (Naira)</b>			Fisher's Exact =57.73
< 6,000	21 (10.5)	26 (13.0)	
6,000 – 55,999	94 (47.0)	147 (73.5)	P <0.001
56,000 – 105, 999	36 (18.0)	17 (8.5)	
106,000 – 155, 999	19 (9.5)	5 (2.5)	
156,000 – 205,999	8 (4.0)	3 (1.5)	
≥ 206,000	22 (11.0)	2 (1.0)	
<b>Type of Accommodation</b>			Fisher's Exact =15.41
Single-room apartment	38 (19.0)	49 (24.5)	
A room and a Parlour	19 (9.5)	36 (18.0)	P<0.004
Two bed-room flat	46 (23.0)	54 (27.0)	
3-4 bed-room flat	93 (46.5)	59 (29.5)	
Above 4 rooms	4 (2.0)	2 (1.0)	

**TABLE 3: Comparison of Prevalence of Probable Mental Morbidity in the Two Communities**

COMMUNITIES	GHQ		TOTAL (%)
	POSITIVE (%)	NEGATIVE (%)	
BDPA Community	39(19.5)	161(80.5)	200(100)
Uwelu Community	57(28.5)	143(71.5)	200 (100)
Total	96(24.0)	304(76.0)	400(100)

$\chi^2 = 4.441$ ;       $df = 1$ ;       $p = 0.035^x$   
<sup>x</sup>**p is significant**

**TABLE 4: Association between Mental Morbidity (GHQ Positives) and Indices of Socioeconomic Status**

SES VARIABLES	GHQ POSITIVE RESPONDENTS		TOTAL
	BDPA Frequency (%)	UWELU Frequency(%)	
<b>Educational Level</b>			
None	1 (2.6)	5 (8.8)	6 (6.2)
Primary	4 (10.2)	15 (26.3)	19 (19.8)
Secondary	8 (20.5)	25 (43.9)	33 (34.4)
Tertiary	26 (66.7)	12 (21.0)	38 (39.6)
Total	39 (100.0)	57 (100.0)	96 (100.0)
<b>Fisher's Exact = 19.711 df= 3 p = 0.0001<sup>x</sup></b>			
<b>Employment status</b>			
Unemployed	7 (17.9)	15 (38.5)	22 (38.5)
Employed	32 (82.1)	24 (61.5)	59 (61.5)
Total	39 (100.0)	57 (100.0)	96 (100.0)
<b>X<sup>2</sup>= 0.918 df= 1 p = 0.338</b>			
<b>Monthly Income (Naira)</b>			
<6000	7 (17.9)	8 (14.0)	15 (15.6)
6000-55999	15 (38.5)	42 (73.7)	57 (59.4)
56000-105999	7 (17.9)	4 (7.0)	11 (11.5)
106000-155999	5 (12.8)	2 (3.5)	7 (7.2)
156000-205999	1 (2.6)	1 (1.8)	2 (2.1)
≥206000	4 (10.3)	0 (0.0)	4 (4.2)
Total	39 (100.0)	57 (100.0)	96 (100.0)
<b>Fisher's Exact = 15.953 df= 5 p = 0.003<sup>x</sup></b>			
<b><sup>x</sup>p is significant</b>			
<b>Type of accommodation</b>			
Single room apartment	8 (20.5)	21 (36.7)	29 (30.2)
A room and a parlour	3 (7.7)	14 (24.6)	17 (17.7)
Two bedroom flat	6 (15.4)	16 (28.1)	22 (22.9)
3-4 bedrooms flat	22 (56.4)	5 (8.8)	27 (28.2)
Above 4 rooms	0 (0.0)	1 (1.8)	1 (1.0)
Total	39 (100.0)	57 (100.0)	96 (100.0)
<b>X<sup>2</sup>= 26.760 df= 4 p &lt; 0.001<sup>x</sup></b>			
<b>Number of occupants per room</b>			
1 person	17 (43.6)	10 (17.5)	27 (28.1)
2 people	17 (43.6)	23 (40.4)	40 (41.7)
3 people	3 (7.6)	15 (26.3)	18 (18.8)
4 people	1 (2.6)	5 (8.8)	6 (6.2)
5 or more persons	1 (2.6)	4 (7.0)	5 (5.2)
Total	39 (100.0)	57 (100.0)	96 (100.0)
<b>Fisher's Exact = 11.803 df = 4 p = 0.013</b>			
<b><sup>x</sup>p is significant</b>			



**Table 5: Predictors of Mental Morbidity (Logistic Regression)**

Predictors	B	Sig.	Interval Odds Ratio	95.0% Confidence	
				Lower	Upper
<b>Settlement</b>					
Uwelu community	.545	.075	1.724	.349	1.214
BDPA community*	1		1		
<b>Age</b>	.016	.240	1.016	.989	1.044
<b>Sex</b>					
Female	.003	.990	1.003	.519	1.561
Male*	1		1		
<b>Education Level</b>					
No formal education	-.494	.425	.610	.095	1.431
Primary	.084	.842	1.087	.160	1.367
Secondary	-.018	.956	.982	.230	1.226
Tertiary*	1		1		
<b>Employment Status</b>					
Unemployed	-.619	.130	.538	1.033	15.650
Employed*	1		1		
<b>Monthly Income</b>	.000	.841	1.000	1.000	1.000
<b>Size of Accommodation</b>	-.498	.003	.608	.439	.842
<b>Number of Occupant</b>	.056	.328	1.058	.945	1.183
Constant	-1.194	.048	.303		

\*Reference category;  $R^2$ : Coefficient of determination of the logistic model.

$R^2 = 8.0\% \text{ to } 12.3\%$

2(1.0%) of Uwelu respondents reported earning that much. Fairly larger proportion of respondents in BDPA than Uwelu lived in large-size accommodation (46.5% of BDPA residents as against 29.5% of Uwelu residents lived in 3-4 bedroom apartment); while 6.5% of the respondents in Uwelu reported sharing their rooms with five or more people, only 0.5% of BDPA respondents had such number of occupants in a room (Table 1). There were statistically significant differences between the two communities on all the indices of SES, Uwelu being more socio-economically disadvantaged than BDPA (Table 2)

The prevalence of probable mental morbidity was higher amongst respondents in Uwelu than amongst BDPA respondents (28.5% and 19.5% respectively;  $P = 0.03$ ) (Table 3)

Probable mental morbidity was significantly associated with low monthly income ( $P = 0.003$ ), education ( $P = 0.000$ ), and type of accommodation ( $P = 0.001$ ). (Table 4)

The odds of developing probable mental morbidity for respondents in Uwelu is 1.72 times higher than for those in BDPA ( $P = 0.075$ ). The risk of probable mental morbidity decreased significantly with increasing size of accommodation ( $OR = 0.69$ ,  $P = 0.003$ ), but increased with increasing number of occupants per room ( $OR = 1.06$ ,  $P = 0.32$ ). The odds of developing probable mental morbidity for respondents with primary level of education is 1.09 greater than for those with tertiary level of education (Table 5)

## Discussion

This study reveals that the two communities studied differ significantly on all the indices of SES with Uwelu being

the more socio-economically disadvantaged community (income,  $P < 0.001$ ; education,  $P < 0.001$ ; occupation,  $P < 0.01$ ; and housing,  $P = 0.04$ ). This difference provides the necessary basis for comparison.

Probable mental morbidity was overrepresented in Uwelu. Similarly previous studies have shown that people in lower socio-economic groups have an increased prevalence of mental disorders.<sup>7,8,10</sup>

It is worthy of note that the relationship between mental morbidity and SES could be a complex one. This study, being cross-sectional in design could not determine whether the indices of SES are causes or effects of mental illness; however it has suggested a significant association between the two. A relatively novel hypothesis, the "social stress hypotheses" suggests that a higher prevalence rate of mental morbidity among people of lower SES is due to chronic stress that is associated with SES; lower SES is associated with a number of important social and environmental conditions including overcrowding, noise pollution, and other stressors that contribute to mental impairment.<sup>19</sup> The findings of this study concur with this hypothesis. Uwelu community is characterized by relatively high level of urban noise, overcrowding, poor housing design and poorer level of environmental sanitation, while BDPA could be said to have a relatively more pleasant and healthy environment, lower housing density, and less urban noise.

However, taking cognizance of the social causation and social selection hypothesis, the relationship between SES and mental morbidity could be bi-directional. A general consensus is that the two hypothesized causal mechanisms (social

causation and social selection) account for the majority of the correlation between SES and mental illness.<sup>14</sup>

Therefore broad interventions that will affect both SES and mental health are critical in addressing the inverse relationship.

The findings of this study are a source of information in the development of policy measures aimed at the reduction of socio-economic disparity in the communities. Such policy initiatives must address the component of SES (income, education, employment and housing). The consequence of poor income is, invariably, poverty which has been found to be associated with inability to access qualitative health care and decreased quality of life.<sup>20</sup> In the year 2000, the percentage of the population living in relative poverty was 60%. This percentage was supposed to fall to 21.3% in 2015 in line with the millennium development goal 1. In 2004, 54.4% of the population was still living in relative poverty. If this trend continues, by the year 2015, the poverty incidence would have fallen to 48.7%, some 27.3% points more than the expected target of 21.37%.<sup>21</sup> Policies that will effectively alleviate poverty, (enhancement of income, amongst other measures) and bridge the disparity between the rich and the poor might go a long way in reducing the negative impact of SES on mental health.

Education is one of the indices of SES. Lack of education portends a diminished opportunity for people to access resources to improve their health.<sup>22</sup> Thus enhancing people's access to qualitative education will, no doubt, impact positively on their mental health.

Housing is a basic human right and requirement for good physical and mental health and a significant relationship has been found between poor housing and mental health both at an individual premises level and at community level.<sup>23</sup> Proactive measures to support citizens to access adequate, suitable, and affordable housing is essential to maintaining stable mental status.

Improving the mental health of persons is imperative in addressing the reciprocal relationship between SES and mental morbidity. According to Hudson<sup>24</sup>, mental health services are usually less available to, or sought by persons of low SES and this might account, to a large extent, for the negative relationship between SES and mental illness. Thus the role of community mental health services in moderating this relationship cannot be overemphasized.

There is a need for public enlightenment and campaign on issues that relate to mental illness, prompt and effective case management to prevent downward social mobility of persons with mental illness. Public programmes that link mental health services with concrete supports, such as training, education and housing have been found to reduce the negative impact of mental illness on SES.<sup>24</sup> Muntunatic and his colleagues<sup>25</sup> opined that increasing access to treatment and services, reducing unemployment discrimination, and ensuring community integration are critical measures.

### Conclusion

The study found that the two communities differ significantly on all the socio-economic indices compared. Probable mental morbidity was significantly more prevalent in Uwelu,

the more socio-economically disadvantaged community. This is in keeping with previous findings that suggest an inverse relationship between SES and mental health.

Broad interventions that will positively affect both the socio-economic and mental status of individuals, groups or communities are critical in addressing the negative impact of low SES on mental health and vice-verse

#### Limitation

The study was conducted in restricted location necessitating a cautious generalization of the findings.

Although the study has suggested a significant association between SES and mental morbidity, a cross-sectional study neither establishes causality nor the direction of causal mechanisms. To this extent, a longitudinal study is advocated.

It is here advocated that future studies that will explore the relationship between SES and mental disorder take cognizance of the fact that the relationship between mental illness and SES may differ based on different diagnostic categories of mental illness.

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