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Original Article

Pattern of Depression among Secondary School Adolescents in Ilesa, South West, Nigeria

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Abstract

Background: Depression in adolescents could be highly distressing and may exert a huge burden on the growing individuals transiting to adulthood. Adolescents are confronted with high expectations and societal demands which may place serious burdens on them and lead to depression. This study intended to study the pattern of depression among adolescents in Ilesa with a view to providing information that could serve as an empirical basis for strategic interventions for the affected adolescents.

Methodology: A descriptive cross-sectional study was conducted among 302 secondary school adolescents in Ilesa East LGA. These subjects were selected using a multistage sampling method. Adolescents' socio-demographics were assessed with a socio-demographics questionnaire. The PHQ-9 was used to assess depression among adolescents. Data was entered and analyzed using Statistical Package for the Social Sciences version 21 (SPSS 21) and analyzed. The test of associations between the outcome variable and categorical variables was done with Chi- square and $p<0.05$ was taken as the level of significance.

Results: The results showed that seventy-nine out of the 302 adolescents screened with PHQ 9 had depression with prevalence of 26.2%. The prevalence of depression was significantly higher in adolescent girls than in boys ($\chi2=9.782, p=0.002$); and significantly pronounced in early adolescents compared to the middle and late adolescents ($\chi2=14.205$, $p=0.001$).

Conclusion: The Prevalence of depression was high among the adolescents in Ilesa and commoner among the early and females' adolescents.

Keywords: Pattern; Depression; Adolescents; Nigeria.

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Introduction

Adolescents are young people aged 10-19 years, which are the formative years [1]. In the adolescence stage, rapid maturity, morals, values, and attitudes are formed with great influence on their behavior and psychology [2]. The vulnerability of this developmental period cannot be over emphasized as lifestyles formed or developed then can greatly affect the personality in adulthood [1,2]. Children transition into adulthood through adolescence, they develop psychologically and intellectually in this phase to deal with issues of performance and competence, autonomy, identity, social status, and sexuality [3]. Globally, the behaviours of adolescents and their transition to adulthood are conditional upon the social setting in which they develop and dwell [1,2]. Adolescents constitute one-fifth (1.2billion) of the global population and over three-fourths of them are in the developing world [2, 4].

Young adults can emerge quickly to a world of fortuitousness as they progressively adopt the attributes and qualities of adults in size, thinking skills, identity, sexual characteristics, and economic and social roles in the second decade of their lives [2].

However, the growing world also prompted adolescents to ugly risks, they do not have sufficient knowledge, and experience to avert or overcome [1,2. Their level of maturation and social status is not compatible with some challenges unless they have well-provided backing, knowledge, and access to resources [5]. Adolescents are more predisposed to a lot of risk which can adversely affect their mental state [6]. Risks implicated in promoting depression in adolescence involve the urge for greater autonomy, sexual identity, pressure from peers, and access to technology use [2]. Gender norms, domestic life quality, peer influence, and media impact can jeopardize the difference between an adolescent's perceptions and their futuristic reality. Family problems such as strict parenting and bullying are known risks for depression [6]. Psychological illness leads to social withdrawal, isolation, loneliness, and depression and can profoundly affect areas like school attendance and schoolwork [7]. About one-tenth of adolescents experience mental illness worldwide and they remain under diagnosed [6]. Adolescents feel unable to discuss their problems with others and family and consequently leave their challenges unidentified or misunderstood by friends and family which may lead to depression.

Depression can lead to loss of interest, low mood, reduced enjoyment, activity, and loss of energy causing increased fatigability [1]. It can also be associated with guilt, regret, hopelessness, worthlessness, and confusion [7]. Furthermore, depression can lead to guilt, unhappiness, and somatic symptoms like fatigue, poor concentration, sleeplessness, worthlessness, hopelessness, irritability, poor sleep or excessive sleep, loss of interest in tasks, and anorexia [1].

Adolescents' depression is usually undetected by the families and society and underdiagnosed by medical personnel [8]. Depression is so cumbersome to evaluate among adolescents because of the psychological and hormonal fluctuations that are usually associated with this period [8]. It may be a challenge to identify depression in adolescence due to the attitude of the adolescent, who may not be aware of a problem or seek help with this problem. Furthermore, the low perception of parents/caregivers, teachers, and medical personnel who observe mainly the external behavioral disturbances, without paying attention to the depressive emotions of the adolescent, obstruct the need to seek medical attention [9]. Another factor that makes depression tedious to evaluate among adolescents, may be the frequent hormonal changes associated with this period [10].

A meta-analysis revealed a 28.4% prevalence of depression in adolescents in Iran [11] and a 26.4% prevalence reported in Nigeria [12]. In the studies done in Nigeria, a prevalence of 2.3% to 36.6% was found among studies done in Malaysia and Sri Lanka adolescents [13-15]and girls were noted with higher depression [16]. Ang *et al* [13] found a prevalence of 12.6% for depression among adolescents in a

A local setting in South-West, Nigeria. It was reported that mental illness is responsible for 16% of the global disease burden and morbidity in adolescents,' [2] equivalence of one in six adolescents being affected. About 50% of all psychological illnesses have onset at 14 years of age but are usually unrecognized and managed [2]. Adolescents' common mental disorders have been grossly unattended to by the Nigerian health care system.

Depression is a mental illness that nearly everyone would have had in their lifetime and is usually associated with the loss of a loved one, job, or failure [2]. Acute bouts of depression are a reaction to certain negative life events and may also be chronic and disabling in nature [1]. Adolescents suffer from depression as a result stormy nature of adolescence and the high competition in achieving in very harsh socioeconomic conditions [4]. Adolescents are confronted with high expectations and societal demands which put serious burdens on them and lead to depression. Some adolescents have been made to be the breadwinners of their families for various reasons; hence, they must contribute to family upkeep [6].

The burden of depression in adolescents is huge but underreported due to the peculiarity of adolescents who are most of the time unwilling to discuss their psychological states with parents or caregivers. Adolescents are confronted with high expectations and societal demands which may place serious burdens on them and lead to depression. In view of this, this study intended to study the pattern of depression among adolescents in Ilesa with a view to providing information that could serve as an empirical basis for strategic interventions for the affected adolescents.

Methodology

Study Design

The study was conducted among secondary school adolescents between the ages of 10–19 years in Ilesa East Local Government Area, Ilesa. These adolescents were selected using the multistage random sampling technique. The PHQ-9 was used in screening the pupils to identify adolescents who had depression according to DSM V [17-20]. The socio-demographic characteristics of depressed adolescents and the non-depressed adolescents were determined [21]. According to the 2022/23 Osun State school census, there were41,000 adolescents aged 10–19 years in the local government area 20,000 boys and 21,000 Girls, out of which 302 were selected. The study was conducted in the second and third term of the session to ensure accurate behavioral assessment of the adolescents. Twelve thousand adolescents (6400 males and 6600 females) were in secondary schools in Ilesa East LGA consisting of 8400 adolescents in public and 4600 in private schools.

Ethical Consideration

The procedures followed were in accordance with the ethical standards of the Institute of Public Health, Obafemi Awolowo University Ile Ife ethical committee, and with the Helsinki Declaration of 1975, as revised in 2000. Approval for the study was obtained from December 12, 2023, to December 15, 2024, from the Research and Ethics Committee of the Institute of Public Health, Obafemi Awolowo University Ile Ife with protocol number IPH/OAU/12/1022. Permission was also taken from the Zonal Inspector of Education, head teachers, and class teachers from the selected schools. Written informed consent from the parents or guardians of the adolescents who took part in the study was obtained while the adolescent that participated gave assent.

Sample Size Determination

The sample size for this study was determined using the Leslie and Kish formula

$n = Z^2pq / d^2$ where n=sample size= z-score, p=prevalence, d=margin of error where Z=1.96; p=23.3/100 = 0.233; q is1-p =1-0.233=0.767; d=0.05 and d^2=0.0025 z^2=3.8416.

A prevalence of depression of 23.3% by Adeniyi et al 2007 [23] was used in the calculation. Thus, the calculated sample size was n =3.8416 ×0.233 × 0.767 /0.0025; n =0.94657024/0.0025 n=274.6 =275.

Ten percent of the calculated sample size was added to make 302 to accommodate for non-response (for possible complete data). Three of the 305 questionnaires administered were returned improperly filled with a response rate of 99%.

Inclusion Criteria

All apparently healthy adolescents aged 10 -19 years whose parents (guardians) gave consent.

Exclusion Criteria

Adolescents whose age could not be determined were excluded. Those adolescents who declined to participate or who were new in the class during the period of assessment were also exempted.

Multistage Random Sampling

Simple random sampling was used for the selection of the adolescents in Ilesa East Local Government out of the two Local Governments in Ilesa. Twelve schools out of the 72 secondary schools in the area were selected by balloting. Adolescents were selected from each school by sampling based on the proportion to size of each selected school to the population of the twelve selected schools. A table of random numbers was used to select adolescents from each class in each school.

Procedure

Patient Health Questionnaire:

PHQ-9, an already validated and used tool in Nigeria by Adewuya et al in 2007 was used to assess depression. It assesses depressive symptoms and is easy to use, economical, readily universal, and easy to analyze. It is a nine-item questionnaire with a 4-point Likert scale such as 0-3 ("Not at all" to "Nearly every day"). Depression was categorized based on scoring into mild, moderate, and severe [17-20]. Evidence from a previous study showed that PHQ-9 had a specificity of 98.9%, a sensitivity of 89.5%, and negative and positive predictive values of 0.981 and 0.875 respectively [12, 17, 20]. In this research, a cut-off of 5 and above was made for depression according to Adewuya et al in their validation study [17-20]. The same cut-off had been used for screening depression in a village in Oyo State, South-West, Nigeria. The questionnaires were completed by the researcher and trained assistants. Information was obtained from the parents in English from the parents who understand the English language and the Yoruba back-translated questionnaire was used for the parents who only understand the Yoruba language. The questionnaires were pretested before administration by the researchers. The socioeconomic status of parents was classified based on the Ibadin et al classification and was re-stratified into upper (I and II), middle (III), and lower (IV and V) social groups [21].

Data Analysis

Data were obtained, imputed, edited, sorted and analyzed with SPSS version 21. The data was analyzed using both inferential and descriptive statistics. Descriptive statistics such as frequency, percentage,

mean, standard deviation, charts, and tabulation were used to describe the distribution and aggregate data of the study. The test of associations between the outcome variable and categorical variables was done with Chi- square and $p<0.05$ was taken as the level of significance.

Results

Socio-Demography Distribution of the Respondents

A total of 302 secondary school adolescents were studied out of 305 that were selected, three of them had incomplete data. They were between the ages of 10-19 years with a mean and standard deviation of 13.6±2.4 years. Almost two-thirds (68.9%) of the adolescents were aged 10-14 years, about a quarter (23.2%) were aged 15-17 years and less than ten percent (7.9%) were aged 18-19 years. About one-third (37.4%) of the adolescents were boys and about two-thirds (62.6%) were girls, male: female ratio of 1:1.7. A little greater than a quarter (28.1%) of the adolescents were in the upper social class, about half (45.4%) in middle and about a quarter (26.5%) in lower social class. The majority (98.0%) of the subjects were Yoruba and others were Igbo and Hausa. Almost all (94.7%) of the adolescents were Christians while others were Muslims and traditionalists. The majority (92.1%) of the parents of the adolescents were married.

Table 1: Socio-Demographic Characteristics of the Respondents (n=302)

Variables	Frequency	Percentage (%)
Age ;Mean:13.17±3.87		
10-14	208	68.9
15-17	70	23.2
18-19	24	7.9
Gender		
Male	113	37.4
Female	189	62.6
SES		
Upper	85	28.1
Middle	137	45.4
Low	80	26.5
Religious Affiliation		
Christianity	286	94.7
*Others	16	5.3
Parental Marital status		
Single	18	6.0
Married	278	92.1
Divorced	6	1.9
Ethnicity		
Yoruba	296	98.0
**Others	6	2.0
Family Type		
Monogamous	252	83.4
Polygamous	50	16.6

*Others –Islam and Traditional religion; **Others – Igbo and Hausa

Prevalence of Depression among the 302 Adolescents

About a quarter (26.2%) of the 302 adolescents had depression as shown in Table 2.

Table 2. Prevalence of Depression among Respondents

Variable	Frequency	Percentage (%)
Depressed	79	26.2
Not Depressed	223	73.8
Total	**302**	**100**

Pattern of Depression among Adolescents

Most of the studied adolescents had mild depression as shown in Figure1. Two hundred and twenty-three adolescents (73.8%) were not depressed, about one-fifth (18.6%) of the adolescents had mild depression while less than ten percent (7.6%) had moderate depression.

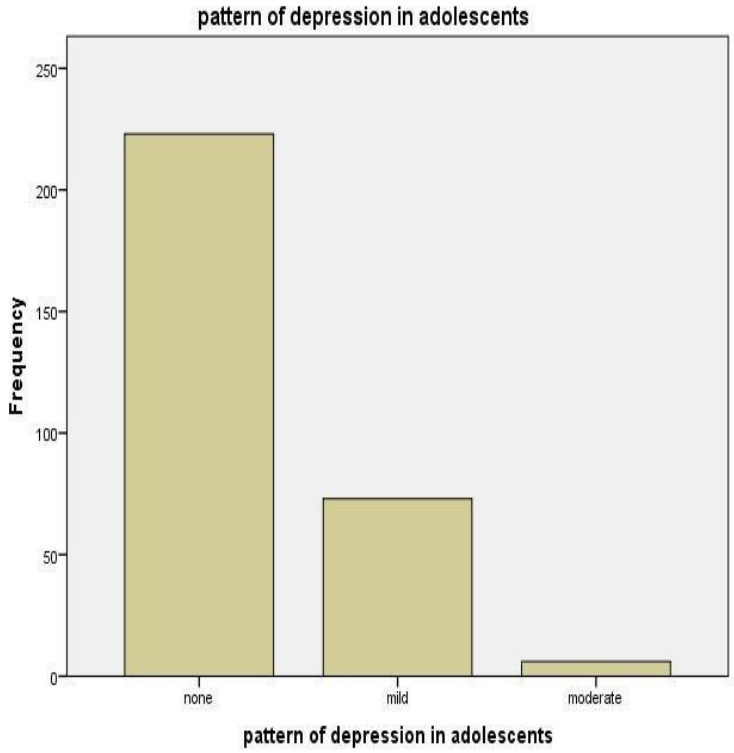

Figure 1. Pattern of Depression among adolescents studied

None - Percentage of Adolescents without Depression
Mild – Percentage of Adolescents with mild Depression
Moderate – Percentage of Adolescents with moderate Depression

The Socio-Demographic Distribution of the Depressed and Non-Depressed Adolescents

Socio-demographics of adolescents with depression and adolescents with no depression are shown in Table 3. About half of the 79 adolescents that had depression were from ages 10-14 years and about a quarter were from 15-17 years. Forty-two (13.9%) of the 302 adolescents ages 10-14 years had depression while 25 (8.3%) of the 302 adolescents aged 15-17 years had depression. Early adolescents had more depression than the middle and late adolescents. Age prevalence of depression among the age groups was statistically significant ($\chi2$=14.205, p=0.001). Eighteen (15.9%) of the 113 males and 61 (32.3%) out of 189 studied females had depression with a ratio of 1:2. The prevalence of depression was statistically significantly higher in females ($\chi2$=9.782, p=0.002). The majority of the adolescents studied were Christians.

About two-thirds (62.0%) of the 79 adolescents with depression were from middle social class and one-third of the adolescents with depressive illness were from low SES. The low SES was statistically significant in adolescents with depression ($\chi2$=3.852, p=0. 001). Most of the adolescents studied were Yorubas.

Table 3: The Socio-Demographic Factors of Depressed and Non-Depressed Adolescents

Variables	Depressed n(%)	Not depressed n(%)	Total, N=302 (100%)	Chi-square (X^2)	p-Value
Age(Years)				14.205	0.001
10-14	42 (20.2)	166 (79.8)	208		
15-17	25 (35.7)	45 (64.3)	70		
18-19	12 (50.0)	12 (50.0)	24		
Sex				9.782	0.002
Male	18 (15.9)	95 (84.1)	113		
Female	61 (32.3)	128 (67.7)	189		
SES				25.712	0.001*
Upper	5 (5.9)	80 (94.1)	85		
Middle	49 (35.8)	88 (64.2)	137		
Lower	25 (31.2)	55 (68.8)	80		
Religion				5.080	0.089*
Christian	74 (25.9)	212 (74.1)	286		
**Others	5 (31.3)	11 (68. 7)	16		
Ethnicity				2.169	0.506*
Yoruba	79(26.7)	217(73.3)	296		
***Others	0 (0.0)	6 (100.0)	6		

*Fisher's exact test; ** Others –Islam and Traditional religion; ***Others – Igbo and Hausa

Discussion

This survey was done to determine depression prevalence and pattern, its association with family factors, and the academic performance of school adolescents in Ilesa, Nigeria. The prevalence of 26.2% found in the study was comparable to that of 26.4% reported by Khasakhala et al in 2015 in Nairobi [8], It was also like the 21.2% prevalence found by Fatiregun et al among Nigeria school adolescents in 2015 [5] using the modified Patient Health Questionnaire [5]. The prevalence in this study also mirrors the 22.45% prevalence found by Moeiniet al in 2019 in Iran [11] and 20.3% found by Lee *et al* in 2009 in China [9]. The study was not in agreement with the studies done by Jha *et al* in 2017 in India [6], Adeniyi *et al in* 2018 in Nigeria [4], and Shao *et al* in 2020 in China [7] in which a prevalence of 13.0%,16.3%, and 6.4% were reported respectively. Rodrigo *et al in* 2010 in India used the Beck Depression Inventory and reported a prevalence of 57.7% among 3141 secondary school adolescents aged 15-19 years and this prevalence is significantly higher than what was observed in this study [14].

This observation may be due to variations in the tools/instruments. The prevalence of 18% reported by Saluja *et al*. in 2004 in the United States of America among 863 young adolescents aged 11-15 years using the Composite International Diagnostic Interview (CIDI) was also not in agreement with this study [15]. The variation in Saluja's study and this study may be due to the variation in ages of the participants while in this present study, the respondents were adolescents aged 10-19 years [15]. The reasons for the observed differences in prevalence were due to different methodologies, sampling methods, study designs, screening tools (instruments), age of subjects, and sampling frames [22]. Furthermore, the observed differences in prevalence may be due to differences in the instruments used. Expectedly, studies using screening instruments measuring probable depression (as in symptom rating) may report parallel variations with (higher values) as opposed to studies that utilized diagnostic instruments. It is noteworthy that this study utilized PHQ9 which is a screening tool (symptom rating). This study also found that early adolescents were more depressed than the late adolescents who were depressed. Contrary results were found by Said and Hasan, in 2009 among the Turkish adolescents where older adolescents were reported to have more depression than younger adolescents [23]. This could be due to societal expectations from early adolescents such as better conduct, and better academic performance, and are likely to experience depression more than younger adolescents [24]. This could also be a result of poor self-identity and inability to cope with the rapid physiological and psychological change in this early adolescent state. This could be because of the increase in the challenges they face in this early stage, societal expectations and academic pressures from parents could be overwhelming [25].

Hormonal changes have also been linked to increased depression in early adolescents, and this has been associated with depression among the early adolescents [26]. Hormonal changes also produce neural and behavioural signs of depression by stimulating the brain to lead to depression [26]. However, this is not in agreement with studies from Bangladesh., Nairobi, India, and China [12,13,29,30].

This study also reported females than male adolescents with depression which his consistent with reports by other studies in Nigeria [27] outside the countries such as Nairobi, Brazil, and China in which depression had been reported to be significantly more common among female adolescents [24-27]. The prevalence in this study suggests that the female adolescents in these studies have varying risk factors for depression by virtue of their changing biological, emotional (swing mood), and hormonal conditions in addition to the social and environmental factors. The threshold for adapting to these conditions might however differ from developing depression.

Mild depression was more prevalent in the study which was in consonance with the studies done in Saudi Arabia, India, and Malaysia by Asal *et al,* Singh *et al* and Latiff *et al* respectively [22-24]. A contrary report was obtained from Sri Lanka by Rodrigo *et al* [14]. The severity of depression in adolescents was statistically significantly higher in younger and female adolescents which was also in

agreement with other studies [25,26]. In addition, the severity of depression among adolescents was statistically significantly higher among adolescents from low social class [27].

Conclusion

The Prevalence of depression was high among the adolescents in Ilesa and common among the early adolescents and females. Prompt school intervention will be needed to reduce the growing prevalence and burden of depression among adolescents in schools through well-structured school health programs that incorporate mental health.

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