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EFFECT OF PEER-LED AND TEACHER-LED EDUCATIONAL INTERVENTIONS ON DEPRESSION-RELATED KNOWLEDGE AMONG IN-SCHOOL ADOLESCENTS IN OGUN STATE, NIGERIA

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ABSTRACT: *The study aimed to determine the effectiveness of peer-led and teacher-led educational interventions on depression-related knowledge among in-school adolescents in Ogun State, Nigeria. The study utilized a quasi-experimental design comprising one control group and three experimental groups. The population of the study was 120 in-school adolescents selected using the multistage sampling technique. A validated semi-structured questionnaire was used for data collection. The findings revealed that the adolescents' level of depression knowledge had a significant increase after the intervention. The teacher-led group had greater knowledge scores (mean difference = 14.87; effect size = 5.222; t = 19.943; p = 0.000). In conclusion, the teacher-led educational intervention was very effective in improving the level of adolescents' depression knowledge in Ogun State. It is recommended that teachers are empowered in the country to be able to provide adolescents with the necessary support in which they play the role of mentors in schools.*

KEYWORDS: Depression, Adolescents, Knowledge, Peer-led, Teacher-led, Health Belief Model.

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INTRODUCTION

Depression is one of the most frequent yet under-diagnosed mental health issues in children and adolescents; the repercussions are far-reaching and manifest later in life in the social, psychological, and intellectual domains if not identified and treated early (National Institute of Mental Health [NIMH], 2018). Low- and middle-income countries (LMICs) have insufficient human and infrastructural resources to provide mental health care services (Saxena, Thornicroft, Knapp & Whiteford, 2017). Depression, like other mental illnesses, is frequently disregarded or ignored in most communities around the world, particularly in African societies, and it is a major mental health disease condition that affects people of all ages with adolescents being no exception (Dapaah & Amoako, 2019).

Globally, more than 394 million people of all ages suffer from depression, a prevalent mental disorder and a leading underlying condition that contributes significantly to the global disease burden (James, Abate, Abbai, Abay & Abdollahpour, 2018; Aluh, Abba & Afosi, 2020; WHO, 2020). After adjustment for age using the 2001 census data, a large population-based study from South India reported that the total prevalence of depression was 15.1% (Goyal, Kohli, Kishore & Jiloha, 2013). According to research findings on depression literacy among adolescents, there is a lack of knowledge of depression and no appropriate source of depression-related health-seeking (Burns & Rapee, 2017).

Nigeria is a developing country, and therefore, it is exposed to a wide range of events that can affect people's mental health. Fewer than 10% of people who suffer from mental illnesses like depression receive medical care in a year, according to estimates (Ekwe & Ohuakanwa, 2020). According to a published research conducted in Nigeria's South-West, there is an urgent need for school-based interventions aimed at improving knowledge, identification and symptoms of depression as well as promoting appropriate health-seeking among adolescents (Adeosun, 2016). Mogaji (2017) indicated that a large percentage of adolescent participants (80%) misidentified high self-confidence as a symptom of depression and had insufficient knowledge of depression.

Education has been identified as an effective approach for increasing knowledge and decreasing negative attitudes regarding mental health illnesses including depression (Naylor, Cowie, Walters, Talamelli & Dawkins, 2019). After being exposed to educational programs, young people's attitudes and perceptions about mental health illnesses such as depression improved (Labinjo, Serrant, Ashmore & Turner, 2020). As a result, educating adolescents about depression is critical.

The Health Belief Model (HBM) was used in this research. It is a cognitive model that posits that an individual's decision to perform a certain behavior is dependent on the individual's benefits of the behaviour itself and variables, one of which is knowledge. It is one of the most commonly used theories in health education and health promotion to explain and predict health-related behaviours (Hochbaum, 1958; Rosenstock, 1966; Becker, 1974; Sharma & Romas, 2012).

The purpose of the study examined how peer-led and teacher-led educational interventions affected depression-related knowledge among secondary school students in Ogun state, Nigeria. The study hypothesized that there would be no significant difference in the level of

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in-school adolescents' awareness of depression at baseline and after an 8-week follow-up period.

METHODOLOGY

Study Design

The study utilized a quasi-experimental design which comprised three experimental groups and one control group using the quantitative approach. Health education programme focused on depression-related knowledge was delivered to the three experimental groups, and a placebo was delivered to the control group. The intervention was for a duration of 6 weeks which was in three sessions, lasting for an average of 120 minutes. At baseline, data were collected before the program and at 6 weeks post-intervention in both the experimental and control groups.

Study Area

The study was conducted in four (4) public secondary schools that were selected from four local government areas (LGAs) in Ogun State, which are Remo-North, Ijebu-Ode, Odogbolu and Ijebu-North respectively. The communities employed for this study were at Ipara, Odonoko, Idowa and Mamu, where the indigenes are mostly traders and farmers.

Study Population

The target population for this study was in-school adolescents in selected public secondary schools in Ogun State, Nigeria.

Inclusion and Exclusion Criteria

Those included were students who reside in Ogun state, Nigeria, fully registered students of the schools as at the period of the intervention, male and female students between the ages of 10–19 years, students who gave their assent willing to participate, parents who gave consent for their children to participate and teachers who were interested and were willing to participate in the study. Those excluded were students who did not reside in Ogun State, Nigeria, students who had not been fully registered in the school as at the period of the intervention, students below and above the age bracket (10–19 years), students who did not give their assent and were not willing to participate, parents who did not give consent for their children to participate in the study and teachers who were not interested and were not willing to participate in the study.

Sampling Procedure

Random sampling technique was used for the selection of in-school adolescents from public secondary schools in Ogun State. Out of the three senatorial districts in Ogun State, Ogun East was purposively selected. This is because it is made up of about 50% out of the 20 local government areas (LGAs) in Ogun State. Four LGAs were selected using the random sampling technique from Ogun East senatorial district by balloting, and were assigned into four groups. Three schools were randomly selected for the intervention groups and a school was selected for the control group from selected LGAs.

Sample Size Determination

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The sample size that was used for this study was derived from the computation, using a level of significance of 95% and 80% power. There was no given prevalence estimate of depression-related knowledge among in-school secondary students in Ogun State, Nigeria. Thus, the sample size was derived using prevalence at 50%:

$$N = \frac{(Z_\alpha + Z_\beta)^2 \times P_0 (1 - P_0)}{(P_1 - P_0)^2}$$

where N is the minimum sample size per group

Z_α = standard normal deviation at 95% confidence interval (1.96)

Z_β = statistical power at 80% confidence interval (0.84) (power to detect changes in the outcome variable and avoid type II error)

P_0 = prevalence at 50% = 0.5

P_1 = 80% (desired level of outcome variable)

$$N = \frac{(1.96 + 0.84)^2 \times 0.5 (1 - 0.5)}{(0.8 - 0.5)^2}$$

$$\frac{(2.8)^2 \times 0.5 (0.5)}{(0.8 - 0.5)^2}$$

$$\frac{7.84 \times 0.25}{0.09}$$

$$= 21.78 \simeq 22$$

The minimum sample size was 22. 10% of the minimum sample size was added to take care of attrition. Therefore, the total number of participants after adding 10% of 22 = 22 + 2.2 ≃ 24.2 ≃ 30. Based on this computation, a total number of 120 participants (30 per group x 4) from the four secondary schools were enrolled for this study (indicating 30 people per group).

Instrument for Data Collection

A quantitative approach consisting of close-ended questions that covered all aspects of the study was used for this research. The instrument was a semi-structured, participant administered questionnaire that solicited information on socio-demographic characteristics and depression-related knowledge among in-school adolescents from selected secondary schools in Ogun State. The same instrument was administered at baseline, immediate post-intervention, and 8-weeks follow-up.

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Study Variables

The peer-led and teacher-led educational interventions were the independent variables while knowledge on depression was the dependent variable.

Validity and Reliability of Instrument

Face validity was adopted in validating the questionnaire to be used for the study. This was looked at by the supervisor and lecturers in the department. Item validity was also adopted by ensuring that the items in the instrument were carefully and thoughtfully selected in order for them to operationalize each of the variables they fall under. Construct validity using the conceptual framework (Health Belief Model) was adapted and variables in the instrument were selected based on the objectives of the study using the model.

To ascertain the reliability of the instrument, a pilot test was conducted for internal consistency of the instrument using 10% of the anticipated sample size from another public secondary school not included in the study, but with same characteristics as the study participants, to check for clarity and understanding. Twelve of the questionnaires were pre-tested among twelve students. The responses that were provided after the pilot study was fused into the instrument. The data collected from the respondents was statistically analyzed using the Cronbach's alpha standard score to test its reliability. The reliability score generated was 0.82.

Data Analysis

The data obtained from the study was screened by cross checking each item on every questionnaire to ensure that the respondents answered correctly, and in cases where no response was given, this was treated as missing data. However, the data collected was collated, entered and coded using Statistical Package for Social Sciences (SPSS) version 23. Descriptive (means, standard deviation, standard error) and inferential (ANOVA) statistics were used for the data analysis. A statistical level of significance for the inferential statistics was set at $p<0.05$.

RESULTS

A total of 120 adolescents from four secondary schools in four local government areas (LGAs) in Ogun State, Nigeria, were recruited for the intervention. At the start of the study, each intervention and control group had 30 participants. The intervention and control groups both had 100% response rates at the post-intervention and follow-up points. The distribution of the students' socio-demographic characteristics within the groups was tested for randomization at baseline. The results showed that there was no statistical disparity between the intervention and control groups, according to the findings. The distribution of the students' age, gender, class and religion had no statistical difference (Table 1).

At baseline, the mean±SD ages of the adolescents in the teacher-led, peer-led, teacher and peer-led, and control groups were 14.43±2.315 years, 14.33±1.605 years, 14.97±1.426 years and 15.43±1.960 years respectively (Table 1). A third of the students in the teacher-led group (10; 33.3%) were in SSS 2. Equal proportion (23.3%) of students in the peer-led group were in JSS 2 and while over half were in SSS 1 in the combination group. The control group however had

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the highest proportion of students in the SSS 1 class (Table 1). Regarding the religious distribution, majority of the students across the four groups were Christians while only 5 (16.7%), 1 (3.3%), 15 (50%) and 4 (13.3%) were Muslims in the groups respectively (Table 1).

The ethnic distribution showed that majority of the adolescents in this study were from the Yoruba ethnic group with a minority from the Igbo, Hausa and other ethnic groups. The marital status of the adolescents' parents was assessed and the results showed that majority of the adolescents were with married parents across the four groups (Table 2).

Baseline Distribution of Knowledge of Adolescents on Depression

The level of knowledge of adolescents on depression was measured on a 27-point rating scale and grouped into poor (0–13.5) and good (13.6–27). The distribution of the adolescents' overall level of knowledge of depression showed that 19 (63.3%), 18 (60%), 17 (56.7%) and 21 (70%) had poor level of knowledge in the teacher-led, peer-led, combination of teacher and peer-led and control groups respectively. The mean±SD scores for each of the groups were 11.57±4.01, 13.47±4.52, 12.83±4.14 and 12.63±3.18 respectively (Table 3). Adolescents' sources of information on depression was high (30.0%) in the combined intervention groups—the peer-led and teacher-led educational intervention group (see Figure 1).

Knowledge of Adolescents on Depression at Immediate Post Intervention

The knowledge of the adolescents on depression was assessed after the intervention was administered and completed. The measure was computed on a 27-point rating scale with mean±SD of 26.20±0.96, 25.20±1.73, 25.70±1.47 and 12.70±3.25 in the teacher-led, peer-led, peer-led and teacher-led and control groups respectively. The results showed that the highest mean was recorded in the teacher-led intervention group. All the adolescents in the three intervention groups recorded high scores of depression knowledge after the intervention (30; 100%) (Table 4).

Outcome Evaluation of Knowledge of Adolescents on Depression at 8-weeks Follow Up

The knowledge of adolescents was measured on a 27-point rating scale and measured at 8-weeks follow up. Results showed that the teacher-led, peer-led, teacher-led and peer-led educational intervention and control groups had mean±SD of 26.43±0.82, 25.33±1.67, 26.03±1.22 and 12.97±3.35 respectively. The results showed that the teacher-led educational intervention group had the highest mean among the groups. None of the adolescents in the intervention groups had low scores of depression knowledge during the follow-up evaluation (Table 5).

Research Hypothesis

There will be no significant difference in the level of knowledge of depression of in-school adolescents at baseline and 8-weeks follow-up period. The paired t-test was used to analyze the effect of the intervention on adolescents in the intervention groups. The intervention groups had the following results: teacher-led intervention [(effect size) ES = 5.222; t = 19.943; p = 0.000]; peer-led intervention [(effect size) ES = 3.540; t = 13.369; p = 0.000]; and combination

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of teacher-led and peer-led intervention [(effect size) ES = 4.383, t = 18.137; p = 0.000] (Table 6).

DISCUSSION

The results from the study provide insight into the level of knowledge about depression among adolescents in the study area. According to the global mental health burden, 10–20 percent of adolescents suffer from at least one mental condition (Girma, Tsehay, Mamaru & Abera, 2021). The total mean±SD ages of the adolescents in the teacher-led, peer-led, teacher- and peer-led and control groups were 14.43±2.315 years, 14.33±1.605 years, 14.97±1.426 years and 15.43±1.960 years respectively, which is similar to the age as established by Mogaji (2017) in the Southwest of Nigeria.

The study highlights that close to half of the respondents are not aware of depression. Previous studies have also underlined that lack of awareness about mental health issues and treatment alternatives, as well as a fear of stigma, discourage adolescents from seeking therapy and approaching the health-care system in the first place (Meredith et al., 2009; Hunt & Eisenberg, 2010; Wilson, Deane, Marshall & Dalley, 2010; Calear, Griffiths & Christensen, 2011).

Baseline comparison of the level of adolescents' knowledge of depression in all groups indicated poor knowledge of depression. In line with previous research, a low percentage of depression detection was discovered. However, some of the respondents in this study had correct knowledge of depression, a number that is significantly lower than the 20–75% rate observed in studies conducted in developed nations (Dogra, Omigbodun, Adedokun, Bella, Ronzoni & Adesokan, 2021; McCarthy, Bruno & Fernandes, 2020). The current study's result of a considerably lower prevalence of depression literacy shows a significant unmet need for mental health literacy among Nigerian adolescents. Previous research revealed considerable misinformation and beliefs regarding mental illness among Nigerian adults (Lam, 2014).

The educative intervention modules had an impact on the adolescents' level of knowledge on depression. There was a significant increase in the level of knowledge of depression information across the intervention groups after the intervention was administered and the increased knowledge persisted over an 8-week follow-up period. In all intervention groups, no teenager had a low level of awareness of depression. Positive educational intervention should be implemented in schools to address the prevalence of depression (Seligman, 2015).

It is remarkable to note that the teacher-led intervention program had a higher effect size on the level of knowledge of adolescents on depression both at the impact intervention and at the 8-weeks follow up compared to the other modules. These findings suggest that school teachers may be useful in delivering universal preventive programs for depression or mental health in general among adolescents (Lai et al., 2016; Mælan, Tjomsland, Samdal & Turston, 2021).

Research (McCarthy, Bruno & Fernandes, 2020) has shown that periodic and continuous interventions can be more effective for changing behaviour and lifestyle, because the change process does not occur only from information. One can also infer that the educational intervention was effective in raising awareness and also in increasing and sustaining the knowledge of adolescents in the study population.

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Implications of Findings to Health Promotion and Education

The major implication to health promotion and education this study has is that it has brought to light the importance and effectiveness of educational interventions for adolescents pertaining to depression and mental health which health educators can utilize. It was also documented that respondents' knowledge about depression was poor. In light of this, other forms of health promotion educational interventions tailored towards improving knowledge of depression concerning adolescents should not only be directed towards the adolescent but rather towards their older adults who are in charge of their life choices.

CONCLUSION

This study demonstrated that adolescents' knowledge towards depression could be changed through multi-approach educational intervention. The teacher-led educational intervention had the greatest effect size and change in the level of adolescents' depression knowledge. This study further reiterates the opinion that teachers are often able to provide adolescents with the necessary support. They also play the role of mentors in schools, which makes adolescents more likely to accept the support that they provide.

Future Research

There is a need for further studies to explore both the qualitative and quantitative approach in investigating teacher-student relationships on mental health issues, such as depression, in Africa. Researchers should also reach out targeting out-of-school adolescents in improving their depression knowledge and perception.

Table 1: Baseline Distribution of Socio-Demographic Characteristics of Adolescents in the Control and Intervention Groups: Age, Gender, Class and Religion

Variables	TL N (%)	PL N (%)	T&PL N (%)	Control N (%)	p-value
Age in years					
10–13	10 (33.3)	8 (26.7)	3 (10)	4 (13.3)	0.312[a]
14–16	14 (46.7)	20 (66.7)	23 (78.7)	19 (63.3)	
17–19	6 (20)	2 (8.7)	4 (13.3)	7 (23.3)	
Total	**30 (100)**	**30 (100)**	**30 (100)**	**30 (100)**	
Mean±SD	**14.43**±2.315	**14.33**±1.605	**14.97**±1.426	**15.43**±1.960	
Gender					
Female	15 (50)	19 (63.3)	19 (63.3)	16 (53.3)	0.806[a]
Male	15 (50)	11 (36.7)	11 (36.7)	14 (47.7)	
Total	**30 (100)**	**30 (100)**	**30 (100)**	**30 (100)**	

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Class					
JSS 1	4 (13.3)	6 (20)	0 (0)	5 (16.7)	0.901[a]
JSS 2	7 (23.3)	7 (23.3)	5 (16.7)	7 (23.3)	
JSS 3	4 (13.3)	5 (16.7)	9 (30.0)	0 (0)	
SSS 1	5 (16.7)	7 (23.3)	16 (53.3)	12 (40.0)	
SSS 2	10 (33.3)	5 (16.7)	0 (0)	6 (20)	
Total	**30 (100)**	**30 (100)**	**30 (100)**	**30 (100)**	
Religion					
Christianity	25 (83.3)	28 (93.3)	15 (50)	26 (88.7)	0.405[a]
Islam	5 (16.7)	1 (3.3)	15 (50)	4 (13.3)	
Traditional	0 (0)	1 (3.3)	0 (0)	0 (0)	
Total	**30 (100)**	**30 (100)**	**30 (100)**	**30 (100)**	

[a]p-value obtained by Chi-square test

Table 2: Baseline Distribution of Socio-Demographic Characteristics of Adolescents in the Control and Intervention Groups: Ethnic Group and Parents' Marital Status

Variables	TL N (%)	PL N (%)	T&PL N (%)	Control N (%)	p-value
Ethnic Group					
Yoruba	29 (96.7)	27 (90.0)	27 (90)	16 (53.3)	0.000[a]
Igbo	1 (3.3)	1 (3.3)	1 (3.3)	6 (20)	
Hausa	0 (0)	0 (0)	1 (3.3)	0 (0)	
Others	0 (0)	2 (6.7)	1 (3.3)	8 (26.7)	
Total	**30 (100)**	**30 (100)**	**30 (100)**	**30 (100)**	
Parents' Marital Status					
Single	0 (0)	3 (10)	1 (3.3)	27 (90)	0.926[a]
Married	27 (90)	27 (90)	28 (93.3)	0 (0)	
Divorced	1 (3.3)	0 (0)	0 (0)	2 (6.7)	
Widowed	2 (6.7)	0 (0)	1 (3.3)	1 (3.3)	
Total	**30 (100)**	**30 (100)**	**30 (100)**	**30 (100)**	

[a]p-value obtained by Chi-square test

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Table 3: Baseline Comparison of the Level of Adolescents' Knowledge of Depression in the Control and Intervention Groups

Variables	TL N (%)	PL N (%)	TL&PL N (%)	Control N (%)	p-value
Knowledge	**Measured on a 27-point Rating Scale**				
Poor (0–13.5)	19 (63.3)	18 (60.0)	17 (56.7)	21 (70.0)	0.323[a]
Good (13.51–27)	11 (36.7)	12 (40.0)	13 (43.3)	9 (30.0)	
Total	**30 (100)**	**30 (100)**	**30 (100)**	**30 (100)**	
Mean±SD	**11.57±4.01**	**13.47±4.52**	**12.83±4.14**	**12.63±3.18**	

[a] p-value obtained by One-way ANOVA test

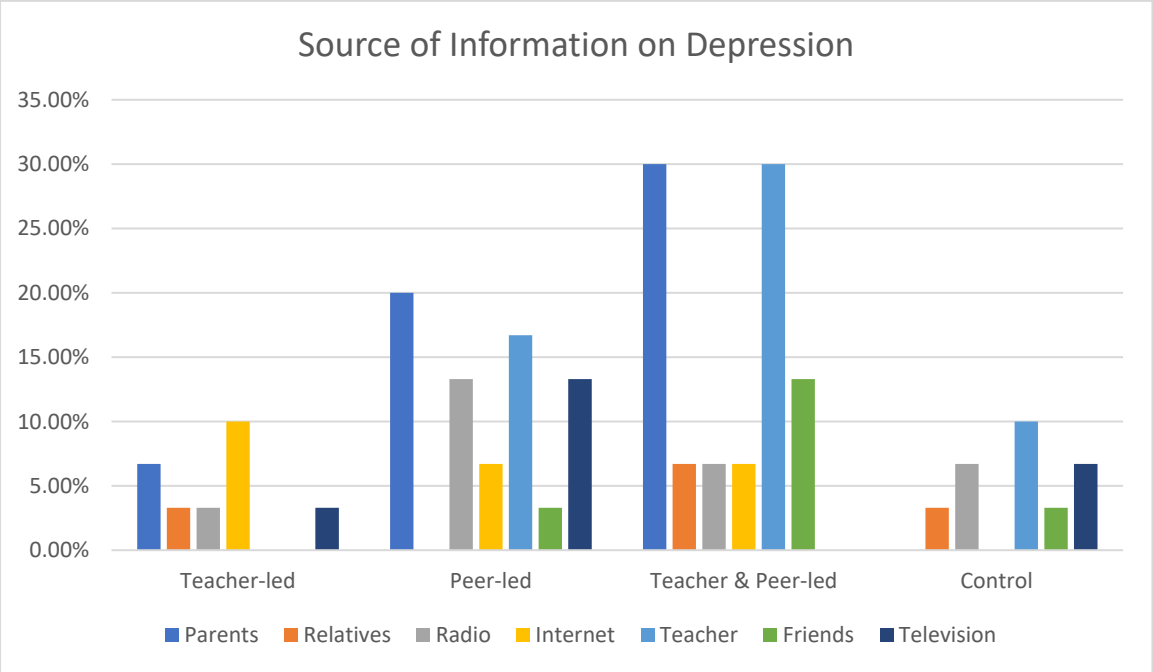

Figure 1: Distribution of Adolescents' Source of Information on Depression

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Table 4: Comparison of Adolescents' Level of Depression Knowledge at Immediate Post Intervention for Intervention and Control Groups

Variable	Maximum Score	Teacher-Led	Peer-Led	Teacher & Peer-Led	Control	p-value
Knowledge						
Poor (0–13.5)	**27 points**	**0 (0.0)**	**0 (0.0)**	**0 (0.0)**	**19 (63.3)**	**0.000***
Good (13.51–27)		**30 (100.0)**	**30 (100.0)**	**30 (100.0)**	**11 (46.7)**	
Mean±SD		**26.20±0.96**	**25.20±1.73**	**25.70±1.46**	**12.70±3.25**	

p-values obtained by One-way ANOVA
***Significant at <0.05**

Table 5: Comparison of Adolescents' Level of Depression Knowledge at 8th-week Follow-up for Intervention and Control Groups

Variable	Maximum Score	Teacher-Led	Peer-Led	Teacher & Peer-Led	Control	p-value
Knowledge						
Poor (0–13.5)	27 points	0 (0.0)	0 (0.0)	0 (0.0)	18 (60.0)	0.000*
Good (13.51–27)		30 (100.0)	30 (100.0)	30 (100.0)	12 (40.0)	
Mean±SD		**26.43±0.82**	**25.33±1.67**	**26.03±1.22**	**12.97±3.35**	

p-values obtained by One-way ANOVA
***Significant at <0.05**

Table 6: Paired T-Test Analysis Showing the Difference in Mean between Adolescents' Level of Depression Knowledge between Baseline and 8th-week Follow-up

Groups	x̄ (SE)	SD	Mean Difference	ES (CI)	df	t	p-value
Teacher-Led Intervention Group							
Baseline	11.57 (0.73)	4.01	14.87	5.222 (4.502–5.942)	29	19.943	0.000
8th-week Follow-up	26.43 (1.18)	0.82					
Peer-Led Intervention Group							

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Baseline	13.47 (0.76)	4.52	11.87	3.540 (2.69–4.38)	29	13.369	0.000
8th-week Follow-up	25.33 (0.30)	1.67					
Teacher-Led and Peer-Led Intervention Groups							
Baseline	12.83 (0.76)	4.15	13.20	4.383 (3.62–5.14)	29	18.137	0.000
8th-week Follow-up	26.03 (0.22)	1.22					
Control Group							
Baseline	12.63 (0.58)	3.18	0.33	0.106 (071–0.92)	29	0.471	0.106
8th-week Follow-up	12.97 (0.61)	3.34					

Ethical Considerations

The study obtained ethical approval from the ethical committee of the university—Babcock University Health Research and Ethics Committee (BUHREC), and also from the Ministry of Health Research Ethics Review Committee and the Ministry of Education Planning Research and Statistics, Ogun State, Nigeria, in order to conduct the study. Informed consent was obtained from all respondents and their parents/guardians before administering the questionnaires. Confidentiality of every information provided was duly kept discrete and the instrument was administered to participants anonymously without requiring the names of the respondents.

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