Effectiveness of Interpersonal Therapy (IPT) on Depression among Adolescents in Selected Public Secondary Schools in Makueni County, Kenya

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Abstract

Depression is a common mental illness and a major cause of disability among adolescents (Girma et al., 2021). Despite the fact that the guidance and counseling programs in secondary schools attend to mental health issues among adolescents, there seems to be inadequate attention to depression. This study aimed to assess the effectiveness of IPT in treating depression among 84 students in selected public mixed-day and boarding public secondary schools in Makueni County, Kenya. 42 students were assigned to the experimental group and 42 to the control group. Multiple time-series designs were used. Those in the experimental group were exposed to IPT treatment for a period of 8 weeks while the participants in the control group received no structured treatment within the same period. The findings of this study showed that IPT was effective in treating depression among adolescents. Based on the findings, IPT was recommended in the management of depression and the improvement of mental health in adolescents in secondary school.

Keywords: Depression, Adolescents, Interpersonal therapy

Introduction and Background

Depression is a common mental illness and a major cause of disability among adolescents (Girma et al., 2021). Adolescence is a transitional developmental stage marked by behavioral and biological changes leading to emotional instability that may dispose individuals to mental illnesses (Jha et al., 2017; Sandal et al., 2017). According to Kroning and Kroning (2016) and Richardson and Katzenellbogen (2005), depressed school adolescents may present with acting-out behavior, sulking, getting in trouble in school, expressing negativity, low academic grades, and identity among others. Moreover, Rothberg (2017) observed that adolescent depression is a global health problem with Girma et al. (2021) estimating that 10% -20% of adolescents are affected by one or more mental disorders. Hards et al. (2020) reported the prevalence of

depression among adolescents particularly ages 13-18 at 2.7-4.8%. The prevalence of depression in Kenya is 18.7%-42% (Mutiso et al., 2018). Meanwhile, a recent study by Nyayieka, Nyagwencha, and Nzyuko (2020) reported a depression prevalence of 57.5% among secondary school adolescents. This showed that adolescent depression in Kenya may be higher than in the global situation.

Mental health issues among adolescents in secondary schools in Kenya are usually attended through the Guidance and Counseling (G & C) programs (Kaptala & Kipruto, 2021). However, there has been inadequate attention to depression among adolescents. Therefore, despite the use of the G & C programs, depression has remained a critical issue in secondary schools. Many studies especially in western countries have reported interpersonal therapy (IPT) is significantly effective in reducing depressive symptoms among adolescents in different settings (Duffy et al., 2019; Mufson et al., 2004; Mychailyszyn & Elson, 2018). Despite the fact that IPT has proved to be effective in reducing depressive symptoms among adolescents, there appears to be less documentation of its application in treating depression, especially among secondary school adolescents in Kenya. This study, therefore, sought to find out whether IPT is effective in treating depression among adolescents in school settings in Makueni County.

Interpersonal therapy is a brief, evidence-based, manual-based treatment whereby usually 12-16 sessions are conducted weekly (WHO, 2016). This study used the WHO Group IPT version consisting of 8 sessions. In Interpersonal therapy, depression is understood in a social context where treatment is focused on one or more of four IPT problem areas: loss, conflict, transition, and loneliness helping the individual develop and maintain healthy interpersonal relations (Stuart & Robertson, 2012). Therefore, IPT works by targeting interpersonal relationships with the belief that a change in interpersonal relations will result in symptom reduction. IPT depression is a treatable medical illness and not the fault of the patient.

The IPT has been used in different countries to effectively treat depression among various populations. A study in America documented that IPT was effective in reducing depressive symptoms in adolescents ages 12-18 even after four weeks of treatment (Gunlicks-Stoessel & Mufson, 2011). IPT has also been used in India to treat major depression associated with work stress and was found effective up to 3 months follow-up (Schramm et al., 2020). Another study in South Africa focusing on moderate and severe depression found IPT effective in treating

depression with a significant reduction of depressive symptoms and improved coping skills even after 24 weeks of follow-up (Petersen et al., 2012). Additionally, a study done in Uganda found IPT efficacious in reducing depression and dysfunction.

In Kenya, there have been few studies on the effectiveness of IPT. One such study was done in Kisumu where the participants were adult women who had major depression and living with HIV who had experienced gender-based violence. The study was randomized trials and reported a significant reduction of depression symptoms (Onu et al., 2016). However, the effect of IPT on adolescents' depression in the school setting, remains largely unexplored in Kenya. This study sought to investigate the effectiveness of IPT in the treatment of depression among secondary school adolescents in Makueni County.

Methodology

Purposive sampling was used to select the two schools from the over 200 secondary schools in Makueni County. The two schools were both mixed day and boarding, deemed to have similar sociodemographic factors. A total of 84 participants aged 14-19 years were selected from forms one, two, and three after they were screened for depression using BDI-II. Those selected had BDI-II scores from 11 to 30 that were indicative of mild to moderate depressive symptoms. Multiple time-series design was adopted for this study. Multiple time-series design is strong in its ability to rule out other justifications for the observed effect, other than the variable being manipulated. This made it suitable for the current study which helped to study trends in the data at different points: that was before, after the intervention, and a follow-up after four months. Again, the design was applicable to the current study since the researcher was testing the causal relationship between IPT and the experience of depressive symptoms among adolescents. The experimental group was exposed to 8 sessions of IPT treatment weekly for 90 minutes. While the control group continued with school guidance and counseling programs which were regarded as treatment as usual during the study period.

The BDI-II was used to measure depressive symptoms. The BDI-II has 21 items that are self-scored by each participant and the items assess the presence and severity of depressive symptoms (Thapar et al., 2012). BDI-II has a cluster of statements of which each cluster relates to a specific depression symptom (Adewuya et al., 2007). The cluster statement under each symptom is

usually four. These statements represent different intensities or severity of the depressive symptoms as experienced by the individual in the past two weeks (Adeniyi, Okafor, & Adeniyi, 2011). They ranged from 0, indicating the absence of the symptoms, 1 indicating the mild state of the symptom, 2 showing there are definite symptoms (moderate), and 3 indicating severe symptoms. For instance, item one is for assessing sadness 0-I do not feel sad, 1-I feel sad much of the time, 2- I am sad all the time, and lastly 3- I am so sad or unhappy that I can't stand it. The BDI-II is a psychologically sound inventory for depression with an internal consistency of $\alpha=0.92$ (Østergaard et al., 2020). This made BDI-II a good screening tool for adolescent depression BDI-II has been extensively studied in similar populations and its internal consistency has been found to be high, at Cronbach's $\alpha =.89$ (Nyagwencha et al., 2018). The BDI-II was used to screen for the presence and severity of depression among adolescents at baseline, the midline assessment for depression was done post-treatment, and a follow-up assessment was after 4 months.

The data was analyzed by using SPSS version 21. The study used descriptive statistics like mean to summarize continuous variables; and also, for frequencies. The Chi-square was used to test how significant the distribution of socio-demographic characteristics and the research groups was. Principal Component Analysis (PCA) was used to analyze how the large dimension of data on depression reduced from baseline to end line. It showed the analysis of mean depression from baseline to end line among the participants. In addition, a test of the Between-Subjects effect was done to analyze the effect size from baseline to midline; and from the midline to endline, and the Independent Samples t-test for the effectiveness of IPT in the Treatment of Depression. This presented the independent sample t-test for equality of means depression in both experimental and control groups. It was to compare mean differences between the two groups that is the experimental and control groups from baseline to the midline and to the endline. Clearance for data collection was sought from the Daystar University Ethics & Research Board (DU-ERB), and a research permit from the National Commission for Science, Technology, and Innovation (NACOSTI) was obtained. Clearance was also sought from Daystar School of Applied Human Sciences and, from the Makueni County Commissioner, and the Director of Education Makueni County. In addition, the researcher got permission from the administration of Nthangu and Munyuni Mixed Day and Boarding Secondary Schools, and ascent from the participants.

Results

Table 1: Key socio-demographic characteristics and Factor Analysis of Mean Depression

Variables	Depression at baseline		Depression at Midline		Depression at endline		
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	KMO Test
Participant's age							Approx. value = 23.5287
14-15	1.0000	.00000	.7143	.48795	1.0000	.0000	
16-17	1.0000	.00000	.7667	.42652	.9667	.18102	
18-19	.9412	.24254	.7059	.46967	.9412	.24254	Sig. = .012
Participant's gender							Approx. v = 32.4128
Male	.9706	.17150	.7059	.46250	.9118	1.0000	
Female	1.0000	.00000	.7800	.41845	.28790	.00000	Sig. = 007

Table 1. showed the factor analysis of mean depression and key socio-demographic characteristics in the experimental group, the means of depression decreased at the midline in the key sociodemographic factors. For example, considering the participant age, the mean depression at baseline among participants aged 14-15 years was 24.14 ± (SD: 3.891) decreased to 21.00 ± (SD: 11.289) at midline and increased to 19.71 ± (SD: 8.616) at endline. However, among participants aged 16-17 years, the mean depression scores at baseline were 20.92 ± (SD: 4.651), then decreased to 17.93 ± (SD: 7.236) at midline and slightly increased to 18.77 ± (SD: 6.973) at endline. Similarly, the mean depression among participants aged 18-19 years at baseline was 20.35 ± (SD: 5.798), and this means depression at baseline decreased to 17.12 ± (SD: 6.143) at midline and then at endline slightly increased to 18.23 ± (SD: 7.782). The mean depression at baseline among male participants was 20.47 ± (SD: 5.46). This reduced to 18.20 ± (SD: 7.619) at the midline and subsequently increased to 19.26 ± (SD: 7.346) at the end line. The same pattern was also noticed among female participants where the mean depression score from 21.48 ± (SD: 4.469) at baseline decreased to 17.90 ± (SD: 7.310) at midline and subsequently decreased to

18.38 ± (SD: 7.140) at the end line. This implied that the mean of the depression in the study group reduced from baseline to end line.

Table 2: Principal Component Analysis of depression among the Participants

Research Group	Time of Assessment	Compare Means Mean	Std. dev.	Bartlett's test of Sphericity Approx. χ^2	df	Sig.
Experimental	Baseline	21.7857	4.80110	22.686	2	.000
	Midline	12.1429	3.43278			
	Endline	12.9524	3.16191			
Control	Baseline	20.3571	4.92293	39.959	2	.000
	Midline	23.9048	5.29062			
	Endline	24.5238	5.11448			

The data in Table 2. showed mean estimates of depressive scores for the experiment and control groups at baseline, midline, and endline. In the experiment group, there is a noticeable reduction in depression symptoms mean from baseline at 21.78 ± (SD: 4.80) to 12.14 ± (SD: 3.43) at the midline. However, there is a subsequently slight increase of depression symptoms mean at endline 12.95 ± (SD: 3.16). Nevertheless, Bartlett's test of sphericity showed a significant reduction of mean depression from baseline to end line (p=0.000). This suggests that significant changes in the depression symptoms mean actually occurred from baseline to end line.

Further, the PCA on data at the control group indicates that the mean depression at baseline 20.36 ± (SD: 4.92) increased to 23.90 ± (SD: 5.29) at midline and further increased to 24.52 ± (SD: 5.11) at the end line. Bartlett's test of sphericity showed a significant increase of mean depression from baseline to end line (p=0.000). This showed that significant changes occurred and that there was a significant increase in depression symptoms mean from baseline to endline in the control group, where participants were not given the IPT treatment.

Table 3: Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	Depression at baseline	37296.429	1	37296.429	1577.492	.000	.951
	Depression at midline	27288.048	1	27288.048	1372.132	.000	.944
	Depression at endline	34526.298	1	34526.298	1623.879	.000	.952
Res_Grp	Depression at baseline	42.857	1	42.857	1.813	.182	.022
	Depression at midline	2905.190	1	2905.190	146.082	.000	.640
	Depression at endline	2811.857	1	2811.857	255.542	.000	.655

a. R Squared = .022 (Adjusted R Squared = .010)

b. R Squared = .640 (Adjusted R Squared = .636)

c. R Squared = .465 (Adjusted R Squared = .459)

The results in Table 3, showed a significant medium-size effect from baseline to the midline at F=146.082 *d* =.640. Similarly, a significant medium effect size was noted between the midline and the end line at F= 255.542; *d* = .655. The implication of the medium effect size at end line data of the study showed that the magnitude of the intervention on depression among the participants from baseline to end line was medium.

Cohen *d* was used to calculate the mean difference between the experimental and control groups respectively, and then divided the result by the pooled standard deviation. The Cohen *d* is the appropriate effect size.

Cohen $d = \dfrac{(M_2-M_i)}{SD_{pooled}}$

Where $d = \dfrac{(24.5238-18.7381)}{4.611028}$

$d = 1.25$

The Cohen d of 1.25 implied that the effect size from baseline to end line was medium. This is in agreement with the partial eta square (η^2_p) test, which showed a medium effect size from baseline to end line (Table 3).

Table 4: Independent Samples T-test for Equality of Means Depression at Experimental Group

Respondent's Scores on Depression	Equality of Variance		T-Test for Equality of Means					95% CI of Difference	
	F	Sig.	T	df	Sig.	Mean Difference	Std. error Difference	Lower	Upper
Baseline	.095	.758	1.346	82	.182	1.42857	1.06106	-.68222	3.53936
Midline	4.737	.032	-12.08	82	.000	-11.76190	.97315	-13.6978	9.82600
End line	13.527	.000	-12.47	82	.000	-11.57143	.92782	-13.4171	9.72570

Table 4 presented the independent sample t-test for equality of means depression in the experimental group. Table 4 data showed the mean difference between the experimental and control groups from the baseline to the midline and to the endline. The result of the test indicated that there is a significant difference in the equality of mean depression between the two research groups (p = 0.000) at midline and also at the follow-up assessment at the end line, the effectiveness of the intervention was significant at (p=0.000). This indicated that the intervention was effective. Pairwise comparison of the mean difference in the study over the two periods, from baseline to end-line assessment time showed that the mean difference from baseline 21.07

± (SE: .56) to endline 18.74 ± (SE: .56) was 2.333. The difference in means was significant (p=.000). This implied that the mean reduced significantly from the baseline to end line.

Table 5: Difference-in-Differences Estimates of IPT in Treating Depressive Disorder

	**(1) Difference-in Differences Estimates (Arm*Post-treatment)
Baseline - Post-treatment	- 2.333 (p =0.000)

**(1) The DiD estimator is the interaction between treatment arm and post-treatment scores and these were determined using OLS method and controlling for whom the participant lived with as a possible confounder.

The DiD approach to isolating program effect rested upon the usual assumptions of Ordinary Least Squares (OLS). The DiD estimators of the OLS estimator show a declining trend over the two-time period depicting a reduction in depressive symptoms (-2.333). These reductions were statistically significant (p =0.000). This implied the intervention was significantly effective in the reduction of depression symptoms among the participants.

Discussion

The statistical analysis indicated a steady decline in the mean of the variables from baseline to the midline, and a subsequently slight increase of depression symptoms mean at the endline. Nevertheless, the analysis showed a significant reduction of the mean depression from baseline to endline in the experiment group. The findings of this study agreed with previous studies that found IPT reduced depressive symptoms among school adolescents (Van Hees, 2013; Osborn, et al., 2019).

The study reported a significant reduction of depressive symptoms (p=0.000) among the participants in the experimental group. This study's findings further concur with results reported by Mufson (2010) that IPT was significantly effective in reducing depressive symptoms among adolescents making it a therapy of choice in the treatment of adolescent depression. Further, Mufson et al. (2018) reported that over (50%) of the adolescents benefited from IPT-A after 8 weeks without medication such that they did not need medication nor to be referred for mental health specialized attention. Mufson et al. (2018) screened 48 adolescents in the USA with a mean age of 15.9 years (SD=2.2) where the majority of the participants were Latino 46 (96%).

Further, the findings of the current study are in line with Miller and Campo (2021) who reported IPT being more efficacious than CBT among depressed adolescents experiencing substantial stress especially due to family conflicts. Moreover, the findings of this study concur with Mychailyszyn et al. (2018) findings that IPT significantly reduced depressive symptoms in adolescents than it was with the control group in meta-analysis research that involved ten studies yielding 766 adolescents.

The findings of this study, on medium effect size, are consistent with findings reported by Cuijpers et al. (2016) who reported effect size at post-test was g=0.60 (95%) confidence interval in some studies while other studies of the meta-analysis study reported a significant small effect size noted between midline and end line at F= 71.361; d = .465. Moreover, this study's findings are consequently supported by Duffy et al.(2019) who reported a significant medium effect size. However, Duffy et al.(2019) reported a reduction in the effect size from the midline to endline data in some studies. Further, this study's findings agreed with Cuijper et al. (2008) who reported a medium effect size from baseline to midline. However, Cuijper et al. (2008), reported a small effect size at a follow-up of 12 months.

Conclusion

The study aimed to assess the effectiveness of IPT in treating depression among adolescents in selected public schools. The study reported that IPT was an effective intervention for treating depression among adolescents in the study schools. Therefore, this was a timely study to provide evidence-based findings on an effective therapy that can be used to treat adolescents to improve their mental health and support them in their academic quest and social life. Based on the study findings, IPT was recommended in the management of depression and the improvement of mental health among adolescents in secondary schools. This study calls for further study to be done in urban setting to reveal if IPT is effective in treating depressive symptoms among the adolescents in the urban areas.

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