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## RELATIONSHIP BETWEEN ANGER AND DEPRESSION AMONG STUDENTS IN PUBLIC SECONDARY SCHOOLS

\*<sup>1</sup>Jared Menecha, <sup>2</sup>Margaret Ogeto & <sup>3</sup>Gillphine Onkware

<sup>1</sup>School of Psychology, Daystar University

<sup>2</sup>Quantic School of Business and Technology, USA

<sup>3</sup>School of Education and Social Sciences, Africa International University

\*Email of The Corresponding Author: [jmenecha@daystar.ac.ke](mailto:jmenecha@daystar.ac.ke)

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### ABSTRACT

**Purpose of The Study:** This study investigated the relationship between anger and depression among secondary school students and evaluated the effectiveness of Mindfulness-Based Cognitive Behavioral Therapy (MB-CBT) in reducing these symptoms in Nakuru County, Kenya.

**Problem Statement:** Trait anger significantly predicts depression among adolescents, yet few interventions explicitly target anger management as a pathway to reducing depression. School-based programs addressing emotional well-being often neglect anger as a core component influencing depressive outcomes.

**Methodology:** This quasi-experimental study involved 100 secondary school students (50 experimental, 50 control) selected from two schools in Nakuru County. Participants were screened using the State-Trait Anger Expression Inventory-2 (STAXI-2) and Beck Depression Inventory (BDI). The experimental group received 10-week MB-CBT intervention while the control group received therapy-as-usual. Assessments were conducted at baseline, midline (3 months), and end-line (6 months). Data were analyzed using Spearman's rank correlation, Mann-Whitney U test, and Friedman's test with significance set at  $p < .05$ .

**Results:** At baseline, trait anger correlated significantly with depression in both experimental ( $r = .374, p = .007$ ) and control ( $r = .423, p = .010$ ) groups, while state anger showed no significant correlation. Following MB-CBT intervention, the experimental group showed significant reductions in state anger ( $M = 33.74$  to  $17.98$ ), trait anger ( $M = 24.90$  to  $12.80$ ), and depression ( $M = 24.40$  to  $7.24$ ). Post-intervention correlations between trait anger and depression became non-significant ( $r = .028, p = .847$  at midline;  $r = .002, p = .992$  at end-line).

**Conclusion:** Trait anger is significantly associated with depression among adolescents, with persistent anger patterns predicting depressive symptoms more than situational anger. MB-CBT effectively reduces both anger and depressive symptoms, supporting its use in school-based mental health interventions targeting emotional dysregulation.

**Recommendation:** Schools should integrate structured emotional regulation programs like MB-CBT into guidance and counseling services, and implement early screening for trait anger to identify at-risk students for timely intervention.

**Keywords:** *Anger, Depression, Among Students, Public Secondary Schools*

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## INTRODUCTION

Anger Globally, adolescent mental health has become a pressing concern, with depression and emotional dysregulation increasingly prevalent among young people. Recent studies have highlighted that anger, particularly when expressed outwardly or persistently held as trait anger, is a significant predictor of depressive symptoms in adolescents (Tafrate et al., 2022). Adolescents who struggle to regulate their anger often exhibit higher levels of psychological distress, including symptoms of depression, suggesting a strong emotional interplay between anger expression and mood disorders (Guhn et al., 2020). Though earlier research primarily emphasized the relationship between anger and anxiety, emerging evidence indicates that depressive states may be equally, if not more, influenced by maladaptive anger expression (Thomas et al., 2021). The Freudian theory of inhibition and attachment theory continue to offer psychological explanations for how suppressed or misdirected anger contributes to internalizing disorders such as depression (Bush & Lane, 2019).

Regionally, in sub-Saharan Africa, the burden of adolescent depression is growing, yet the specific role of anger in this mental health challenge remains underexplored. In Ethiopia, Wondie et al. (2020) found that college students with elevated anger expression were significantly more likely to present depressive symptoms. Similarly, a systematic review by Odhiambo et al. (2023) concluded that while cognitive-behavioral interventions have shown promise in managing adolescent mental health in East Africa, few programs have explicitly targeted anger management as a pathway to reducing depression. This underscores the need for more focused research on the emotional triggers underlying depression within African school settings.

In the Kenyan context, depression and emotional distress among adolescents have gained increasing visibility, particularly due to rising cases of school unrest and student violence. A study by Nyongesa et al. (2022) revealed that depressive symptoms were highly prevalent among adolescents in Nairobi and Mombasa counties, with many reporting feelings of worthlessness and irritability. However, anger was not a primary focus in most of these studies, leaving a gap in understanding how it might contribute to or intensify depression. While some school-based programs, such as arts-based interventions and digital cognitive-behavioral therapies, have shown success in alleviating depressive symptoms (Lando et al., 2023), they often neglect anger as a core emotional component influencing outcomes.

Locally, in Nakuru County, few studies have examined the psychological well-being of students through the lens of anger-depression interactions. Although interventions like Mindfulness-Based Cognitive Behavioral Therapy (MB-CBT) have been introduced in some schools, their impact on reducing anger and its related depressive symptoms remains poorly documented. Furthermore, most existing research is either cross-sectional or lacks a longitudinal approach that tracks emotional changes before, during, and after intervention. Despite growing international and regional recognition of the anger–depression link, few empirical studies in Kenya have systematically examined this relationship among adolescents. Particularly missing are longitudinal evaluations that explore how structured anger interventions, such as MB-CBT, impact depressive symptoms over time. Moreover, most school-based programs address emotional well-being in general terms without isolating anger as a predictive or mediating factor in adolescent depression. This study seeks to fill that gap by investigating the relationship between state anger, trait anger, and depression among secondary school students in Nakuru County, using a structured MB-CBT intervention to assess how emotional regulation influences mental health outcomes across baseline, midline, and end-line phases.

## **METHODOLOGY**

Two public secondary schools were selected from a pool of 24 in Nakuru sub-County, Kenya, using purposive random sampling. The selection was based on specific criteria—namely, the presence of students experiencing difficulties with anger management. A total of 100 students (50 girls and 50 boys) with comparable demographic and situational characteristics were recruited from the two schools. This sample was derived after screening all Form Three and Form Four students for anger using the State-Trait Anger Expression Inventory-2 (STAXI-2). Students who scored above 22 on the trait anger scale qualified for inclusion in the study. Participants from one school were randomly assigned to the experimental group, while those from the second school comprised the control group.

The study utilized a quasi-experimental research design, which was appropriate given the nature of the school environment and the inability to randomly assign participants across institutions. This design is effective for real-world settings as it reduces threats to external validity, unlike more artificial laboratory-based approaches. Furthermore, it is widely used in social science research to

evaluate the effectiveness of interventions and allows for reasonable generalization of findings (Mugenda, 2013).

Three primary instruments were employed: the STAXI-2, Beck Depression Inventory (BDI), and Beck Anxiety Inventory (BAI). The STAXI-2 is a 57-item self-report tool designed to assess the experience and expression of anger. The STAXI-2 employs a four-point Likert scale, with responses ranging from "almost never" to "always." It comprises seven distinct scales designed to capture various dimensions of anger. The Trait Anger scale assesses an individual's general tendency to experience anger across situations, while the Anger Expression scale provides an overall index of how frequently anger is outwardly expressed. The State Anger scale evaluates the respondent's immediate or current feelings of anger. Anger Control measures the extent to which an individual is able to regulate or restrain expressions of anger. The Angry Temperament scale reflects the predisposition to become angry without specific provocation. Anger-In assesses the frequency with which anger is internalized or suppressed, and finally, the Angry Reaction scale measures anger that arises specifically in response to provocation.

The Beck Depression Inventory (BDI), developed by Beck and Steer (1993), is a widely validated self-report instrument for assessing the severity of depressive symptoms. Scores range from 0 to 63, with specific cut-offs indicating severity: 0–10 (normal), 11–16 (mild mood disturbance), 17–20 (borderline clinical depression), 21–30 (moderate depression), 31–40 (severe depression), and above 40 (extreme depression). The BDI has shown strong psychometric properties, including high internal consistency (coefficient alpha = .80) and established construct validity (Sharp & Lipsky, 2002). At baseline, all selected participants were screened using the BDI. Those in the experimental group then participated in a ten-week Mindfulness-Based Cognitive Behavioral Therapy (MB-CBT) program, while the control group continued receiving Therapy as Usual (TAU) over the same period. Midline assessments of anger and depression were conducted three months post-intervention, with a follow-up assessment carried out six months after baseline.

Descriptive statistics (means for continuous variables and frequencies for categorical variables) were used to summarize participant characteristics and outcomes. To evaluate treatment effects, general linear modeling, including two-way Multivariate Analysis of Covariance (MANCOVA) and Analysis of Variance (ANOVA), was used to assess the main effects of gender on depression, anxiety, stress, and all anger subscales. A significance level of  $p < 0.05$  was applied. The Mann-

Whitney U test was employed to determine statistically significant group differences at each study phase (baseline, midline, and end-line), due to the non-parametric nature of the data. To address the risk of Type I error due to multiple comparisons, Bonferroni correction was applied, adjusting the significance threshold to  $\leq 0.017$ . Additionally, Friedman’s test for related samples was used to identify significant changes in the mean scores of the study variables across the three time points within both the control and experimental groups.

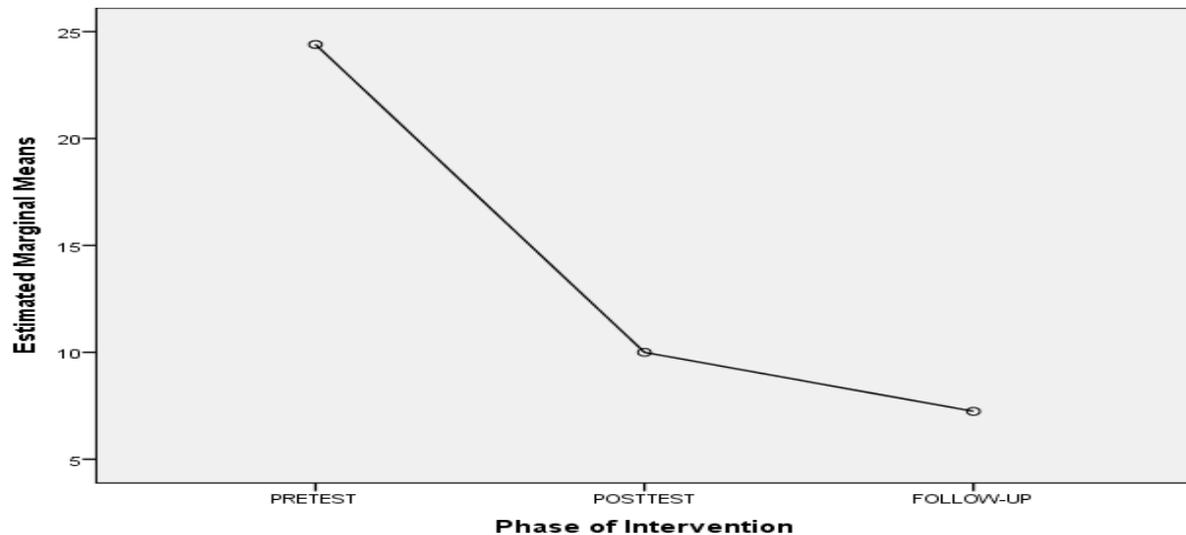
## RESULTS

The following results were obtained after analyzing the mean for the variables of state anger, trait anger and depression in the three phases of the experimental group.

**Table 1: Mean and Standard Deviation for the Variables State Anger, Trait Anger and Depression**

	Baseline		Midline		End-line	
	Mean	Std. D	Mean	Std. D	Mean	Std. D
State Anger	33.74	7.842	18.12	4.054	17.98	3.639
Trait Anger	24.90	4.537	12.94	2.729	12.80	2.886
Depression	24.40	6.952	10.00	4.281	7.24	3.172

Table 1 presents the mean and standard deviation for the variables state anger, trait anger and depression at baseline, midline and end-line in the experimental group. The results reveal that at pretest the respondents scored a high mean on state anger ( $33.74 \pm 7.842SD$ ) which is equivalent to a T-score of 80 and a rather high mean on trait anger ( $24.90 \pm 4.537SD$ ) equivalent to a T-score of 63. After exposing the respondents to the treatment, the mean of the two variables (state anger and trait anger) reduced gradually at posttest and follow-up with state anger at posttest ( $18.12 \pm 4.054SD$ ) reducing to ( $17.98 \pm 3.639SD$ ) at follow-up. Trait anger also reduced from ( $12.94 \pm 2.729SD$ ) at posttest to ( $12.80 \pm 2.886SD$ ) at follow-up. Just as the two variables decreased across the three phases, depression also decreased gradually from ( $24.40 \pm 6.952SD$ ) to ( $10.00 \pm 4.281SD$ ) at posttest to a further ( $7.24 \pm 3.172SD$ ) at follow-up. These results seem to indicate that reduction of anger symptoms results to a reduction of depressive symptoms thus showing the strong link between anger and depression. This is further illustrated in Figure 1 below.



**Figure 1: Estimated Marginal Means of Depression for the Experimental Group**

Spearman’s Rank correlation was run to determine the relationship between anger and depression among the respondents selected from the two secondary schools. The correlation was run for both the experimental and control groups at baseline. Since the control group was not receiving the intervention, there was no importance of running a correlation at midline and end-line. However, a correlation was run for the experimental group at midline and end-line to find out whether there was still a correlation after the intervention.

**Table 2: Correlation between Anger and Depression in Control and Experimental Groups at Baseline**

	EXPERIMENTAL		CONTROL	
	State Anger	Trait Anger	State Anger	Trait Anger
Correlation	0.093	0.374**	0.063	0.423**
P-Value	0.522	0.007	0.663	0.010

\*\*Correlation is significant at the 0.01 level (2 tailed)

Table 2 presents the correlation between anger and depression in control and experimental groups at baseline. In the experimental group, the correlations were: state anger ( $r = 0.093$ ,  $p = 0.522$ ), trait anger ( $r = 0.374$ ,  $p = 0.007$ ) as compared to the control group where correlations were: State anger ( $r = 0.063$ ,  $p = 0.663$ ), and trait anger ( $r = 0.423$ ,  $p = 0.010$ ). The correlations between state anger and depression were statistically insignificant as their p-values ( $p = 0.522$  and  $p = 0.663$ ) for the experimental and control groups respectively, are both greater than 0.05. However, the

correlations between trait anger and depression were statistically significant because their p values were less than 0.05 i.e.  $p=0.007$  and  $p=0.010$  for the control and experimental groups respectively. These findings seem to point out to the fact that trait anger influences how often angry feelings are experienced over time. Since a person can meet the criterion for depression after the symptoms have persisted over two weeks, the findings seem to suggest that individuals with very high trait anger are more likely to suffer from depression as compared to those with low trait anger. These findings too can be attributed to the intervention which drastically reduced the symptoms of depression as well as anger in different magnitudes.

**Table 3: Correlation between Anger and Depression in the Experimental Group at Midline**

<b>EXPERIMENTAL GROUP</b>		
	<b>State Anger</b>	<b>Trait Anger</b>
Correlation	0.059	0.028
P-Value	0.684	0.847

Table 3 presents the correlation between anger and depression in control and experimental groups at midline. The correlation between state anger and depression was low ( $r=0.059$ ,  $p=0.684$ ) while that between trait anger and depression was still low ( $r=0.028$ ,  $p=0.847$ ). These correlations were statistically insignificant ( $p>0.05$ ). The results can be interpreted as after subjecting the participants to the treatment, there were significant reductions of symptoms of anger and depression to very low levels which could be interpreted as levels within the normal range. Regarding the correlation between anger and depression at the end-line phase, Spearman's rank correlation was also run. The results were presented in table 4.

**Table 4: Correlation between Anger and Depression in the Experimental Group at End-line**

<b>EXPERIMENTAL GROUP</b>		
	<b>State Anger</b>	<b>Trait Anger</b>
Correlation	0.248	0.002
P-Value	0.082	0.992

Table 4 presents the results obtained at the end-line phase of the experimental group. The results show a low positive correlation between depression and state anger ( $r=0.248$ ,  $p=0.082$ ), and depression and trait anger ( $r=0.002$ ,  $p=0.992$ ). Since this was three months after the intervention, there seems to be an indication that symptom reduction was different among the different

respondents perhaps due to the individual differences among learners, their adaptability to change, reaction to the social environment and ability to retain the skills gained during treatment. Therefore, the findings from this objective seem to suggest that there is a correlation between trait anger and depression. These findings point out that individuals with high trait anger scores are more prone to depression than those with low scores. This is because individuals with high trait anger are normally associated with aggressiveness and hostility and remain in a stressed state for a long time. As a consequence, they get depressed so easily. Moreover, such individuals are prompted with the urge to hurt others verbally or physically ending up experiencing a feeling of psychological disturbance.

## **DISCUSSION**

The results of Spearman's rank correlation conducted at baseline, midline, and end-line phases revealed a significant positive association between trait anger and depressive symptoms ( $r = 0.374$ ,  $p = 0.007$ ), whereas the correlation between state anger and depression was weak and not statistically significant ( $r = 0.116$ ,  $p = 0.423$ ). This indicates that enduring patterns of anger—trait anger—are more predictive of depressive outcomes than transient, situational anger (state anger) in adolescents. Participants presented elevated anger profiles, with T-scores around 63 for trait anger and 80 for state anger, suggestive of frequent and intense affective responses. These elevated anger levels are clinically significant as they have been associated with impulsivity, emotional dysregulation, and increased risk of internalizing disorders such as depression (Goodwin et al., 2020; Sowislo & Orth, 2019).

This observation is supported by recent literature demonstrating that adolescents exhibiting high anger tendencies are at increased risk of depressive symptoms, particularly in environments characterized by limited emotional support or interpersonal conflict (Panayiotou et al., 2021). The study also found that 36% of the participants did not reside with their biological parents, pointing to a possible insecure attachment style. Insecure attachment has been identified as a strong predictor of maladaptive anger expression and depressive symptomatology in adolescents (Zimmermann et al., 2021). Those in this subgroup also showed higher depression scores, aligning with findings that early relational disruptions contribute to emotional vulnerability and psychopathology (Agoston et al., 2022).

Importantly, a large proportion of participants (93%) reported involvement in disruptive or aggressive behaviors both within and outside school, which correlated with elevated anger and depression scores. This supports contemporary evidence that externalizing behaviors such as aggression and hostility often co-occur with internalizing symptoms like depression in adolescents (Pillai et al., 2022). Moreover, over 96% of participants stated that their current school was not their preferred choice, pointing to an environmental dissatisfaction that may exacerbate emotional distress. School-related dissatisfaction and poor fit have been linked to increased negative affect and depressive symptoms (Heimgartner et al., 2020).

Crucially, students in the experimental group who received Mindfulness-Based Cognitive Behavioral Therapy (MB-CBT) demonstrated substantial reductions in both anger and depressive symptoms, corroborating growing evidence for the efficacy of mindfulness interventions in addressing emotional dysregulation among adolescents (Dunning et al., 2022; Zhou et al., 2020). These interventions help adolescents modulate affective responses by reducing ruminative thinking and increasing emotional awareness, thus interrupting the anger–depression cycle. As such, anger-focused interventions, especially mindfulness- and CBT-based should be prioritized in school-based mental health programs to mitigate the compounding effects of aggression and depression. Given the interplay between persistent anger and depression, treating one symptom domain may yield therapeutic benefits across both (Shah et al., 2023).

## **CONCLUSION AND RECOMMENDATIONS**

Based on the synthesized findings, it is evident that a significant relationship exists between trait anger and depression among adolescents, with high levels of persistent anger correlating strongly with depressive symptoms. The results reinforce the clinical understanding that while state anger may be transient and situational, trait anger reflects a more ingrained emotional dysregulation that can significantly impair adolescent mental health. Moreover, environmental and psychosocial stressors such as school dissatisfaction, insecure attachment, and lack of parental presence further exacerbate this emotional vulnerability. The study also confirmed that interventions such as Mindfulness-Based Cognitive Behavioral Therapy (MB-CBT) are effective in mitigating both anger and depressive symptoms, offering promising avenues for early and holistic school-based interventions. Given the bi-directional influence of anger and depression, addressing one construct through targeted therapy can simultaneously alleviate the other, reducing the risk of violence,

emotional breakdowns, and long-term psychopathology in youth. It is therefore imperative that mental health programs in schools integrate evidence-based emotional regulation therapies to prevent the escalation of these co-occurring disorders and promote psychological resilience in adolescents.

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