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Psychosocial Predictors of Depression among Secondary School Adolescents in Dodoma and Pwani, Tanzania

***Divine Patrick Mwaluli**
ORCiD: https://orcid.org/0009-0005-1846-609X
Department of Educational Psychology and Counselling, Sokoine University of Agriculture, Tanzania
E-mail: mwima.joshua@gmail.com

Amani A. Mwakalapuka
ORCiD: https://orcid.org/0000-0002-7337-5351
Department of Educational Psychology and Counselling, Sokoine University of Agriculture, Tanzania
E-mail: bwinxa@yahoo.com

Joshua J. Matiku
ORCiD: https://orcid.org/0000-0002-2114-915X
Department of Education, Mwalimu Nyerere University of Agriculture and Technology, Tanzania
E-mail: matikujoeljoshua81@gmail.com

Jamal J. Athuman
ORCiD: https://orcid.org/0000-0001-7038-7907
Department of Educational Psychology and Counselling, Sokoine University of Agriculture, Tanzania
E-mail: jamal@sua.ac.tz

***Corresponding Author:** mwima.joshua@gmail.com

Abstract

Adolescent depression is an emerging public health concern in Tanzania. However, existing research has largely focused on external risk factors, such as socioeconomic adversity and HIV-related challenges, with limited attention to internal psychosocial determinants. This study examined associations among self-efficacy, locus of control, emotional–relational climate and depressive symptoms among secondary school adolescents in Dodoma and Pwani, Tanzania. A cross-sectional survey was conducted with 1,009 adolescents aged 11–19 years, randomly selected from 20 public secondary schools. Depressive symptoms were assessed using the Patient Health Questionnaire (PHQ-9). The study measured Self-efficacy, locus of control and emotional–relational climate using the General Self-Efficacy Scale, the Likert version of the Nowicki–Strickland Locus of Control Scale and the REACH Questionnaire, respectively. Data was analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The structural model explained 8.2% of the variance in depressive symptoms. External locus of control was positively associated with depressive symptoms ($\beta = 0.274$, $p < 0.001$), emerging as the strongest predictor. Adverse emotional–relational climate showed a weak positive association ($\beta = 0.062$, $p = 0.069$), significant at the 10% level. In contrast, internal locus of control ($\beta = 0.010$, $p = 0.563$) and self-efficacy ($\beta = –0.060$, $p = 0.340$) were not significantly associated with depressive symptoms. These findings highlight the importance of contextual and relational influences on adolescent mental health and suggest the need for longitudinal and culturally grounded research.

Keywords: Adolescent depression; self-efficacy; locus of control; emotional–relational climate.

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Introduction

Adolescent depression is increasingly recognised as a significant global public health concern. Despite this growing awareness, research into the psychosocial factors shaping adolescent depression remains limited in many low- and middle-income countries (LMICs), including Tanzania, particularly among secondary-school adolescents (Clarke et al., 2021). Existing studies in Tanzania have largely concentrated on socioeconomic and demographic correlates. For example, Nyundo et al., (2020) Linked depression to suicidal ideation, older age, female gender, food insecurity and limited access to healthcare while Lwidiko et al., (2018) identified HIV status, rural residence and childhood adversity as key risk factors. Similarly, Prencipe et al., (2021) highlighted household economic shocks, drought exposure and lack of social support as environmental determinants influencing adolescent depressive outcomes.

Although these studies underscored the importance of structural and economic vulnerability, they paid little attention to adolescents enrolled in secondary schools and rarely examined internal psychosocial processes, such as self-efficacy, locus of control or childhood emotional–relational climate. As a result, an important gap remains in understanding how individual beliefs and relational experiences contribute to depression among Tanzanian adolescents, particularly in the secondary school context.

One psychosocial factor frequently identified as protective against depression is self-efficacy, defined as individuals' beliefs in their ability to manage challenges and achieve desired goals (Nabavi & Bijandi, 2012). Adolescents with stronger self-efficacy are generally better able to cope with stress and are less likely to experience the sense of helplessness that often precedes depression. Evidence from diverse settings supports this protective role. In Brazil, Nunes and Faro (2021) found that self-efficacy was a stronger negative predictor of adolescent depression than self-esteem and self-concept combined. Similarly, a longitudinal study in Malaysia reported that adolescents with higher self-efficacy experienced fewer depressive symptoms over time (Ramesh & Ling, (2022). These findings align with a recent meta-analysis demonstrating a consistent inverse association between general self-efficacy and depressive symptoms across multiple studies (Yeo et al., 2023).

However, the role of self-efficacy is not universally consistent. In some contexts, its protective effect appears weak or non-significant. For instance, a longitudinal study in the Netherlands found that self-efficacy did not predict subsequent depressive symptoms among adolescents (Tak et al., 2017). These inconsistencies suggest that the influence of self-efficacy may depend on contextual conditions. When adolescents face persistent poverty, limited opportunities or strong structural constraints, confidence in personal ability may not translate into improved mental health outcomes. In Tanzania, where many secondary school students contend with socioeconomic hardship, educational limitations and constrained life opportunities, the role of self-efficacy in shaping depression remains largely unexplored (World Bank, 2023; UNICEF, 2024; National Bureau of Statistics, 2022).

Another important psychosocial factor is locus of control, which refers to the extent to which individuals perceive life outcomes as determined by their own actions or by external forces (Rotter, 1966). An internal locus of control is typically associated with better psychological adjustment whereas an external locus of control is linked to feelings of helplessness and distress (Khumalo & Plattner, 2019). Research consistently shows that adolescents who perceive little control over their lives tend to report higher levels of depressive symptoms, whereas those with a stronger sense of personal agency (internal locus of control) demonstrate greater emotional resilience (Afifi, 2007; Li et al., 2025).

Empirical evidence from diverse populations supports this pattern. In Botswana, Khumalo and Plattner (2019) found that university students who endorsed external control beliefs reported significantly higher levels of depressive symptoms. In contrast, an internal locus of control was associated with lower depression. Similar associations have been documented in extensive population-based studies from high-income contexts. For example, using data from a UK longitudinal birth cohort, Van Der Linden et al. (2021) demonstrated that a more external locus of control during adolescence was associated with a significantly increased likelihood of depressive symptoms in young adulthood. Likewise, Hovenkamp-Hermelink et al., 2019), drawing on data from a study in Netherlands on Depression and Anxiety, reported that external control beliefs were robustly associated with greater depressive

symptom severity. In contrast, internal control beliefs were associated with a protective effect. Despite this growing body of international evidence, studies examining the relationship between locus of control and adolescent depression in Tanzania remain scarce, particularly among secondary-school students.

Beyond individual beliefs, the emotional relational climate of childhood represents a critical but underexplored determinant of adolescent mental health. Emotional–relational climate refers to the quality of emotional interactions and caregiving experiences within the family or immediate social environment. It encompasses both supportive experiences, such as warmth, affection and validation, and adverse experiences, including emotional neglect, rejection, chronic criticism and psychological abuse (Li et al., 2021). Persistent exposure to adverse emotional environments can undermine self-worth, disrupt emotional regulation and increase vulnerability to depression across the lifespan. (Teicher et al., 2016).

International evidence consistently highlights a strong link between adverse emotional–relational climates and depressive outcomes. A large meta-analysis reported that childhood emotional abuse was associated with nearly a threefold increase in the risk of depressive disorders, with effects exceeding those of physical abuse (Norman et al., 2012). Studies from China have similarly demonstrated significant associations between unsupportive emotional environments and adolescent depression (Chen et al., 2019; Zhou & Zhen, 2022). In East Africa, Ashaba et al. (2021) found that Ugandan adolescents living with HIV, who experienced unsupportive emotional backgrounds were more likely to develop major depressive disorders. Evidence from fragile contexts further reinforces this vulnerability. Durbeej et al. (2025) reported elevated depressive symptoms among adolescents in post-conflict Somaliland exposed to adverse emotional–relational climates.

Despite this consistent international evidence, research in Tanzanian has largely overlooked emotional–relational climate, focusing instead on economic and demographic risks. Whether early emotional environments similarly shape depression among Tanzanian secondary school adolescents remains unknown, representing a critical gap in the literature. Taken together, existing evidence highlights important gaps in understanding how internal psychosocial factors interact with environmental conditions to shape depression among Tanzanian secondary school adolescents.

Theoretical Underpinnings

To address these gaps, this study is informed by Social Cognitive Theory (SCT), which emphasises the reciprocal interaction among personal factors, environmental influences and behaviour (Bandura, 1977). Within this framework, self-efficacy represents a key personal belief that shapes how individuals cope with challenges and regulate emotional responses. Strong self-efficacy has been linked to adaptive coping and psychological resilience. Although locus of control is not a central construct within Social Cognitive Theory (SCT), it closely aligns with the theory's emphasis on personal agency. Internal control beliefs reflect a perceived ability to influence one's environment, whereas external control beliefs may foster passivity and heighten vulnerability to emotional distress (Couto & Baptista, 2023). The emotional–relational climate represents the environmental dimension of SCT, capturing the relational contexts that shape adolescents' self-perceptions and emotional development. By integrating these constructs, this study examined how personal beliefs and childhood emotional–relational experiences jointly influence depressive symptoms among Tanzanian secondary school adolescents, a population for which SCT has rarely been empirically tested. Accordingly, the study examines the relationships among self-efficacy, locus of control, emotional–relational climate and depressive symptoms among secondary school adolescents in Tanzania. Drawing on the literature and the Social Cognitive Theory framework, the following null hypotheses were tested:

Null Hypotheses

H_o1: There is no significant relationship between adverse childhood emotional–relational climate and depressive symptoms among adolescents.

H_o2: There is no significant relationship between external locus of control and depressive symptoms among adolescents.

H_o3: There is no significant relationship between internal locus of control and depressive symptoms among adolescents.

H_o4: There is no significant relationship between self-efficacy and depressive symptoms among adolescents.

Conceptual Framework

Figure 1 presents the conceptual framework guiding this study, grounded in Social Cognitive Theory, illustrating the relationships among emotional–relational climate, locus of control (internal and external), self-efficacy and depressive symptoms among secondary school adolescents in Tanzania. The framework integrates environmental influences and individual cognitive factors as potential determinants of depressive symptoms. Emotional–relational climate represents the environmental context, while locus of control and self-efficacy capture adolescents' cognitive beliefs and perceived capabilities.

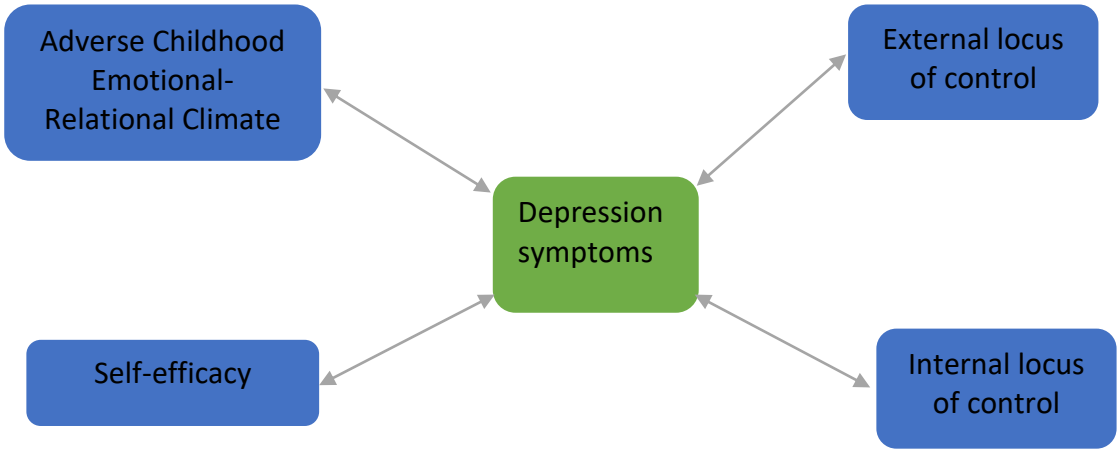

Fig 1: Conceptual Framework Showing Associations Between Variables

Related Literature Review

This section reviews empirical literature on adolescent depression, focusing on psychosocial and environmental factors associated with depressive symptoms. It synthesizes findings from global, regional and Tanzanian contexts to identify key patterns, inconsistencies and gaps in existing research. The review highlights the limited evidence on the combined influence of internal psychological factors and environmental conditions among secondary school adolescents in Tanzania, thereby justifying the focus of the current study.

Self-Efficacy and Adolescent Depression

Self-efficacy refers to beliefs about one's ability to manage challenges and achieve goals (Bandura, 1977). Evidence from cross-sectional and longitudinal studies generally supports a negative association between self-efficacy and depression. For example, a cross-sectional study of Brazilian adolescents (Nunes & Faro, 2021; N = 400) found that self-efficacy was a stronger predictor of reduced depressive symptoms than self-esteem. Similarly, a longitudinal study of Malaysian secondary-school students (Ramesh & Ling, 2022) reported that higher self-efficacy predicted fewer depressive symptoms over time. Meta-analytic evidence across multiple countries further confirmed a small-to-moderate protective effect (Yeo et al., 2023). However, findings are inconsistent across contexts. A longitudinal study conducted in the Netherlands (Tak et al., 2017) among early-to-middle adolescents found no significant predictive effect of self-efficacy on later depression. This suggests that self-efficacy may not universally translate into improved mental health, particularly in contexts where structural barriers limit adolescents' ability to act on perceived competence. Thus, the relationship between self-efficacy and depression may be moderated by socioeconomic conditions, underscoring the importance of examining this construct in low-resource settings, such as Tanzania.

Locus of Control and Adolescent Depression

Locus of control concerns whether individuals perceive life outcomes as determined by their own actions or by external forces beyond their control. Longitudinal evidence from European population studies suggests that an external locus of control is associated with increased depressive symptoms over time. For example, research in the Netherlands by Hovenkamp-Hermelink et al. (2019) found that individuals with stronger external control beliefs reported higher levels of anxiety and depressive symptoms across multiple waves of assessment. Similarly, findings from a UK birth cohort study by Van der Linden et al. (2021), involving more than 4,000 participants, showed that adolescents with a more external locus of control were more likely to

experience depressive symptoms in young adulthood.

In African contexts, Khumalo and Plattner (2019) conducted a cross-sectional survey of university students in Botswana. They found that an external locus was associated with higher depression, whereas internal control was protective. However, most evidence comes from older adolescents or adults rather than secondary-school populations. Moreover, an internal locus does not always function protectively where structural constraints limit actual control over life circumstances. This raises critical questions about how agency-related constructs operate in low-income contexts, where personal control may be objectively limited.

Emotional–Relational Climate and Depressive Symptoms

Emotional–relational climate refers to the emotional quality of family and social interactions, including support, rejection, neglect or abuse (Li et al., 2021). A meta-analysis covering multiple countries (Norman et al., 2012) found childhood emotional abuse associated with nearly threefold increased risk of depression, highlighting the long-term impact of relational adversity. Cross-sectional studies among Chinese adolescents (Chen et al., 2019; Zhou & Zhen, 2022) similarly reported that emotionally adverse family environments were linked to higher depressive symptoms.

In East Africa, Ashaba et al. (2021) studied Ugandan adolescents living with HIV and found that adverse relational experiences significantly increased the risk of major depressive disorder. Although these findings underscored the importance of the emotional–relational climate, most studies rely on cross-sectional designs, which limit causal inference. Additionally, cultural differences in emotional expression and parenting practices may influence how emotional adversity is reported and interpreted, underscoring the need for context-specific examination.

Local Evidence and Remaining Gaps in Tanzania

Research in Tanzanian on adolescent depression has primarily used cross-sectional designs focusing on socioeconomic hardship, food insecurity, HIV status and access to care (Clarke et al., 2021; Lwidiko et al., 2018; Nyundo et al., 2020; Prencipe et al., 2021). While these studies provide important insights, they rarely assess internal psychosocial processes or emotional relational experiences among school-attending adolescents. Moreover, existing studies tend to examine single factors rather than integrating personal agency and environmental influences within a coherent theoretical framework. Consequently, important gaps remain regarding how self-efficacy, locus of control and emotional–relational climate jointly relate to depressive symptoms among Tanzanian secondary-school adolescents.

Methodology

This section describes the research design and procedures used to investigate the relationships among self-efficacy, locus of control, emotional–relational climate and depressive symptoms among secondary school adolescents in Tanzania. It outlines the study design, study area, population and sampling procedures, data collection methods, variable measurement, and data analysis techniques used to address the research objectives and test the study hypotheses.

Design

A cross-sectional survey design was employed to examine psychosocial factors associated with depressive symptoms among Tanzanian secondary school adolescents. This design enabled the efficient assessment of depressive symptoms and their associations with key psychosocial variables within large school populations at a single point in time. Given ethical, logistical and resource constraints associated with longitudinal research among school adolescents, the cross-sectional approach was appropriate for identifying relevant psychosocial correlates of depression and informing early intervention strategies.

Population and Sampling

The study population comprised secondary school students in Dodoma City (N = 19,461) and Pwani Region (N = 10,258), as reported in the official education statistics database of the President's Office – Regional Administration and Local Government (2024). The sample size was determined using the formula proposed by Krejcie and Morgan (1970) for finite populations:

$$s = \frac{X^2 NP(1-P)}{d^2(N-1) + X^2 P(1-P)}$$

where s is the required sample size, X^2 is the chi-square value at 1 degree of freedom for a 95% confidence level (3.841), N is the population size, P is the assumed population proportion (0.50) and d is

the margin of error (0.05). Based on this approach, the minimum required sample sizes were approximately 377 students for Dodoma City and 370 for Pwani Region. To enhance statistical power and the stability of multivariable analyses, these minimums were exceeded. The final sample comprised 1,009 adolescents, including 510 from Dodoma City (50.5%) and 499 from Pwani Region (49.5%) as seen in Table 1.

A multistage sampling technique was employed. In the first stage, a comprehensive list of all registered secondary schools (public and private) in Dodoma Municipal Council (N = 63) and Kibaha Town Council in Pwani Region (N = 46) was obtained from the President's Office – Regional Administration and Local Government (2024) database. From this sampling frame, 10 secondary schools were randomly selected from each area using a lottery method.

In the second stage, students were randomly selected from class registers within each selected school, ensuring equal probability of selection and minimizing selection bias. Respondents were eligible if they were aged 11–19 years, enrolled in a selected secondary school at the time of data collection and able to provide written assent, with permission from school authorities where required. Students who were absent, unwell or declined participation were excluded. No gender quotas were imposed in order to preserve natural enrolment patterns. The final sample included a slightly higher proportion of female students, reflecting actual enrolment distributions. Age distribution indicated that approximately 10% of participants were in early adolescence (11–13 years), 62% in middle adolescence (14–16 years) and 27% in late adolescence (17–19 years).

Table 1. Survey respondent characteristics (N = 1,009).

Variable	Category	Frequency (n)	Percentage (%)
Region	Dodoma	510	50.5
	Pwani	499	49.5
Gender	Male	481	47.7
	Female	528	52.3
Age group	Early adolescence (11–13 years)	103	10.2
	Middle adolescence (14–16 years)	630	62.4
	Late adolescence (17–19 years)	276	27.4

Instruments and Measures

Data was collected using a single structured questionnaire comprising four standardized sections assessing depressive symptoms, self-efficacy, locus of control and emotional–relational climate. Each section was derived from established instruments appropriate for measuring the respective constructs. The questionnaire was translated into Swahili using a forward–backward translation procedure by independent bilingual experts. Discrepancies were discussed and resolved through consensus to ensure conceptual equivalence. A pilot study conducted in non-participating schools confirmed the clarity, cultural relevance and feasibility of the instrument, leading to minor wording refinements without altering the original meaning of the items.

Depressive symptoms were measured using the Patient Health Questionnaire-9 (PHQ-9), a 9-item instrument assessing the frequency of depressive symptoms experienced during the previous two weeks. Responses are rated on a 4-point scale ranging from 0 (Not at all) to 3 (Nearly every day), yielding total scores between 0 and 27, with higher scores indicating greater depressive symptom severity. The PHQ-9 has demonstrated acceptable validity and reliability among adolescent populations in East Africa. In this study, PHQ-9 total scores were treated as a continuous variable in the statistical analyses, with higher scores reflecting greater depressive symptom severity.

Self-efficacy was assessed using the 10-item General Self-Efficacy Scale (GSES). Items were rated on a 6-point Likert scale ranging from 1 (Strongly disagree), 2 (Disagree), 3 (Slightly disagree), 4 (Slightly agree), 5 (Agree), to 6 (Strongly agree). Item scores were summed to generate a total score, with higher scores indicating greater perceived self-efficacy. Emotional–relational climate was measured using the 23-item Rating of Emotional Abuse in Childhood questionnaire. Items assessing experiences of emotional neglect and psychological maltreatment

were rated on a 5-point scale ranging from 0 (Never), 1 (Rarely), 2 (Occasionally", 3 (A moderate amount), to 4 (A great deal). Item scores were aggregated into a composite score, with higher values indicating more adverse emotional–relational environments.

Locus of control was measured using a 12-item Likert-adapted version of the Nowicki–Strickland Locus of Control Scale. Two subscales were analyzed independently: Internal Locus of Control (LC-I) and External Locus of Control (LC-E), each comprising six items. Responses were rated on a 5-point Likert scale ranging from 1 (Strongly disagree), 2 (Disagree), 3 (Neutral), 4 (Agree) to 5 (Strongly agree), with appropriate reverse coding applied where necessary.

Data Collection

Data was collected using KoboCollect, a digital survey platform. The questionnaire was administered face-to-face using handheld mobile devices by the principal investigator and two trained research assistants. This approach facilitated real-time electronic data capture while allowing clarification of questions and support for participants with varying levels of literacy. Built-in logic checks and mandatory response fields helped minimize missing data and reduce entry errors. All data was securely stored and de-identified prior to analysis.

Validity and Reliability

Internal consistency reliability was assessed using Cronbach's Alpha and composite reliability (CR). The results indicated satisfactory reliability across all constructs: depressive symptoms ($\alpha = 0.86$, CR = 0.89), self-efficacy ($\alpha = 0.96$, CR = 0.96), external locus of control ($\alpha = 0.84$, CR = 0.89), internal locus of control ($\alpha = 0.94$, CR = 0.92) and emotional–relational climate ($\alpha = 0.90$, CR = 0.92). All values exceeded the recommended threshold of 0.70, indicating strong internal consistency (Hair et al., 2014). Convergent validity was demonstrated, with Average Variance Extracted (AVE) values above 0.50 indicating that the retained items accounted for substantial variance. Discriminant validity was evaluated using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. In accordance with recommended guidelines, the square root of each construct's AVE was higher than its correlations with other constructs and all HTMT ratios were below 0.85 (Henseler et al., 2015). Overall, these results confirm that the constructs were measured reliably and distinctly, providing a solid basis for the upcoming structural model analysis. During measurement model evaluation, items with factor loadings below 0.70 or evidence of multicollinearity (variance inflation factor > 5) were removed to enhance construct validity and model parsimony. Only indicators meeting established thresholds for internal consistency, convergent validity and discriminant validity were retained for structural equation modelling, ensuring that the final model was both psychometrically sound and theoretically coherent.

Data Analysis

Data analysis proceeded in two stages. First, descriptive statistics were computed using IBM SPSS Statistics (Version 26). Frequencies and percentages were used to describe categorical variables while means and standard deviations summarised continuous variables. Data screening confirmed the validity of the score ranges and revealed no anomalous response patterns.

Second, Partial Least Squares Structural Equation Modelling (PLS-SEM) was conducted using Smart PLS (Version 4.1.1.1). The analysis followed a two-step procedure: evaluation of the measurement model (reliability and validity) and assessment of the structural model. Depressive symptoms were specified as the endogenous variable, with self-efficacy, internal locus of control, external locus of control and emotional–relational climate specified as exogenous predictors. Bootstrapping with 5,000 resamples was used to estimate standard errors, confidence intervals, and p-values. PLS-SEM was selected for its suitability to prediction-oriented models and its fewer assumptions about data normality.

Ethical Considerations

Ethical approval was obtained from the Sokoine University of Agriculture Research and Publications Committee (Ref. No. SUA/ADM/R.1/8/1373). Permission was further granted by relevant regional and district education authorities and participating school heads. Written assent was obtained from students and institutional consent was obtained on behalf of parents or guardians, as approved by the relevant ethical authorities. Participation was voluntary, confidentiality was maintained through anonymised data and referral pathways were established for students requiring psychosocial support.

Results And Discussion

This section presents the study's results and discusses them in relation to the existing empirical literature. The results are organized according to the study variables, including depressive symptoms, emotional–relational climate, locus of control and self-efficacy. Inferential analysis is presented to examine the relationships among these variables. The discussion interprets the findings in light of previous studies and the study's conceptual framework, highlighting key patterns, similarities and differences. It also considers the implications of the findings for understanding adolescent depression in the Tanzanian context.

Descriptive Overview

Research question: What is the prevalence and distribution of depressive symptoms among secondary school adolescents in Dodoma and Pwani, Tanzania?

The results indicate that 38% of the respondents reported no depressive symptoms, reflecting a non-clinical mental health status. In contrast, 37% of the participants exhibited mild depressive symptoms while 17% were categorised as having moderate depression. A further 6% reported moderately severe depression and 2% were classified as experiencing severe depression. Taken together, these findings show that 62% of the participants experienced at least some level of depressive symptoms, ranging from mild to severe. This high proportion suggests that depressive symptoms are widespread within the study population, pointing to a notable mental health concern.

Evaluation of the Measurement Model (Reliability and Validity) and Assessment of the Structural Model

Compose Reliability and Convergent Validity

Cronbach's Alpha values for all constructs exceeded the recommended threshold of 0.70 and Composite Reliability (CR) values ranged from 0.891 to 0.963, indicating high internal consistency and reliability. (Hair, 2014). Convergent validity was supported, as the average variance extracted (AVE) values for all constructs were above 0.50. Most indicators exhibited loadings above 0.70; one item with a loading of 0.6889 was retained because the overall AVE and CR values remained within acceptable ranges. In addition, all Variance Inflation Factor (VIF) values were below 5, indicating no problematic multicollinearity among the indicators. The results are presented in Table 2.

Table 2: Reliability & Convergent Validity (summary table) (N= 1009)

Construct	Cronbach's α	CR	AVE
Depression	0.86	0.89	0.55
Self-efficacy	0.96	0.96	0.72
External locus	0.84	0.89	0.67
Internal locus	0.94	0.92	0.80
Emotional–relational climate	0.90	0.92	0.55

Table 3: Discriminant Validity Fornell–Larcker criterion and Heterotrait Monotrait ratios of correlations (N=1009)

Constructs	DS	EA	LCE	LCI	SE
DS	**0.7384**	0.0682	0.2739	0.0063	-0.0467
ACER	0.0722	**0.7396**	0.0346	-0.0075	0.0499
LCE	0.3146	0.0533	**0.8195**	-0.0079	0.0362
LCI	0.0102	0.0140	0.0148	**0.8964**	0.0150
SE	0.0485	0.0545	0.0379	0.0198	**0.8485**

Discriminant validity through Fornell-Larcker and Heterotrait Monotrait (HTMT) Criteria

Table 3 shows discriminant validity results based on the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) correlation ratio. The diagonal values in bold are the square roots of the average variance extracted (AVE), which, under the Fornell-Larcker criterion, should be greater than the inter-construct correlations in the relevant rows and columns. This requirement is met, demonstrating adequate discriminant validity. The HTMT readings below the diagonal provide additional evidence for

this conclusion. All HTMT ratios are below the cautious criterion of 0.85 (Henseler et al., 2015), indicating that AF, RA, and RF differ from one another. Thus, the Fornell-Larcker and HTMT criteria confirm that the measurement model's discriminant validity has been successfully achieved.

Model Fit Evaluation using The Standardised Root Mean Squared Residual (SRMR) and Normed Fit Index (NFI)

Model fit was evaluated using established indices from the saturated and estimated models. The SRMR was 0.0351, well below commonly accepted thresholds, indicating an excellent fit. The NFI was 0.9258, exceeding recommended levels and indicating satisfactory agreement between the proposed model and the observed data. Collectively, these indices (Table 4) confirm that the model demonstrates adequate overall fit for structural equation modelling.

Structural Model Results

The PLS-SEM structural model tested the hypothesized paths (H_o1–H_o4). Figure 2 presents the simplified path diagram and Table 5 presents the path coefficients, significance levels and R^2 values. The model explained 8.2% of the variance in depressive symptoms (R^2 = 0.082). Although this indicates that a substantial proportion of variance remains unexplained, as expected given that depression is a multi-determined construct that may be influenced by biological, social and economic factors, the 8.2% explained by these psychosocial predictors is meaningful within psychological research.

Table 4: Model Fit Indices (N=1009)

Index	Saturated model	Estimated model
SRMR	0.0351	0.0351
Chi-square	6072.4529	6072.4529
NFI	0.9258	0.9258

Importantly, the directional arrows in Figure 2 represent hypothesised associations rather than causal relationships. Given the cross-sectional design, the paths indicate statistical relationships (correlations and predictive associations) between constructs and should not be interpreted as evidence of causality.

H_o1: There is no significant relationship between adverse childhood emotional–relational climate (ACER) and depressive symptoms. The relationship between adverse childhood emotional–relational climate and depressive symptoms was positive and statistically significant at the 10% level (β = 0.062, p = 0.069), with a negligible effect size (f^2 = 0.004). This indicates a weak but positive association between emotional–relational climate and depressive symptoms. Therefore, the null hypothesis (H_o1) was rejected.

H_o2**:** There is no significant relationship between external locus of control (LCE) and depressive symptoms. The findings revealed a statistically significant positive relationship between external locus of control and depressive symptoms (β = 0.274, p < 0.001), with a small-to-moderate effect size (f^2 = 0.082). This indicates that adolescents who perceive their lives as controlled by external forces tend to report higher levels of depressive symptoms. Therefore, H_o2 was rejected. Notably, this was the strongest predictor in the model, with a one-standard-deviation increase in external locus of control associated with approximately a 0.27-standard-deviation increase in depressive symptoms.

H_o3: There is no significant relationship between internal locus of control and depressive symptoms among adolescents. The results indicated that internal locus of control was not significantly associated with depressive symptoms (β = 0.010, p = .563). The path coefficient was close to zero, suggesting that, after controlling for other variables in the model, internal locus of control did not meaningfully predict depressive symptom severity among secondary school adolescents in Tanzania. Therefore, H_o3 was retained.

H_o4: There is no significant relationship between self-efficacy (SE) and depressive symptoms. The analysis indicated a negative but non-significant relationship between self-efficacy and depressive symptoms (β = –0.060, p = 0.340), with a minimal effect size. Although the direction of the relationship was consistent with expectations, the effect was not statistically significant. Therefore,

H_o4 was not rejected. The details of these relationships are presented in Table 5 and Figure 2.

The relationship between adverse childhood emotional–relational climate and depressive symptoms was positive and statistically significant at the 10% level, but the effect was small (β = 0.062, p = 0.069, f^2 = 0.004). Given the negligible effect size and marginal level of significance, this finding should be interpreted with caution and is best understood as weak evidence of a positive relationship. Nevertheless, the direction of the relationship is consistent with prior research in other settings. International studies reported links between emotionally invalidating environments and higher levels of depressive symptoms among adolescents, including evidence from China and East African contexts such as Uganda and Somaliland (Ashaba et al., 2021; Chen et al., 2019; Durbeej et al., 2025). The present findings contribute to this body of literature by providing quantitative evidence from Tanzanian secondary-school adolescents, a population that has received limited empirical attention.

Table 5: Results of the Structural Model (N=1009)

Hypothesis	Relation	Path coefficient(β)	T statistics	P values	f-square	Decision
H_o1	ACER -> DS	0.0618	1.816	0.069*	0.004	Reject
H_o2	LCE -> DS	0.2740	8.403	0.000***	0.082	Reject
H_o3	LCI -> DS	0.0099	0.579	0.563	0.001	Not rejected
H_o4	SE -> DS	-0.0599	0.955	0.340	0.004	Not rejected

Significance level *** p<0.001, ** p<0.05, * p<0.1

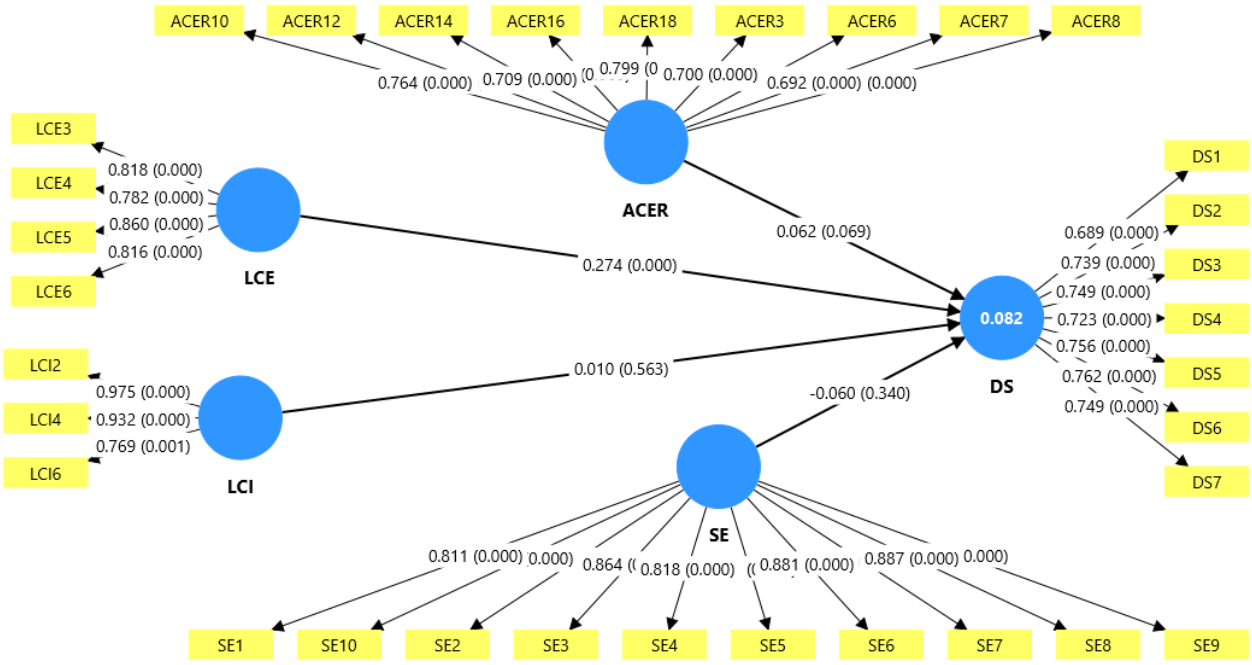

Figure 2: Structural Model

The relatively small effect size observed may reflect characteristics of the sample or the measurement context. Because participants were recruited from school settings, severe emotional abuse may have been less prevalent, thereby limiting variability. Cultural norms may also influence reporting patterns. Additionally, the cross-sectional design does not permit conclusions about temporal ordering. It remains possible that adolescents experiencing depressive symptoms perceive their relational environments more negatively, rather than relational experiences preceding depressive symptoms. Longitudinal research would be required to clarify these possibilities.

From the theoretical perspective, the findings align with the broader Social Cognitive Theory framework, which emphasises reciprocal associations between environmental and personal factors. However, the current design does not permit examination of dynamic interactions over

time. Emotional–relational climate may be associated with depressive symptoms directly or indirectly through related psychosocial constructs, but these pathways cannot be definitively tested within a cross-sectional model.

The most robust finding of the study was a positive association between an external locus of control and depressive symptoms. Adolescents who more strongly endorsed the belief that external forces govern outcomes reported higher levels of depressive symptoms. This result aligns with prior research linking external control beliefs to greater psychological distress (Hovenkamp-Hermelink et al., 2019; Khumalo & Plattner, 2019; Van Der Linden et al., 2021). The present findings extend this evidence to a Tanzanian secondary-school population.

Importantly, the cross-sectional nature of the data precludes conclusions about directionality. Stronger external control beliefs may be associated with higher depressive symptoms; however, depressive symptoms may also contribute to more externalised attributions or unmeasured contextual variables may influence both. These interpretations remain speculative and require longitudinal investigation.

Internal locus of control was not significantly associated with depressive symptoms. This suggests that in this sample, internal control beliefs were not statistically associated with depressive symptoms after controlling for other variables. Internal and external orientations are conceptually related yet distinct constructs, and adolescents may simultaneously endorse elements of both. Further research is needed to clarify how these beliefs operate across cultural and socioeconomic contexts.

The Tanzanian context provides an important background for interpreting these associations. Adolescents may face structural and socioeconomic constraints that shape perceived control and psychological well-being. However, because contextual variables were not directly measured in this study, their potential role cannot be determined empirically. Future research incorporating direct measures of socioeconomic stressors, school conditions, and family context would strengthen the understanding of these relationships.

Self-efficacy did not show a statistically significant association with depressive symptoms, although the coefficient was negative. This contrasts with findings from some international studies (Nunes & Faro, 2021; Ramesh & Ling, 2022) but aligns with other research suggesting context-dependent or bidirectional associations (Tak et al., 2017; Yeo et al., 2023). Because the design is cross-sectional, it is not possible to determine whether lower self-efficacy precedes depressive symptoms or whether depressive symptoms are associated with diminished perceptions of efficacy.

Several explanations may account for the non-significant association. The General Self-Efficacy Scale assesses broad beliefs about competence and may not capture domain-specific efficacy beliefs most relevant to Tanzanian adolescents' daily experiences. Cultural norms and response tendencies may also influence self-report measures. Additionally, when locus of control was included in the model, control beliefs showed a stronger association with depressive symptoms than perceived capability.

Overall, these findings suggest that in this sample, depressive symptoms were more strongly associated with external control beliefs than with internal control beliefs or general self-efficacy. Within the Social Cognitive Theory framework, this may indicate that perceptions of control are particularly salient correlates of depressive symptoms in this context. However, the present study does not establish causal pathways, reciprocal processes or mediation effects. Longitudinal and mixed-methods research is needed to examine how beliefs about control, relational experiences, and depressive symptoms interact over time.

From a practical standpoint, the findings highlight potential psychosocial correlates that may inform the design of school-based mental health initiatives. However, the intervention's implications should be interpreted cautiously, given the correlational nature of the data. Future intervention studies are needed to determine whether modifying control beliefs or strengthening supportive relational environments is associated with improvements in adolescents' mental health outcomes.

Conclusions and Recommendations

Overall, the study concludes that adverse childhood emotional–relational climate may have a limited and context-dependent influence on depressive symptoms among Tanzanian adolescents, indicating only weak support for its role. In contrast, external locus of control appears to be a salient psychosocial factor, underscoring the importance of perceived external constraints in shaping adolescent mental health outcomes. Internal locus of control did not

emerge as a meaningful protective factor, suggesting that personal agency alone may be insufficient in this context. Similarly, self-efficacy showed limited relevance in explaining depressive symptoms, indicating that confidence in individual ability may not strongly translate into improved mental well-being under prevailing structural conditions.

The following recommendations are drawn from the study's conclusions on the psychosocial predictors of depressive symptoms among secondary-school adolescents in Tanzania. As external locus of control emerged as the strongest predictor of depressive symptoms, the findings suggest the need for interventions that reduce adolescents' feelings of helplessness and strengthen their sense of control over life circumstances. Furthermore, the limited influence of self-efficacy and internal locus of control indicates that adolescent mental health may be shaped more strongly by broader social and environmental conditions than by individual agency alone.

Based on these findings, adolescent mental health interventions in Tanzania should adopt broader psychosocial and environmental approaches rather than relying solely on individual-focused strategies. School-based programs should prioritize coping, emotional regulation, resilience and problem-solving skills to help adolescents manage stress and build greater confidence in handling life's challenges. Strengthening guidance and counselling services within schools may help students address emotional difficulties before they become severe.

Given the observed influence of external control beliefs, schools and communities should create supportive environments that encourage participation, inclusion and positive decision-making among adolescents. Teachers, parents and caregivers should be equipped with basic psychosocial support skills to help adolescents feel supported and capable of influencing their own outcomes. At the policy level, the integration of adolescent mental health services into the education system should be strengthened through clear implementation guidelines, school counselling frameworks and teacher training programs focusing on psychosocial well-being and early identification of mental health challenges.

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