

Prevalence and Socio-demographic Factors of Depression among Secondary School Students in Bungoma County, Kenya

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ABSTRACT

Depression is a leading cause of illness and disability among adolescents worldwide, yet evidence on its burden among school-going adolescents in rural Kenyan counties remains limited. This study determined the prevalence and socio-demographic factors of depression among secondary school students in Bungoma County, Kenya, to provide baseline evidence for mental health planning. The study was guided by Hopelessness Theory of Depression and Ecological Systems Theory. An analytical mixed methods cross-sectional study design was adopted. The target population consisted of secondary school students, with a sample size of 400 respondents determined using Taro Yamane formula. The respondents were selected through multistage stratified and systematic sampling from three sub-counties of Bungoma County (Mt. Elgon, Kimilili and Bungoma South). Quantitative data were collected using the Patient Health Questionnaire (PHQ-9) and a structured questionnaire, and analyzed using descriptive statistics and ordinal logistic regression in SPSS version 28. Qualitative data were obtained through ten Focus group discussions with students and twelve in-depth interviews with class teachers, and analyzed thematically. The overall prevalence of depressive symptoms (PHQ-9 score ≥ 5) was 55.5% (n = 222), 41.5% (n = 166) had mild depression, 9.5% (n = 38) moderate depression, 3.5% (n = 14) moderately severe depression and 1.0% (n = 4) severe depression, while 44.5% (n = 178) were not depressed. Female students were found to be almost twice as likely to experience higher levels of depression compared to the males (AOR = 1.71, P = 0.04). On the other hand, students in mixed day and boarding schools were 78% less likely to experience higher level of depression, (AOR = 0.22, P < 0.001), compared to those in girls' boarding and day schools. Further, students who live with extended family were more than twice as likely as those with both parents to experience higher depression levels (AOR = 2.10, P = 0.04). The qualitative data pointed to gender and family structure as possible associations of depression. Depression is highly prevalent among secondary school students in Bungoma County, with one in seven students experiencing moderate to severe depression. Routine school-based mental health screening using validated tools such as the PHQ-9 is recommended to enable early identification, counselling and referral of affected students.

Keywords: Depression, Prevalence, Socio-Demographic, Adolescents, Secondary School Students, PHQ-9

I. INTRODUCTION

Depression is a common mental disorder characterized by low mood or loss of pleasure or interest in activities for long periods of time. An estimated 4% of the global population experiences depression, including 5.2% of adults (4.1% among men and 6.2% among women) and 5.4% of adults aged 70 years and older (World Health Organization, 2026). Adolescent depression is an increasing worldwide health issue that affects millions of young individuals, hence influencing their well-being, academic success and social growth. Depression is estimated to occur among 1.3% of adolescents aged 10–14 years, and 3.4% of 15–19-year-olds (World Health Organization, 2025).

The disorder is more prevalent in low- and middle-income countries than developed countries (Pozuelo et al., 2022). Secondary school students are disproportionately affected by depression. A study conducted among Indian secondary school students, reported that 31.99% of the students suffered from depression (Patel et al., 2023). Similarly, in Saudi Arabia, 34% of students were mildly depressed, 24.6% moderately depressed and 5% severely depressed (Alharbi et al., 2019). In Sub-Saharan Africa, female adolescents aged 15–19 years, from low socioeconomic status and with a history of alcohol use, had an increased risk of depressive symptoms (Bajaria et al., 2025).

Kenya has about 1.9 million cases of depression and ranks 5th among depression cases in Africa (Nyongesa, 2023). Approximately 25% and 40% of the outpatients and inpatients suffer from mental illness of which the majority of the diagnoses are depression, stress and anxiety disorders (Marangu et al., 2021). The prevalence of depression among secondary school students varies across counties in Kenya. Prior studies conducted among secondary school students in Kenya report high prevalence rates of 58.9% in Makueni county (Nzangi et al., 2022) 57.5% in Homabay county (Nyayieka et al., 2020) 44.8% in Kakamega county (Bakesia et al., 2023) and 43.3% in Narok county (Antipas et al., 2022). Furthermore, the prevalence of depression among youth aged 18-29 years in Western Kenya was 32.7% (Yabunga et al., 2025) highlighting the rising burden of the disorder.

A systematic review in England found that children exposed to parental intimate partner violence, depression and other social problems tend to develop mental disorders (Barrett et al., 2024). Excess parental control and excessive exposure to social media are additional risk factors (Kinyua, 2022). Traditionally secondary school students have had a culture of bullying new students particularly form ones. A study conducted among secondary school students in Bungoma found a high prevalence of bullying. Findings revealed a positive relationship between bullying and depression among secondary school students in Bungoma County (Misigo, 2021).

Secondary schools have put in place mechanisms to curb depression levels among students. These interventions which include life skills, guidance and counselling have been introduced in the school curriculum (Kenya Institute of Curriculum Development (KICD), 2017). In most schools, life skills sessions are scheduled once per week for form one and two students. Unfortunately, students in form three and four have no scheduled lessons for life skills (Waiganjo & Waiganjo, 2018). Although the prevalence of depression among secondary school students has been documented in other counties, Bungoma currently lacks such data. Secondary school students in the county face unique psychosocial challenges like bullying (Misigo, 2021) exposure to violence (Kenya National Bureau of Statistics & ICF, 2023) parental dysfunctionality (Florence et al., 2022) poverty (Kenya National Bureau of Statistics & ICF, 2023) and substance misuse (Muteti & Kamenderi, 2019). The study of depression in secondary school students is significant because the majority of mental illnesses develop at this age. Knowledge of the prevalence and socio-demographic factors of depression will help to lay the foundation for evidence-based prevention strategies. It will also contribute to understanding of the burden and causes of depression.

1.1 Statement of the Problem

Over the past 30 years, the global incidence of depression and related Disability-Adjusted Life Years (DALYs) in individuals under 30 increased by over 50%, with the fastest growth occurring specifically among adolescents aged 15–19 (Liu & Kuai, 2025). This alarming statistic highlights a growing crisis that threatens to undermine the United Nations' Sustainable Development Goal 3, which aims to ensure healthy lives and promote well-being for all ages (United Nations, 2026). Adverse childhood significantly exacerbates the burden of depression among adolescents. Bullying, emotional neglect, family substance misuse, household safety, physical neglect and sexual abuse have been reported as risk factors of depression among adolescents (Draxler et al., 2025).

Secondary school students face psychosocial challenges that create a perfect ground for depression. This is evidenced by the high prevalence of depression among this demographic (Alharbi et al., 2019; Patel et al., 2023). Despite the high prevalence of depression among secondary students across counties in Kenya (Nyayieka et al., 2020; Nzangi et al., 2022) Bungoma county has limited data regarding its prevalence. The county reports persistently low academic performance levels (Kenya National Bureau of Statistics & ICF, 2023) endemic bullying in schools (Misigo, 2021) pervasive poverty and widespread substance misuse (Muteti & Kamenderi, 2019). These stressors converge to place adolescents at substantially elevated risk for developing depression, yet the actual prevalence remains unknown.

Mental health research among adolescents in Kenya is extensively conducted in urban centres such as Nairobi and the coastal region (Mbithi et al., 2023; Mokaya et al., 2025). This urban research bias creates a knowledge vacuum leaving rural counties like Bungoma drastically understudied. Furthermore, emerging risk factors such as cyberbullying and online gambling are proliferating among secondary school students and adolescents in Kenya, yet their impact remains poorly documented (Madara & Chang'orok, 2024; Nuna, 2025). Therefore, this study sought to determine the prevalence and socio-demographic factors of depression among secondary students in Bungoma County so as inform school based mental health interventions.

1.2 Research Objectives

- i. To determine the prevalence of depression among secondary school students in Bungoma County using a validated depression screening tool.
- ii. To determine the socio-demographic factors associated with depression among secondary school students in Bungoma County.

II. LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Bronfenbrenner's Ecological Systems Theory

This study was guided by Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979) and the Hopelessness Theory of Depression (Abramson et al., 1989). Ecological Systems Theory holds that adolescent mental health is shaped by interacting environmental systems such as the microsystem (family, school and peers), the mesosystem (interactions between these settings) and the exosystem (the wider community and socio-economic conditions). The Hopelessness Theory of Depression proposes that depression arises when negative life events are attributed to stable, global and internal causes, generating hopelessness. This theory informs the current study by explaining how socio-demographic factors influence the occurrence of depression among secondary school students. The students' microsystem stressors, such as unstable family living arrangements can cause psychological distress and hinder their emotional wellbeing. When the students internalize this negative environment, it manifests gradually and results in a sense of profound hopelessness and distress. Adolescent girls are more affected by the environmental stressors compared to boys who express their distress by venting out anger or substance abuse. However, supportive secondary schools' systems and positive peer interactions can act as a protective barrier thus disrupting the negative cognitive patterns. Therefore, the Bronfenbrenner's microsystem and mesosystem structures were used to provide a framework for analysing socio-demographic factors while the Hopelessness theory helped to explain cognitive mechanisms through which these factors trigger depression among the students.

2.2 Empirical Review

2.2.1 Prevalence of Depression among Secondary School Students

Depression is a common mental health problem among adolescents, with prevalence varying across settings. Within sub-Saharan Africa, several country specific studies have emerged. A study in Nigeria by Adewuya et al. (2026) revealed that 31.2% of secondary school adolescents experiencing high environmental adversity exhibited depressive symptoms. In Uganda, Nalugya-Sserunjogi et al., (2016) found that 21.0% of school going adolescents had significant depressive symptoms while Obeng-Onkon et al., (2024) reported depression prevalence of 68.9% among high school students in Ghana. These studies consistently show that depression is common among African adolescents in secondary schools.

In Kenya, studies have reported substantial levels of depressive symptoms among secondary school students. Khasakhala et al., (2012) documented depressive symptoms among students in public secondary schools in Nairobi, while Osborn et al., (2022) reported a considerable burden of depression and anxiety among Kenyan adolescents. More recent studies have also reported high prevalence in different counties. Nzangi et al., (2022) reported a prevalence of 58.9% among secondary school adolescents in Makueni County, while Bakesia et al., (2023) reported 44.8% among adolescents in Kakamega County. These findings demonstrate that depression is a significant concern among secondary school students in Kenya, despite the prevalence differing across counties. The variation may reflect differences in study populations, screening tools and social environments. Importantly, evidence specific to secondary school students in Bungoma County has remained limited.

2.2.2 Socio-Demographic Factors Associated With Depression among Secondary School Students

Age significantly influences the experience of depression in terms of prevalence and how it manifests. Approximately 1.3% of adolescents aged 10-14 years, and 3.4% aged 15-19 years, experience depression globally with some estimates suggesting even higher numbers depending on the country (World Health Organization, 2026). Depression significantly escalates from early to late adolescence (15-19 years), a phenomenon which can be attributed to early exposure to bullying and family conflict (Liu & Kuai, 2025; Misigo, 2021). Among secondary school students in Nairobi, those aged 17-19 years had higher depression scores than those aged 14-16 years (Khasakhala et al., 2012). Similarly, older adolescents have also been reported to have higher symptoms of depression compared to younger ones (Osborn et al., 2022). Gender plays a crucial role in experience of depressive symptoms with a higher prevalence identified among adolescent females (Klaufus et al., 2022; Yang et al., 2024). This disparity can be due to the fact that females tend to psychologically hold more onto negative experiences leading to prolonged depressive episodes (Lilly et al., 2023). However, contrary findings have been noted among secondary school students in Kenya with males having higher depression prevalence and experiences of psychotic or mood disorders compared to females (Kisiang'ani et al., 2024; Mokaya et al., 2025). These differences in findings can ultimately influence gender specific interventions in combating depression among secondary school students.

Family structure plays a critical role in shaping a student's emotional well-being. Students from single parent households, dysfunctional families, those exposed to family conflicts, neglect and lack of emotional support tend to have higher risk of developing depression (Smith et al., 2019; Zhao et al., 2021). Parental attachment leads to strong cognitive wellbeing of an adolescent (Moreira et al., 2021), while family support guides adolescents in dealing with

social issues like substance abuse (Kathuri-Ogola & Kabaria-Muriithi, 2024). On the other hand, adolescents exposed to parental dysfunctionality are characterized by emotional neglect and lack of support, showing higher levels of depression (Florence et al., 2022).

Socio-economic status is also a key driver of adolescent depression with social support, access to resources and overall life satisfaction significantly influencing the disorder (Lund et al., 2018). Adolescents from high income families may experience depression due to high parental expectations, academic pressure and social comparison (Luthar & Kumar, 2018). Conversely, students from low-income families experience food insecurity, poor sanitation, poor health services, academic difficulties and housing instability which contribute to chronic stress and depressive symptoms (Nzangi et al., 2022; Zakar & Iqbal, 2024). This leads to increased psychological distress and depression among the adolescents.

III. METHODOLOGY

3.1 Research Design

The study employed an analytical cross-sectional study design with a mixed method approach combining quantitative and qualitative research methods. This made it possible to assess the prevalence of depression among students and allowed the researcher to measure several variables simultaneously. Analytic cross-sectional research design was used because it examines the relationship between the exposure and outcomes within a population at a single point in time (Figueiredo et al., 2025).

3.2 Study Area

The study was conducted among secondary school students in Bungoma County. Three sub counties were selected to act as a representative sample. They include Mt. Elgon, Kimilili and Bungoma South sub counties.

3.3 Target Population

The target population comprised 838,951 secondary school students enrolled in Grade 10, Form 3 and Form 4 in Bungoma County. Form 2 students were not in session at the time of the study owing to the transition from the 8-4-4 system to the Competency-Based Curriculum and were therefore excluded. Students on active treatment for mental disorders, students absent on the day of the study and those unable to provide informed assent and consent were also excluded. Class teachers from selected schools were interviewed to get their views on students' academic struggles with depression.

3.4 Sampling and sample size

A multistage sampling design was employed. Bungoma County was purposively selected; schools were proportionately and randomly sampled from the three sub-counties and stratified by type (mixed day, mixed day and boarding, boys boarding, girls boarding, girls' day and girls' day and boarding). Students were systematically selected from class registers with proportionality maintained by age. The sample size for the students was determined using Yamane's formula (Yamane, 1967), which yielded a sample size of 400 students.

Purposive sampling method was used for sampling 12 class teachers for the in-depth interviews while 80 students recruited for the 10 FGDs. 7 male teachers and 5 female teachers were sampled for interview. This ensured comprehensive understanding of depression among secondary school students in Bungoma County.

3.5 Data Collection Instruments and Procedures

Depression was measured using the Patient Health Questionnaire (PHQ-9), a validated nine-item screening tool with good psychometric properties for assessing depression severity (Kroenke et al., 2001). A structured questionnaire was used to collect socio-demographic information on age, gender, family structure and socioeconomic status like household income and parental education. FGDs were used to explore students' perceptions on academic pressure, school environment and mental health awareness. In-depth interviews were done with class teachers to understand their observations and views on students' academic struggles with depression.

Data were collected during games time and free lessons to minimize disruption of the school programme. Parental consent forms were distributed to students before the April holidays. On the day of data collection, signed consent and assent forms were verified. Trained research assistants administered the PHQ-9 tool and questionnaire individually to each student using the Kobo Collect tool. Pseudonyms were assigned to conceal identities. Students identified with severe depressive symptoms, and those who reported thoughts of dying or hurting themselves, were referred to local mental health services for further assessment and professional care.

3.6 Data Analysis

Quantitative data collected using Kobo Collect were exported to SPSS version 28 for analysis. The prevalence of depression was established using descriptive statistics, including frequencies, percentages, means and standard deviations. The quantitative data was analyzed using descriptive statistics and ordinal logistic regression to test the relationship between socio demographic variables and depression levels. The ordinal logistic regression model and confidence intervals were used to measure the strength of association. Qualitative data from the FGDs and in-depth interviews were analyzed thematically with emerging themes triangulated with quantitative findings to enhance interpretation.

3.7 Ethical Considerations

Ethical approval was granted by the Masinde Muliro University Institutional Research and Ethics Committee and a research permit was obtained from the National Commission for Science, Technology and Innovation (NACOSTI). Authorization was also obtained from the Bungoma County Director of Education and from the principals of the selected schools. Written informed consent was obtained from parents and teachers and assent was obtained from students. Participation was voluntary, with the right to withdraw at any time without penalty. All data were anonymised and stored in password-protected files.

IV. RESULTS & DISCUSSION

4.1 Demographic Characteristics of Participants

A total of 400 secondary school students participated in the study. Their ages ranged from 14 to 23 years, with a mean of 17.73 years (SD = 1.64). Slightly over half (55.0%, n = 220) were female. Form 3 students constituted the largest proportion (42.0%, n = 168), followed by Form 4 (33.3%, n = 133) and Grade 10 (24.8%, n = 99) students. Mixed day schools were the most represented school type (43.5%, n = 174), followed by mixed day and boarding schools (26.5%, n = 106). The characteristics of the participants are summarized in Table 1.

Table 1

Demographic characteristics of secondary school students in Bungoma County

Characteristic	Category	N	%
Age (years)	14–23	–	M (SD) = 17.73 (1.64)
Gender	Female	220	55
	Male	180	45
Class	Grade 10	99	24.8
	Form 3	168	42
	Form 4	133	33.3
School type	Mixed day	174	43.5
	Mixed day & boarding	106	26.5
	Girls boarding	40	10
	Boys boarding	31	7.8
	Girls' day & boarding	27	6.8
	Girls' day	22	5.5

Note. M = mean; SD = standard deviation.

Students who did not participate in the quantitative research were recruited for the qualitative aspect of the study. This group comprised 80 students distributed across ten Focus Group Discussions (FGDs) with each FGD consisting 8 students. The FGDs were stratified by gender resulting in 5 FGDs conducted for girls and 5 for boys. Twelve class teachers comprising 7 males and 5 females participated in the in-depth interviews. One teacher was selected per school with the majority of them (n=8, 66.7%) aged 40-60 years. Five teachers were from mixed day schools, two from girls' and boys' boarding, two from mixed day and boarding schools and one teacher from girls' day and boarding.

4.2 Prevalence of Depression among secondary school students in Bungoma County

From the findings in Table 2, 55.5% (n = 222) of the students exhibited depressive symptoms (PHQ-9 score $\geq$ 5). Of these, 41.5% (n = 166) were mildly depressed, 9.5% (n = 38) moderately depressed, 3.5% (n = 14) moderately severely depressed, and 1.0% (n = 4) severely depressed, while 44.5% (n = 178) were not depressed. Thus, 14.0% of the sample, one in seven students experienced moderate to severe depression requiring professional assessment and treatment. The study findings align with secondary school students' depression trends across Kenyan counties. Makueni county reported a prevalence of 58.9% (Nzangi et al., 2022) while a prevalence of 57.5% was reported in Homabay county (Nyayieka et al., 2020). Similarly, a depression prevalence of 57.7% was reported in Bungoma County

(Kisiang'ani et al., 2024). However, the prevalence recorded in this study was higher than findings reported in Kakamega county at 44.8% (Bakesia et al., 2023) and Nairobi county at 34.5% (Mokaya et al., 2025).

Furthermore, the 55.5% prevalence of depression among the students significantly contrasts with global metrics which estimates adolescent depression between 1.3% to 4.3% (World Health Organization, 2025). Studies conducted among adolescents across Sub Saharan Africa also revealed lower depression prevalence such as 11.3% in Nigeria (DadeMatthews et al., 2024) and 21% in Uganda (Nalugya-Sserunjogi et al., 2016). These variances in prevalence across the studies may be due to methodological differences, including screening tools and sample sizes which complicate direct comparisons. The high prevalence of depression among secondary school students in Bungoma county may be due to underlying factors such as bullying, family conflict, and substance abuse (Florence et al., 2022; Misigo, 2021; Muteti & Kamenderi, 2019).

Table 2

Prevalence and severity of depression based on the PHQ-9

Depression severity	Score Range	N	%
Not depressed	0–4	178	44.5
Mild	5–9	166	41.5
Moderate	10–14	38	9.5
Moderately severe	15–19	14	3.5
Severe	20–27	4	1.0
Total with depressive symptoms	≥5	222	55.5

Note. PHQ-9 = Patient Health Questionnaire

4.2.1 PHQ-9 Item-Level Symptom Endorsement

Table 3 stipulates that at item level, the mean scores across all nine PHQ-9 items were low ($M < 1$, $SD < 1$), indicating that most symptoms occurred only occasionally. The most frequently reported symptoms were sleep disturbance (60%; $M = 0.98$, $SD = 1.04$), feeling tired or having little energy (56%), trouble concentrating (51%), little interest or pleasure in doing things (46.2%), and poor appetite or overeating (45.5%). A substantial minority felt down, depressed, irritable or hopeless (43.1%), felt bad about themselves or those they had failed their families (39%), and reported psychomotor changes such as moving or speaking slowly or feeling restless (38.8%). Importantly, 28% of the students reported thoughts of dying or of hurting themselves; a finding that should alert teachers, parents and clinicians to possible depression among adolescents. This finding resonates with (Yang et al., 2024), who noted a steady increase in depression among adolescents with disability adjusted life years (DALYs) rising particularly among older adolescents. Alarming, adolescent depression is often overlooked due to atypical symptom presentation often misinterpreted as laziness and irritability which leads to delayed diagnosis and treatment (Minelli et al., 2020). This delay heightens the risk of long-term mental health consequences and may result in substance abuse, self-harm and suicide. The rising social media addiction has also been reported to exacerbate adolescent depression by resulting in social isolation, sleep disruption, loneliness, negative self-comparison and emotional detachment (Saleem et al., 2024; Vidal et al., 2020).

Table 3

Responses to PHQ-9 items among secondary school students

PHQ-9 item	Not at all n (%)	Several days n (%)	Over half the days n (%)	Nearly every day n (%)	Mean (SD)
1. Feeling down, depressed, irritable or hopeless	228 (57.0)	135 (33.8)	11 (2.8)	26 (6.5)	0.59 (0.83)
2. Little interest or pleasure in doing things	215 (53.8)	141 (35.3)	26 (6.5)	18 (4.5)	0.62 (0.80)
3. Trouble falling or staying asleep, or sleeping too much	160 (40.0)	150 (37.5)	29 (7.3)	61 (15.3)	0.98 (1.04)
4. Poor appetite or overeating	218 (54.5)	138 (34.5)	19 (4.8)	25 (6.3)	0.63 (0.84)
5. Feeling tired or having little energy	176 (44.0)	159 (39.8)	36 (9.0)	29 (7.3)	0.80 (0.88)
6. Feeling bad about yourself, or that you are a failure or have let your family down	244 (61.0)	115 (28.8)	16 (4.0)	25 (6.3)	0.56 (0.84)
7. Trouble concentrating on things	196 (49.0)	140 (35.0)	37 (9.3)	27 (6.8)	0.74 (0.89)
8. Moving or speaking so slowly, or being so fidgety or restless	245 (61.3)	127 (31.8)	16 (4.0)	12 (3.0)	0.49 (0.71)
9. Thoughts that you would be better off dead or of hurting yourself	288 (72.0)	88 (22.0)	15 (3.8)	9 (2.3)	0.36 (0.66)

Note. PHQ-9 = Patient Health Questionnaire; M = mean; SD = standard deviation. Items refer to symptoms experienced over the preceding two weeks.

4.3 Socio-Demographic Factors Associated with Depression among Secondary School Students in Bungoma County

About half (52%) of the respondents lived with both biological parents while a further 25.4% lived with one parent. Most of the parents, 54%, were legally married and of middle-income status ($n=224$) with the respondents reporting strong family support ($MD = 0.18$). However, the students also tended more towards feeling stigmatized and hopeless due to their families' financial status ($MD= 0.29$). Further the modal level of education was secondary among both male (40.4%) and female (33.4%) parents and most of them (77%) encouraged their learners to work hard in school.

Table 4
Sociodemographic Factors

Factor	Response	Frequency	Percent
Family living arrangement	Living with both biological parents	208	52
	Living with one parent	102	25.5
	Living with grandparents	52	13
	Living with extended family	38	9.5
Highest level of education male guardian	No formal education	30	7.5
	Primary	79	19.8
	Secondary	161	40.3
	Tertiary	54	13.5
	Don't know	76	19
Highest level of education female guardian	No formal education	28	7
	Primary	114	28.5
	Secondary	133	33.3
	Tertiary	44	11
	Don't know	81	20.3
Parents guardians legally married or a stable union	Married / stable union	217	54.3
	Divorced/separated	68	17
	Widowed	63	15.8
	Both deceased	22	5.5
	Don't know	30	7.5
Guardians encourage academic hard work	Strongly Disagree	1	0.2
	Disagree	20	5
	Neutral	73	18.2
	Agree	200	49.9
	Strongly Agree	107	26.7
Family financial situation	Very poor	14	3.5
	Poor	135	33.8
	Middle income	225	56.3
	Rich	22	5.5
	Very rich	4	1
		Median	Min, Max
Family emotional support	N/A	0.18	-11.67, 0.97
SES	Material deprivation	0.29	-5.05, 0.76
	Psychosocial stigma	0.29	-2.61, 4.66

Female students were found to be almost twice as likely to experience higher levels of depression compared to the males ($AOR = 1.71$, $P = 0.04$). This aligns with global evidence that adolescent girls consistently report higher rates of depressive symptoms than boys (Hyde & Mezulis, 2020; Klaufus et al., 2022). Similarly, female adolescents have been reported to have higher levels of depressive symptoms than males in secondary schools across Kenya (Bakesia et al., 2023; Osborn et al., 2022). In contrast, male students joining public secondary schools in Nairobi had a higher prevalence of depression than females (Mokaya et al., 2025). This may be attributed to adjustment difficulties during school transition and separation from family. However, girls are psychologically more prone to rumination and prolonged negative effects compared to boys (Lilly et al., 2023), which raises their risk of severe levels of depression. This was reinforced by findings from the in-depth interviews, whereby one teacher reported:

"It is most common among girls than boys... girls are very sensitive about the changes in their bodies and what they need and what they wished to have... they want to compare themselves with others" (Teacher 1, MDS).

On the other hand, students in mixed day and boarding schools were 78% less likely to experience higher level of depression, (AOR = 0.22, $P < 0.01$), compared to those in girls' boarding and day schools. This agrees with Johnson et al., (2023), and Bakesia et al., (2023), who reported that school environment and peer composition influence mental health outcomes. Mixed school settings may provide broader peer support networks and reduce isolation, thereby mitigating depressive symptoms. Additionally, students who live with extended family were more than twice as likely as those with both parents to experience higher depression levels (AOR = 2.10, $P = 0.04$). This concurs with prior research showing that supportive family environments buffer adolescents against psychological distress (Moreira et al., 2021; Smith et al., 2019). Parental dysfunctionality in Kenyan households has also been linked to higher adolescent depression since parental support plays a role in easing adolescent adaptation (Florence et al., 2022). This finding aligns with Bronfenbrenner's microsystem construct, as the family is the adolescent's closest environment and poor emotional support weakens protection against stress. It also supports Hopelessness Theory: persistent lack of support may foster feelings of unworthiness and beliefs that circumstances cannot improve, increasing hopelessness and depression. A student in the FGDs echoed this view, stating:

"Last year, I posted my mother and people started asking that they thought my mother had died... Such bad comments arise because I have not been staying with my mother. This really makes me depressed" (FGD1, R7, MDS).

Table 5

Sociodemographic factors associated with depression

Parameter	Category	AOR (95% CI)	P value
Age	N/A	1.09(0.89-1.32)	0.41
Psychosocial stigma	N/A	1.2(0.9-1.6)	0.21
Family emotional support	N/A	0.74(0.54-1.01)	0.06
Gender	Female	1.71(1.00-2.92)	0.04
	Male	Ref	
Class	Grade 10	1.47(0.62-3.47)	0.38
	Form 3	1.28(0.68-2.41)	0.44
	Form 4	Ref	
School type	Mixed Day School	0.75(0.31-1.81)	0.52
	Mixed Day & Boarding	0.22(0.08-0.63)	< 0.01
	Boys Boarding	0.51(0.12-2.05)	0.34
	Girls Boarding	0.86(0.27-2.7)	0.80
	Girls Day	0.73(0.24-2.19)	0.58
	Girls boarding and day	Ref	
Family living arrangement	Living with extended family	2.10(1.21-3.62)	0.04
	Living with grandparent guardian	0.65(0.27-1.58)	0.34
	Living with one parent	0.96(0.4-2.29)	0.93
	Living with both biological parents	Ref	
Parents guardians legally married or a stable union	Don't know	1.74(0.5-6)	0.38
	Both deceased	1.36(0.54-3.46)	0.51
	Widowed	1.4(0.45-4.35)	0.56
	Divorced/separated	0.76(0.17-3.35)	0.72
	married / stable union	Ref	
Highest level of education male guardian	No formal education	0.42(0.1-1.82)	0.25
	Primary	1.3(0.45-3.75)	0.63
	Secondary	1.17(0.44-3.09)	0.76
	Don't know	1.56(0.55-4.47)	0.40
	Tertiary	Ref	
Highest level of education female guardian	Don't know	0.6(0.18-1.99)	0.41
	Tertiary	0.89(0.46-1.75)	0.74
	Secondary	1.17(0.6-2.29)	0.64
	Primary	0.52(0.15-1.77)	0.30
	No formal education	Ref	
Family financial situation	Very poor	0.03(0-9.6)	0.24
	Poor	0.04(0-9.88)	0.25
	Middle income	0.02(0-6.19)	0.19
	Rich	0.04(0-14.87)	0.28
	Very rich	Ref	

AOR, Adjusted Odds Ratio; CI, Confidence Interval. Statistical significance was determined by the AOR at $P < 0.05$

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Depression is highly prevalent among secondary school students in Bungoma County, with 55.5% of students exhibiting depressive symptoms and 14.0% experiencing moderate to severe depression. Although severe depression was relatively rare, the predominance of mild and moderate symptoms indicates a substantial burden of emotional distress that, without early identification and management, may progress to more severe mental health problems. Depression is therefore a major public health concern among adolescents in this county, and the findings provide baseline evidence for mental health planning and surveillance. Female students and those lacking emotional support were more vulnerable, while supportive family environments and mixed-school settings were protective. These findings suggest that social context and family dynamics play a critical role in shaping adolescent mental health outcomes.

5.2 Recommendations

Based on the findings, we recommend that the Ministry of Education, the Bungoma County Department of Health and school principals establish routine school-based depression screening using validated tools such as the PHQ-9. Guidance and counselling services should be strengthened by training teacher counsellors and creating clear referral pathways to mental health professionals, with priority given to social and behavioral counselling alongside academic counselling. The Ministry of education and other education stakeholders should strengthen school-based interventions that address socio-demographic factors associated with depression. Academic support programmes, effective anti-bullying policies and active participation in extracurricular activities should be implemented. Future research should employ longitudinal designs to establish the causal pathways and progression of depression over time and evaluate the effectiveness of school-based mental health screening programmes.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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