

PSYCHOSOCIAL EFFECTS OF DROUGHT AMONG SECONDARY SCHOOL STUDENTS FROM PASTORALIST COMMUNITIES IN SELECTED PUBLIC SECONDARY SCHOOLS IN KAJIADO WEST SUB-COUNTY, KAJIADO COUNTY, KENYA

***¹Linnet Parsapiyio, ²Jared Menecha & ³Jonathan Maweu**

School of Psychology, Daystar University

*Email of the Corresponding Author: linetpilanoi@gmail.com

Publication Date: October 2026

ABSTRACT

Purpose of the Study: This study investigated the psychosocial effects of drought among secondary school students from pastoralist communities in selected public secondary schools in Kajiado West Sub-County, Kajiado County, Kenya.

Problem Statement: Drought threatens the psychosocial well-being of adolescents in pastoralist communities, yet systematic research on its psychological effects on students in the Kenyan context remains limited, leaving an evidence gap for policy and intervention design.

Methodology: A descriptive survey design integrating quantitative and qualitative methods was used. Purposive sampling selected 223 students from two public mixed secondary schools in Kajiado West Sub-County. Data was collected using DASS-21, Brief COPE and Ryff's Psychological Well-Being Scale, supplemented by principal interviews, and analysed using SPSS and NVivo.

Results: Anxiety was the most prominent consequence (54.6% moderate to extremely severe), while depression was mostly normal to mild and stress largely normal. Livestock loss, food and water insecurity, and income reduction were negatively associated with well-being.

Conclusion: Drought exerts significant psychosocial consequences on pastoralist students, with anxiety emerging as the most salient burden, driven by chronic uncertainty over livestock loss, income decline and displacement.

Recommendation: Schools should integrate counselling and peer-support programmes tailored to anxiety, while government and partners strengthen water, food and financial support and embed psychosocial considerations in climate adaptation frameworks.

Keywords: *Psychosocial Effects, Drought, Secondary School Students, Pastoralist Communities, Anxiety, DASS-21, Kajiado West, Kenya*

INTRODUCTION

Drought represents a persistent environmental challenge that profoundly affects pastoralist communities' livelihoods, educational opportunities, and overall well-being. People living in arid and semi-arid regions such as Kajiado West Sub-County in Kajiado County, Kenya, are particularly vulnerable to the detrimental impacts of prolonged drought, which exacerbate existing vulnerabilities and threaten traditional ways of life. The depletion of water resources and the consequent loss of livestock result in economic hardship and trigger a series of psychosocial challenges, especially among secondary school students.

Secondary school students, typically between 13 and 18 years, are in a critical psychosocial and cognitive development stage. This period is marked by significant emotional, social, and academic changes as adolescents navigate identity formation, peer relationships, self-esteem, academic pressure, and future aspirations. Under normal circumstances, adolescence can already be a tumultuous phase, with challenges such as peer pressure, anxiety about academic performance, body image issues, and the need for increased independence. When these developmental challenges intersect with the harsh realities of prolonged drought such as food insecurity, displacement, and financial instability, the mental health and general well-being of students are severely compromised.

Research indicates that students in drought-stricken areas frequently endure heightened levels of stress, anxiety, and emotional distress. These psychosocial challenges are often tied to disruptions in their home environments and communities due to the loss of livelihoods and reduced access to essential resources (Tofu et al., 2023). The instability brought on by drought conditions can lead to school absenteeism, poor academic performance, and reduced motivation or aspirations for the future. Adolescents may struggle with concentration and engagement in school due to hunger, emotional strain, or the need to contribute to household survival strategies.

While a substantial body of literature exists on the economic and environmental ramifications of drought, there is a notable gap in research focusing on its psychosocial effects on students from pastoralist backgrounds. This lack of comprehensive understanding limits the development of effective interventions and policies aimed at supporting students' mental health and educational resilience.

Climate change continues to exacerbate drought conditions, significantly affecting pastoralist communities in Kenya. In regions like Kajiado County, where communities are heavily dependent on livestock for food and income, the impacts of drought are both far-reaching and multidimensional. Adolescents, particularly those enrolled in secondary schools, find themselves at the intersection of these environmental and socio-economic pressures. Understanding the mental health effects of drought on this demographic is essential for building resilience and delivering appropriate psychosocial support.

Globally, Arid and Semi-Arid Lands (ASALs) account for more than 40 percent of the Earth's surface and support the livelihoods of over one billion people (Brooks & Trottier, 2012). According to the World Health Organization (WHO), approximately 1.1 billion people worldwide lack access to safe drinking water (WHO, 2010). The United Nations further estimates that by 2025, 1.9 billion people will live in countries or regions experiencing absolute water scarcity, and two-thirds of the global population could face water stress conditions (UN, 2009).

In 2017, the American Psychological Association, in collaboration with Climate for Health and Eco America, released a report emphasizing that climate change significantly affects mental health (Clayton et al., 2017). The potential repercussions are far-reaching and may include

anxiety, distress, depression, violence, feelings of helplessness, and intense sadness over loss (Clayton et al., 2017; Fritze, Blashki, Burke, & Wiseman, 2008). A study conducted in Ethiopia among drought-affected areas of Africa explored the connections between emotion, wellbeing, and water security among pastoralists in Afar, Ethiopia. The study employed focus groups and interviews and revealed a strong link between environmental conditions and psychological wellbeing, showing that current water insecurity causes significant anxiety and exhaustion, particularly during the dry season. Given the challenges of applying standard mental health classifications and diagnostic tools across cultures, the study recommends that an inductive, emotion-focused approach may offer valuable insights into environmentally driven wellbeing outcomes for marginalized populations, especially in the context of climate change impacts (Cooper et al., 2019).

According to a UNICEF report from Angola in 2019, drought has resulted in school dropouts among Angolan children due to the need to feed cattle, protect their families, and study simultaneously. This situation has left children suffering from mental disorders like stress and depression, as well as educational failure, ultimately affecting their psychosocial wellness. The report notes that as a coping mechanism, some children have turned to drug use to manage mental distress, further compromising their psychosocial wellbeing (UNICEF Angola, October 2019/Carlos Louzada).

A study conducted in Samburu, a drought-affected region in Kenya, involved 161 children. The findings showed that young Samburu reported challenges such as drought, lack of food and water, encounters with wild animals, and exposure to conflict. Although boys reported more stressful events, girls showed more signs of post-traumatic stress. Both girls and children living in hotter areas exhibited higher levels of immune system problems, which affected their mental and emotional wellbeing. These challenges also impacted their ability to focus and learn in school. The study highlights the need to better understand how children cope in such difficult conditions (Straight et al., 2025).

Research indicates that climate change impacts mental wellbeing in three ways (Hayes et al., 2018). First, extreme weather events caused by climate change can directly affect the mental health of those in impacted areas, leading to trauma. Second, indirect effects stem from changes in social, economic, and environmental conditions that affect mental wellbeing, such as the stress of losing income stability. Third, individuals may experience negative emotions like distress simply from awareness of climate change dangers, even without personal exposure to related events (Fritze et al., 2008; Hayes et al., 2018).

Pastoralist communities in Kenya increasingly face challenges due to climate change, which places additional stress on their livelihoods and significantly affects mental health, particularly among women, children, and adolescents. These communities mainly rely on livestock for food security and economic support (Wangila, 2023). Climate change has become a critical global concern with extensive repercussions for various aspects of human existence, including economic stability and mental wellbeing. Pastoralist communities are particularly vulnerable as their traditional ways of life are deeply connected to the environment.

The effects of climate change on livelihoods significantly impact on the mental health of pastoralist children, both directly and indirectly. The reduction of livestock and income, along with uncertainty about the future, worsens mental health issues. Decreasing resource availability leads to higher stress and anxiety levels (Pearce et al., 2015; Tadesse, 2022). Increased child labour due to resource shortages causes both physical and emotional fatigue. Moreover, the socio-cultural environment in pastoralist communities can limit young people's ability to make choices and access education, further increasing their vulnerability to psychological effects of climate change. While the physical consequences of climate change

on these communities are widely recognized, there is growing awareness of the need to address mental health effects, especially among secondary school students.

STATEMENT OF THE PROBLEM

Drought has emerged as a critical environmental stressor affecting the psychosocial well-being of secondary school students in pastoralist communities, particularly in Kajiado County, Kenya. In these communities where livelihoods heavily depend on livestock and subsistence agriculture, recurrent droughts have led to widespread food and water scarcity, economic instability, and displacement. These conditions expose adolescents to heightened levels of anxiety, depression, and emotional distress. Moreover, students often assume increased domestic responsibilities such as herding or fetching water during drought periods, which reduces their academic focus and participation. The socioeconomic vulnerabilities prevalent in pastoralist societies further compound these psychological effects, as lower income levels are strongly correlated with mental health challenges among youth. Despite the evident impact of drought on student well-being and academic outcomes, limited research has been conducted to systematically examine these effects in the Kenyan context. This gap underscores the urgent need for targeted psychosocial interventions and policy responses tailored to the unique needs of students in drought-affected pastoralist regions; hence this study was needed to enhance knowledge on the subject matter.

RESEARCH OBJECTIVE

To investigate the psychosocial effects of drought among secondary school students from pastoralist communities in selected public secondary schools in Kajiado West sub-county, Kajiado County, Kenya.

RESEARCH QUESTION

What are the psychosocial effects of drought among secondary school students from pastoralist communities in selected public secondary schools in Kajiado West sub-county, Kajiado County, Kenya?

THEORETICAL FRAMEWORK

This study is grounded in two complementary theoretical frameworks the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) and Bronfenbrenner's Ecological Systems Theory whose combined explanatory power provides a robust lens for examining the psychosocial effects of drought among secondary school students from pastoralist communities in Kajiado West Sub-County.

The Transactional Model of Stress and Coping offers a foundational framework for understanding how individual students perceive and respond to drought-related stressors. Central to this model is the premise that stress is not an objective property of the environment but a product of the dynamic transaction between a person and their context, mediated by cognitive appraisal. When drought conditions intensify in pastoralist regions, students do not experience stress uniformly; rather, their psychological responses are shaped by how they interpret the threat and evaluate their capacity to manage it. Primary appraisal the initial cognitive evaluation of whether a stressor poses a threat is particularly salient in this context, as students from herding households are likely to perceive the loss of livestock, water scarcity, and diminished food security as direct threats to their livelihoods, educational continuity, and future prospects (Opiyo et al., 2015; Ranjan et al., 2018). Secondary appraisal then follows, in which students assess what resources, social supports, and strategies are available to them for managing the stressor. Where these resources are perceived as inadequate a common reality in marginalized pastoralist settings students are at heightened risk of adopting maladaptive coping

responses, including social withdrawal, substance use, and disengagement from schooling (Muhammad et al., 2019).

The model further distinguishes between problem-focused and emotion-focused coping strategies, a distinction that is analytically productive for the present study. Problem-focused coping, which involves proactive efforts to address the source of stress such as seeking NGO support, engaging in drought-resilient livelihood activities, or participating in community adaptation initiatives tends to be associated with better psychological outcomes. Emotion-focused coping, by contrast, aims to regulate the emotional distress generated by the stressor rather than resolving the stressor itself, and may include seeking social support, engaging in extracurricular activities, or drawing on spiritual and cultural resources that are characteristic of pastoralist communities (Lazarus & Folkman, 1984; Opiyo et al., 2015). Critically, when students perceive drought as beyond their personal control, the model predicts a trajectory toward learned helplessness, with cascading consequences for mental health, academic motivation, and social functioning (Muhammad et al., 2019). The transactional model thus provides this study with a theoretically precise vocabulary for investigating the subjective dimensions of drought stress how students appraise their circumstances, what coping repertoires they deploy, and how those processes mediate psychological wellbeing.

Nonetheless, the model's individual-level focus warrants acknowledgement as a limitation in this context. It does not adequately account for the structural and systemic barriers including poverty, displacement, inadequate healthcare infrastructure, and limited access to mental health services that constrain the coping options available to students in drought-affected pastoralist communities (Hart et al., 2011; Carnie et al., 2011). To address this gap, the study integrates the Transactional Model with Bronfenbrenner's Ecological Systems Theory, which situates individual development within a nested hierarchy of environmental systems, each exerting distinct and interacting influences on psychosocial outcomes.

At the microsystem level encompassing the immediate environments of family, school, and peer networks drought exerts its most direct psychosocial pressures on students. The economic deterioration of pastoralist households during drought disrupts family structures, increases parental stress, and reduces the emotional and material support available to young people, with measurable consequences for academic engagement, mental health, and behavioural stability (Vins et al., 2015; Nordstrom & Cotton, 2020). The mesosystem, which captures the relationships between these immediate contexts, further illuminates how drought-induced household hardship can erode school-family linkages: as economic pressure mounts, parental involvement in education declines, absenteeism increases, and the school's capacity to function as a protective environment is compromised (Nordstrom & Cotton, 2020). Moving outward, the ecosystem draws attention to the role of community-level structures including local government services, non-governmental organisations, and community mental health programmes whose presence or absence significantly shapes students' resilience and capacity to cope with environmental stressors (Vins et al., 2015).

At the macrosystem level, broader cultural values and societal norms mediate how drought is experienced and responded to. In many pastoralist communities, cultural orientations that historically prioritise traditional livelihoods over formal educational attainment can amplify psychological distress during drought, as the perceived incompatibility between schooling and economic survival becomes more acute (Eze, 2018; Bryan et al., 2020). Finally, the chronosystem foregrounds the temporal dimension of drought's impact, recognising that repeated and prolonged exposure to drought does not produce static outcomes but generates cumulative psychosocial stress that evolves over time and demands longitudinal, adaptive

responses from educational and mental health systems (Nordstrom & Cotton, 2020; Vins et al., 2015).

Together, these two frameworks offer a theoretically integrated and contextually sensitive foundation for this study. The Transactional Model of Stress and Coping illuminates the psychological mechanisms through which individual students appraise and respond to drought, while Ecological Systems Theory situates those responses within the layered social, cultural, and institutional environments that shape what coping is possible, for whom, and under what conditions. Their complementarity is particularly well suited to the study of pastoralist students in Kajiado West Sub-County, where the psychosocial effects of drought cannot be fully understood without attending simultaneously to the inner life of the individual student and the structural realities of the community they inhabit.

EMPIRICAL REVIEW

Over the past decade, researchers have increasingly documented the psychological toll that environmental shocks impose on vulnerable populations. In a comprehensive systematic review of 32 peer-reviewed articles published between 2010 and 2022, Varshney and colleagues (2023) synthesized findings from both cross-sectional surveys (total $n \approx 2,400$) and qualitative interviews (≈ 120 participants) to reveal that roughly 42% of adults exposed to drought experienced moderate-to-severe psychological distress. Using standardized instruments such as the Kessler Psychological Distress Scale (K10) and the Depression Anxiety Stress Scales (DASS-21), they found that one-third of respondents met criteria for clinically significant anxiety and a similar proportion for depression. Notably, younger adults under age 25 reported slightly higher distress levels than older cohorts, suggesting that adolescence may be a period of vulnerability to climate-related stressors. Several quantitative studies have directly linked drought-induced livelihood shocks to interruptions in pastoralist youths' education. In Ethiopia's Borana Zone, Tofu et al. (2023) surveyed 300 pastoralist households and verified self-reported livestock losses against local market records. Their logistic regression analysis revealed that households losing more than 30% of their herd were 2.5 times more likely to withdraw their secondary-school-age children from school.

Similarly, Ekeno and colleagues (2024) used a case-control design in Kenya's Turkana East Sub-County to compare 120 families who had withdrawn children during drought with 120 matched controls. They found that families experiencing over 40% herd loss faced more than threefold greater odds of school withdrawal, with qualitative interviews underscoring food insecurity fears as a primary driver. Beyond enrolment figures, the psychosocial consequences of prolonged drought have been measured through changes in anxiety and self-esteem among pastoralist children. Straight et al. (2022) followed a cohort of 200 Samburu youth (ages 12–16) in northern Kenya through a year-long drought, administering the Revised Children's Manifest Anxiety Scale and the Rosenberg Self-Esteem Scale before and after the dry season. They observed a significant average increase of 5.2 points on the anxiety scale and a concomitant 4.3-point decline in self-esteem, with household income diaries indicating that financial strain mediated these psychological shifts. In southeastern Ethiopia, Habte et al. (2022) combined Kessler-10 distress scores with academic records from 250 secondary students, finding that those reporting severe drought exposure scored 4.7 points higher on distress and earned term GPAs 0.35 points lower on a 4.0 scale than less-exposed peers.

The interplay between broader socio-economic factors and family dynamics further shapes adolescent well-being. Codjoe and Atiglo's (2020) systematic review of West African drought studies highlighted how poor school quality and lack of on-site mental-health support exacerbate stress among rural students, though few studies disaggregated by age. Singh et al. (2021) surveyed 300 Indian adolescents using the Child Behaviour Checklist and Parental

Bonding Instrument, revealing a robust inverse correlation between supportive parenting and depressive symptoms; however, they also showed that agricultural income losses weakened this protective effect. Using structural equation modelling on data from 400 rural Chinese adolescents, Zhang et al. (2024) linked higher family cohesion and adaptability to lower depressive symptoms (path coefficient -0.35), with drought-related income loss moderating the strength of this relationship.

Amid these challenges, several studies have explored resilience and coping mechanisms within pastoralist communities. Theron et al. (2020) employed a mixed-methods, social-ecological framework with 150 South African youth in semi-arid regions, using the Child and Youth Resilience Measure alongside community-network mapping. They found that strong peer and extended-family ties predicted significantly higher resilience scores, even under repeated drought conditions. In Mali, Baldassarre et al. (2023) surveyed 180 pastoralist households and showed that exclusive reliance on communal boreholes was associated with 25% higher psychological distress compared to those with diversified water sources. In Uganda, Asimwe et al. (2020) used a quasi-experimental design to compare ten communities adopting camel-rearing diversification against ten controls, documenting a 30% reduction in mean stress scores twelve months' post-intervention, along with qualitative reports of improved outlook.

Only a handful of studies have evaluated interventions tailored specifically to pastoralist adolescents. Kinyua and Mumo (2022) piloted a randomized controlled trial in northern Kenya, assigning 80 secondary students to eight weekly group-based resilience sessions versus a waitlist control. Compared to controls, the intervention group exhibited significantly greater reductions in PTSD symptoms (mean change 6.8 vs. 1.2) and improvements in coping self-efficacy. In Northern Nigeria, Nkwata et al. (2021) conducted a cross-sectional mixed-methods study with 200 pastoralist adolescents, finding that 60% reported moderate-to-high anxiety; focus-group discussions highlighted social isolation and fear of livestock loss as primary stressors, and community mentoring emerged as a grassroots coping strategy.

METHODOLOGY

This study employed a descriptive survey research design, which provided a systematic framework for investigating the psychosocial effects of drought among secondary school students from pastoralist communities in Kajiado West Sub-County, Kajiado County, Kenya. This design was particularly suited to the study's objective because it enabled the simultaneous collection of both quantitative and qualitative data from a broad population, yielding a more complete and contextually grounded understanding of how drought shapes students' emotional, psychological, and social well-being without manipulating the variables under examination (Creswell, 2014; Mugenda & Mugenda, 2003).

The study population comprised students enrolled in public secondary schools within Kajiado West Sub-County. From the 25 public secondary schools in the sub-county, two mixed secondary schools Inkiito Mixed Secondary School and Kibiko Mixed Secondary School were selected, together enrolling a total of 650 students. The target population was narrowed to 500 students confirmed by school registrars as originating from pastoralist communities, comprising 300 boys and 200 girls across the two institutions. Using Yamane's formula at a 0.05 margin of error, a working sample of 223 participants was determined and allocated proportionately: 71 from Inkiito and 152 from Kibiko. Participants were selected through purposive sampling, a non-probability technique chosen to ensure that all respondents possessed direct, lived experience of drought in a pastoralist context (Campbell et al., 2020). Eligibility criteria required that participants be enrolled in Form 2 or Form 3, have attended their respective schools for a minimum of six months, and originate from Kajiado County's

pastoralist communities. Students from non-pastoralist backgrounds or outside the county were excluded, as their drought experiences would differ materially from those of the target group (Sulkowski & Simmons, 2017).

Data were collected using two complementary instruments: structured self-report questionnaires administered to students and semi-structured interviews conducted with school principals. The student questionnaires incorporated three validated psychometric tools the Depression Anxiety Stress Scale (DASS-21), the Brief COPE inventory, and Ryff's Psychological Well-Being Scale to capture levels of anxiety, depression, stress, coping mechanisms, and overall psychological well-being (Fawaz & Samaha, 2020; Liu et al., 2019). This triangulation of instruments enabled the study to generate quantitative data on the severity and distribution of psychosocial distress while simultaneously capturing the qualitative dimensions of students lived experience through principal interviews. Before full deployment, the research instruments were pretested with 23 students from Ildamat Secondary School; feedback informed revisions to improve clarity, relevance, and comprehensibility, thereby strengthening the instruments' validity and transparency (Pearce et al., 2020).

The validity of the instruments was addressed at multiple levels. Content validity ensured comprehensive coverage of the relevant psychosocial dimensions, while construct validity was supported by cross-validation with established scales. Criterion-related validity was inferred from the documented relationship between elevated anxiety scores and reduced academic performance in comparable populations (Gawrych, 2024; Cáceres et al., 2022). Reliability was established through Cronbach's alpha for internal consistency, test-retest procedures to assess stability of responses over time, and inter-rater reliability checks applied to qualitative coding (Corvalán et al., 2022; Kaur et al., 2022).

Prior to data collection, the researcher obtained all requisite ethical clearances, including approvals from Daystar University's Institutional Scientific Ethics Review Committee (DU-ISERC), the National Commission for Science, Technology and Innovation (NACOSTI), and the Sub-County Education Office. Informed consent was obtained from participants aged 18 and above, while parental consent and student assent were secured for those under 18. Participation was entirely voluntary, and participants were assured of anonymity using numerical identifiers rather than names. Given the sensitivity of the subject matter and the involvement of a potentially vulnerable adolescent population, trained mental health professionals were available during data collection to provide support should any participant experience distress (Müller et al., 2014).

Data management followed a mixed-methods analysis plan. Quantitative data were entered into SPSS for descriptive statistical analysis including means, standard deviations, and frequencies as well as inferential analysis using Pearson and Spearman correlation coefficients to examine relationships between psychosocial variables and academic outcomes. Qualitative data from principal interviews were transcribed and analysed in NVivo using thematic analysis, through which initial codes were developed, refined, and organised into broader themes reflecting shared patterns of experience and perception among participants (Hsue & Visser, 2020). All data were stored in password-protected electronic systems, with physical copies secured in locked storage, and all personal identifiers removed to ensure confidentiality and compliance with ethical research standards throughout.

RESULTS AND DISCUSSION

A total of 223 questionnaires were administered, out of which 218 were filled out and returned for analysis. The other 5 questionnaires were not returned for analysis. This yielded a 97.8% response rate, which was deemed exceptional for data analysis. A 50% response rate is regarded as fair, a 60% response rate is good, and anything beyond 60% is exceptional for analysis and interpretation, according to Mugenda and Mugenda (1999). Table 4 gives a summary of the questionnaire response rate.

Table 1: Response Rate

Responses	Number	Percentages
Administered Questionnaires	223	100
Returned Questionnaire	218	97.75
Questionnaire Return Rate	218	97.75
Attrition rate	5	2.25

Table 1 presents the questionnaire response rate for the study. Out of 223 questionnaires administered, 218 were completed and returned, representing a high return rate of 97.75%. The response rate obtained was impressive and strengthened the study's validity by reducing the risk of non-response bias and enhancing the reliability of generalizations. The study experienced an attrition of 5(2.25%) due to the questionnaires that were not returned for analysis.

Socio-Demographic Characteristics of the Respondents

The study was an assessment Psychosocial effects of drought on the well-being of secondary school students from pastoralist communities: a case of selected public secondary schools in Kajiado West Sub-County, Kajiado County, Kenya. It was useful to understand participants' socio demographic characteristics as they possibly would influence the study results obtained. The socio demographics characteristics that were sought were age, gender, school form, religion, whom the respondent was living with, family type, and primary family livelihood. It was also important to understand drought related impacts that they experienced such as livestock loss, food/water access, displacement, income reduction, disrupted schooling, increased responsibilities, and perceived severity on well-being, along with missed school days and academic performance. Tables 2 (a) and (b) summarizes the results obtained on the participants' socio-demographic characteristics.

Table 2a: Participants' Socio Demographic Characteristics

	Category	Frequency	Percentage
Age	14-16	52	23.8
	17-19	148	67.9
	20-22	14	6.4
	23-25	0	0
	Above 25	4	2
Gender	Male	156	71.6
	Female	62	28.4
Form	Form 2	61	28.0
	Form 3	78	35.8
	Form 4	79	36.2
Religion	Christian	213	97.7
	Traditional African Religion	3	1.4
	Other	2	.9
Living with parent/guardian	Yes	212	97.2
	No	6	2.8
	Both parents alive and living together	191	87.6
Family type	Both parents are alive but not living together	6	2.8
	Single parent Orphan (one parent deceased)	13	6.0
	Orphan (one parent deceased)	3	1.4
	Orphan (both parents deceased)	3	1.4
	Guardian/Other	2	.9
Source of livelihood	Pastoralism	173	79.4
	Crop farming	8	3.7
	Business	17	7.8
	Formal employment	5	2.3
	More than one source	15	6.9

Table 2a presented the socio-demographic distribution of study participants. The age analysis showed that 148(67.9%) respondents were aged 17-19 years, followed by 52(23.8%) aged 14-16 years. Only 14(6.4%) participants fell into the 20-22 age category, while 4(2.0%) were above 25 years. The complete absence of respondents aged 23-25 suggested the study successfully targeted the intended adolescent school population. Gender distribution revealed a notable imbalance, with 156(71.6%) male participants compared to 62(28.4%) females. This disparity may have reflected either actual school enrolment patterns or gender differences in study participation rates. The sample included 61(28.0%) Form 2 students, 78(35.8%) Form 3 students, and 79(36.2%) Form 4 students, ensuring representation across secondary school levels.

Religious affiliation data showed that 213(97.7%) participants identified as Christian, compared to 3(1.4%) who practiced Traditional African Religion and 2(0.9%) from other faiths. Regarding living arrangements, 212(97.2%) respondents lived with parents or guardians, while only 6(2.8%) did not, potentially indicating greater vulnerability among this small subgroup. Family structure analysis demonstrated that 191(87.6%) participants came from intact two-parent households. Other configurations included 6(2.8%) from separated-parent homes, 13(6.0%) from single-parent households, and 6(2.8%) who were orphans (3(1.4%) with one deceased parent and 3(1.4%) with both parents deceased). Livelihood data indicated that 173(79.4%) families relied on pastoralism, followed by 17(7.8%) engaged in

business, 15(6.9%) with multiple income sources, 8(3.7%) in crop farming, and 5(2.3%) in formal employment.

The demographic profile revealed a study population predominantly composed of adolescent males from pastoralist families. The overwhelming reliance on pastoralism 173(79.4%) suggested exceptional vulnerability to drought impacts on livestock and household economies. The gender imbalance 156(71.6%) males vs 62(28.4%) females may have reflected both cultural norms in pastoralist communities and potential gender biases in educational access. The near-universal pattern of living with parents or guardians (212(97.2%)) highlighted the critical role of family support structures, suggesting that drought-induced family disruptions would likely have immediate consequences for adolescent well-being and educational continuity. These characteristics provided crucial context for interpreting the drought impact findings that followed.

Table 2b: Participants' Socio Demographic Characteristics

		Frequency	Percentage
Loss of livestock	Yes	192	88.1
	No	26	11.9
Reduced access to food or water	Yes	79	36.2
	No	139	63.8
Relocation or displacement from home	Yes	51	23.4
	No	167	76.6
Family income was reduced	Yes	90	41.3
	No	128	58.7
School attendance was disrupted	Yes	80	36.7
	No	138	63.3
Increased responsibilities at home	Yes	75	34.4
	No	143	65.6
Other	Yes	15	6.9
	No	203	93.1
Severity of the drought on life and well being	Not severe at all	38	17.4
	Slightly severe	40	18.3
	Moderately severe	25	11.5
	Very severe	45	20.6
	Extremely severe	70	32.1
	None	60	27.5
	1–3 days	25	11.5
No. of days absent	4–7 days	32	14.7
	More than a week	87	39.9
	I dropped out temporarily	14	6.4
	Excellent	19	8.7
Overall academic performance	Good	60	27.5
	Average	89	40.8
	Below average	38	17.4
	Poor	12	5.5

Table 2b revealed comprehensive drought impacts across multiple dimensions of household wellbeing. Livestock losses emerged as the most widespread effect, affecting 192(88.1%) of households, while only 26(11.9%) reported no losses, highlighting the extreme vulnerability of

pastoralist livelihoods to climate shocks. Food and water access disruptions were reported by 79(36.2%) of respondents, though a majority 139(63.8%) maintained stable supplies, suggesting some resilience in basic needs provision despite drought conditions.

The economic consequences were severe, with 90(41.3%) of households experiencing reduced income, potentially exacerbating food insecurity and limiting access to essential services. Displacement affected 51(23.4%) of families, representing a significant disruption to household stability and community structures. Educational impacts were particularly concerning, with 80(36.7%) students experiencing school attendance disruptions and 14(6.4%) temporarily dropping out, likely compromising their academic progress and future opportunities.

The burden of drought extended to household dynamics, with 75(34.4%) respondents reporting increased domestic responsibilities, potentially diverting time and energy from educational pursuits. When assessing the perceived severity of impacts, the data revealed a polarized distribution: while 38(17.4%) reported no severe effects and 40(18.3%) described slightly severe impacts, a concerning 115(52.7%) characterized the drought's consequences as very severe with 45(20.6%) and extremely severe with 70(32.1%), indicating profound disruptions to daily life and wellbeing.

School absenteeism patterns further illustrated the drought's educational consequences, with 60(27.5%) maintaining perfect attendance, but 144(66.1%) missing some school (25(11.5%) absent 1-3 days, 32(14.7%) absent 4-7 days, and 87(39.9%) missing more than a week). These disruptions corresponded with academic performance outcomes, where while 108(49.5%) reported excellent 19(8.7%) or good (89(40.8%) performance, 50(22.9%) were below average with 38(17.4%) and poor with 12(5.5%), suggesting potential linkages between drought-induced disruptions and educational outcomes.

Cumulative evidence paints a picture of a pastoralist community facing multidimensional challenges from drought, with particularly severe impacts on economic stability, educational continuity, and overall wellbeing. The interconnected nature of these effects - where livestock losses potentially lead to income reduction, which may force school absences and increased domestic duties, ultimately affecting academic performance - underscores the need for holistic intervention strategies that address both immediate needs and longer-term resilience building in vulnerable pastoralist communities.

Table 3: Correlation analysis of socio-demographic characteristics and impact of drought

		Loss livestock	Reduced of access to food or water	Displacement from home	Family income reduced	School was attendance disruption	Increased responsibilities at home	Impact drought on daily life and well-being	Days absent from school	Academic performance
Loss of livestock	r	1	.277**	.103	.079	.016	.118	-.162*	-.119	-.252**
	p		.000	.129	.248	.815	.083	.017	.080	.000
Reduced access to food or water	r	.277**	1	.530**	.647**	.555**	.519**	-.215**	-.118	-.087
	p	.000		.000	.000	.000	.000	.001	.081	.202
Displacement from home	r	.103	.530**	1	.505**	.501**	.535**	-.193**	-.080	-.026
	p	.129	.000		.000	.000	.000	.004	.241	.699
Family income was reduced	r	.079	.647**	.505**	1	.541**	.530**	-.263**	-.181**	-.055
	p	.248	.000	.000		.000	.000	.000	.008	.420
School attendance disruption	r	.016	.555**	.501**	.541**	1	.550**	-.244**	-.273**	-.078
	p	.815	.000	.000	.000		.000	.000	.000	.248
Increased responsibilities at home	r	.118	.519**	.535**	.530**	.550**	1	-.284**	-.087	.035
	p	.083	.000	.000	.000	.000		.000	.199	.607
Impact drought on daily life and well-being	r	-.162*	-.215**	-.193**	-.263**	-.244**	-.284**	1	.301**	.157*
	p	.017	.001	.004	.000	.000	.000		.000	.020
Days absent from school	r	-.119	-.118	-.080	-.181**	-.273**	-.087	.301**	1	.295**
	p	.080	.081	.241	.008	.000	.199	.000		.000
Academic performance	r	-.252**	-.087	-.026	-.055	-.078	.035	.157*	.295**	1
	p	.000	.202	.699	.420	.248	.607	.020	.000	
Respondent's gender	r	-.044	.073	.012	.074	.121	-.014	-.078	-.310**	-.151*
	p	.521	.281	.859	.275	.074	.833	.249	.000	.026

Table 3 presents a bivariate correlation analysis. The results revealed significant relationships between drought impacts and student outcomes. The findings demonstrate how interconnected hardships create cumulative effects on pastoralist communities. Reduced access to food/water showed particularly strong associations, correlating positively with displacement ($r=.530, p<.001$), income reduction ($r=.647, p<.001$), school disruptions ($r=.555, p<.001$), and increased household responsibilities ($r=.519, p<.001$). These results suggest that food insecurity acts as a key stressor that exacerbates other socioeconomic challenges.

Several droughts impact negatively affected perceived well-being. Loss of livestock ($r=-.162, p=.017$), food/water scarcity ($r=-.215, p<.001$), displacement ($r=-.193, p<.001$), income loss ($r=-.263, p<.001$), school disruptions ($r=-.244, p<.001$), and household duties ($r=-.284, p<.001$) all correlated with poorer self-reported well-being. These findings empirically demonstrate that drought extends beyond economic hardship to significantly impair psychosocial functioning. Interestingly, while these material hardships predicted worse well-being, the perceived impact of drought showed positive associations with both absenteeism ($r=.301, p<.001$) and academic performance ($r=.157, p=.020$). This paradoxical pattern may indicate that students facing severe drought impacts develop coping strategies that maintain school engagement despite challenges.

Academic outcomes were particularly affected by livestock loss ($r=-.252, p<.001$) and attendance disruptions ($r=-.273, p<.001$), highlighting how economic and logistical barriers directly impede educational achievement. Gender differences emerged, with female students showing fewer absences ($r=-.310, p<.001$) but lower performance ($r=-.151, p=.026$), suggesting gendered coping patterns where girls maintain attendance despite competing domestic responsibilities.

These results painted a comprehensive picture of drought's multidimensional impacts. The strong intercorrelations among material hardships revealed a multiplier effect where one challenge intensifies others, creating compounded stress on families. The negative well-being associations align with theories of chronic stress accumulation, where sustained adversity erodes mental health resources. The counterintuitive positive correlation between well-being impact and academic performance may reflect adaptive resilience - students who acknowledge drought's severity may develop more active coping mechanisms.

The results could be interpreted to mean that drought created a cascading crisis where interconnected material hardships amplified psychosocial and educational vulnerabilities. Three critical interventions emerged from this understanding: First, integrated programs needed to simultaneously address tangible requirements like food security while providing mental health support. Second, education systems require adaptive policies potentially including flexible attendance tracking or mobile classrooms to maintain access during disruptions. Third, the findings particularly highlighted how gender norms shaped drought impacts, necessitating targeted support for female students who balanced domestic duties and schooling.

While the correlational data limited causal claims and cultural factors may have obscured some psychological effects, these patterns clearly demonstrated that drought's reach extended well beyond agriculture. Future longitudinal and qualitative studies would better unpack these complex relationships, but the present evidence already demanded urgent, multidimensional policy responses to protect both livelihoods and human development in vulnerable communities.

The Psychosocial Effects of Drought

The study sought to investigate the psychosocial effects of drought among secondary school students from pastoralist communities in selected public schools in Kajiado West sub-county, Kenya. This objective tested the null hypothesis that there were no psychosocial effects of drought on this student population. The results, presented in Table 4, show the distribution of student scores on DASS-21, providing evidence to accept or reject this hypothesis.

Table 4: Psychosocial Effects of Drought among Secondary School Students

		Frequency	Percentage
Depression	Normal (0-9)	103	47.2
	Mild (10-13)	71	32.6
	Moderate (14-20)	42	19.3
	Severe (21-27)	2	.9
Anxiety	Normal (0-7)	74	33.9
	Mild (8-9)	25	11.5
	Moderate (10-14)	86	39.4
	Severe (15-19)	23	10.6
Stress	Extremely severe (20+)	10	4.6
	Normal (0-14)	186	85.3
	Mild (15-18)	21	9.6
	Moderate (19-25)	11	5.0

Table 4 presents the distribution of student scores on DASS-21, categorized by severity levels for depression, anxiety, and stress. The findings reveal a complex picture of the psychosocial effects of drought on students from pastoralist communities, with a clear distinction between psychological states. For depression, the results indicated that nearly half of the students, 103(47.2%), fell within the 'Normal' range. However, a significant number showed elevated levels, with 71(32.6%) in the 'Mild' range, 42(19.3%) in the 'Moderate' range, and 2(0.9%) reporting 'Severe' depression. Similarly, the majority of students, 186(85.3%), were in the 'Normal' range for stress, suggesting a degree of resilience in managing a key psychological state.

In contrast, the results for anxiety were a clear and concerning finding. The largest group, 86(39.4%), reported 'Moderate' anxiety, while a further 23(10.6%) experienced 'Severe' anxiety and 10(4.6%) were in the 'Extremely Severe' category. This high prevalence of elevated anxiety, totaling 54.6% of the sample, suggests that while students may not be exhibiting widespread signs of clinical depression or stress, they are grappling with significant worry, apprehension, and heightened psychological arousal.

These results highlight the hidden burden of drought. The high anxiety scores serve as a crucial indicator that, even if they are not clinically stressed or depressed, the psychological effects of living in an unpredictable and precarious environment are real and require attention. The data suggests that anxiety is a direct result of the constant worry about their families' well-being, the loss of livestock, and the uncertainty of their future. This underscores the need for targeted mental health interventions that specifically address and provide tools for coping with ongoing anxiety.

The mean and standard deviations of the psychological effects were done to compare the levels of each. The results obtained were presented in table 8.

Table 5: Mean and Standard of Psychosocial Effects of Drought

	N	Minimum	Maximum	Mean	Std. Deviation
Depression total	218	0	21	10.07	5.236
Anxiety total	218	0	21	9.71	5.235
Stress total	218	0	21	9.83	5.191
Valid N (listwise)	218				

Table 5 presents the mean and standard deviation of depression, anxiety, and stress scores, providing a more detailed look at the psychosocial effects of drought. The results showed a differential impact on the three psychological states, which is a crucial finding for understanding the problem. A comparison of the mean scores to standard DASS-21 thresholds revealed a distinct pattern. The average depression score of 10.07 fell into the 'Mild' range (10-13), and the average stress score of 9.83 was squarely in the 'Normal' range (0-14). In contrast, the average anxiety score of 9.71 fell into the 'Moderate' range (10-14).

This pattern is a particularly important finding as it pinpoints a specific psychological vulnerability within the student population. The data suggests that while these students are not, on average, experiencing clinical levels of stress or depression, they are grappling with significant anxiety. This anxiety likely stems from the unpredictable nature of drought and the constant worry about its consequences for their families and future. This insight reinforces the conclusion that future interventions should be specifically designed to address and manage anxiety rather than providing general counselling for stress and depression. The data confirmed the hypothesis that while all psychological states might be affected, some are more prominent and require a targeted approach.

DISCUSSION

Findings from the DASS-21 scale revealed distinct psychological patterns. For depression, 103(47.2%) participants reported normal levels, 71(32.6%) mild, 42(19.3%) moderate, and 2(0.9%) severe. For anxiety, 74(33.9%) participants reported normal levels, 25(11.5%) mild, 86(39.4%) moderate, 23(10.6%) severe, and 10(4.6%) extremely severe. For stress, 186(85.3%) participants were normal, 21(9.6%) mild, and 11(5.0%) moderate. Mean scores reflected these patterns: depression $M=10.07$, $SD=5.24$ (mild range); anxiety $M=9.71$, $SD=5.24$ (moderate range); and stress $M=9.83$, $SD=5.19$ (normal range). The results of this study concur with earlier research that has demonstrated the profound psychosocial burden of drought on vulnerable populations. Dai (2010) observed that drought frequency and severity are projected to rise globally, with direct consequences for human well-being. Similarly, Berry et al. (2010) and Hossain et al. (2008) found that drought negatively affects mental health, often manifesting as heightened psychological distress.

In pastoralist contexts, the adverse effects of drought extend beyond economic losses. Abdela (2024) noted that recurrent droughts in East Africa have triggered crop failures and increased school dropout rates, directly linking environmental stressors to disrupted educational trajectories. Ahmed et al. (2023) also reported that adaptation strategies, such as livelihood diversification, are

often insufficient to buffer children from the psychosocial consequences of climate shocks, leaving them highly vulnerable.

This finding is consistent with Hart et al. (2011), who showed that drought-induced economic pressures weaken social ties and community cohesion, exacerbating youth vulnerability. In line with Inman et al. (2020), the current results suggest that students often face isolation and reduced educational support during drought periods, undermining their capacity to remain engaged in learning. Similarly, Opiyo et al. (2015) and Edwards et al. (2014) linked drought to increased domestic responsibilities among children, leading to absenteeism, reduced academic performance, and long-term risks of educational disengagement.

The results also mirrored evidence from Cianconi et al. (2020) and Lyimo et al. (2024), who showed that heightened household stress during drought periods contributes to elevated anxiety among adolescents. In pastoralist communities, where livelihoods are deeply tied to livestock, forced migration further destabilizes education and disrupts peer relationships, leading to isolation and increased emotional distress. What stood out was that although depression and stress were not widespread, anxiety was disproportionately high. This suggests that in pastoralist communities, adolescents internalize the chronic uncertainty brought about by drought—particularly the fear of livestock loss, income decline, and forced migration. Anxiety therefore emerges as the key psychological burden, requiring targeted intervention.

Finally, the findings were in line with studies highlighting cultural disruptions. As traditional pastoralist practices become less viable under climate stress, students may experience disconnection from their cultural identity and community, intensifying feelings of loss and psychosocial instability (Opiyo et al., 2015). This study therefore confirms that the cumulative burden of family economic strain, disrupted schooling, weakened social ties, and cultural displacement significantly contributes to elevated anxiety levels, even when stress and depression remain comparatively lower.

CONCLUSION

The findings of the study demonstrated that drought has profound psychosocial consequences for adolescents in pastoralist communities. Results from the DASS-21 indicated that while levels of depression and stress were mostly normal to mild, anxiety was elevated, with over half of the students reporting moderate to extremely severe anxiety. This highlights anxiety as the most salient psychological burden, reflecting the chronic uncertainty and insecurity that drought introduces into students' lives.

RECOMMENDATIONS

The following were the recommendations of the study:

1. Integrate psychosocial support into school systems
2. Schools in drought-prone areas should establish counselling services and peer-support programs to help students manage elevated anxiety and stress. Training teachers in basic mental health first aid would enable early detection and intervention for at-risk students.
3. Strengthen educational continuity during drought

4. The Ministry of Education should implement flexible learning arrangements, such as mobile classrooms, alternative timetables, and community-based learning hubs, to reduce school disruptions linked to displacement, livestock loss, and domestic responsibilities.
5. Enhance structural support for environmental mastery
6. Government and NGOs should address resource instability by improving access to water, food programs, and financial assistance for pastoralist families. Strengthening these external supports will enhance students' sense of control and capacity to manage environmental demands.
7. Promote gender-sensitive coping interventions
8. Programs should recognize that female students rely more on emotion-focused and problem-focused coping, while males often remain moderate across strategies. Tailored interventions should empower girls to balance responsibilities while supporting boys to express emotions and seek help without stigma.
9. Leverage cultural and social strengths
10. Community-based resilience programs should reinforce cultural values of purpose, kinship, and collective identity, which were found to buffer students against psychological distress. Schools could integrate cultural mentorship and pastoralist heritage education as protective tools for well-being.
11. Policy integration of climate resilience and mental health
12. National and county governments should embed psychosocial considerations into climate adaptation frameworks. This would ensure that drought-response strategies address not only food and livelihood security but also the mental health of adolescents in pastoralist areas.
13. Future research on long-term and intergenerational impacts
14. Further longitudinal and qualitative studies should examine how repeated droughts shape adolescent development over time, and how these effects extend into adulthood. This evidence would inform sustainable policies for breaking the cycle of vulnerability in pastoralist communities.

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