

Regional disparities in school dropout: a comparative study of Karamoja and national trends

Dr. Arinaitwe Julius¹, Asimwe Isaac Kazaara², Nabaasa Desire³

1,2,3 Metropolitan International University

Abstract

School dropout remains one of the most persistent structural inequalities in Uganda's education system, and nowhere is this more acute than in the Karamoja sub-region. This study examined regional disparities in school dropout between Karamoja and national trends, drawing on a cross-sectional comparative design with a stratified random sample of 847 respondents, including students, teachers, parents, and local education officials, drawn from 32 schools across three Karamoja districts — Moroto, Kotido, and Napak — and a nationally representative comparison stratum of 18 districts across Uganda's four administrative regions. The study was anchored in the Social Exclusion Framework and Human Capital Theory. Descriptive analysis revealed that Karamoja's overall dropout rate stood at 57.6%, compared to 28.7% nationally, with the upper secondary level recording the starkest contrast at 72.4% versus 44.2%. Bivariate analysis using chi-square tests confirmed statistically significant associations between dropout and key determinants including poverty, gender, distance to school, cultural norms — particularly early marriage and cattle herding obligations — and teacher quality, all significant at $p < 0.001$. Structural Equation Modeling established that school absenteeism fully mediated the relationship between structural deprivation and dropout in Karamoja ($\beta = 0.53$, $p < 0.001$), with the Karamoja model explaining 67.4% of dropout variance compared to 53.1% nationally. Binary logistic regression further identified early marriage ($OR = 6.83$, $p < 0.001$), cattle herding obligations ($OR = 4.57$, $p < 0.001$), and poverty ($OR = 3.84$, $p < 0.001$) as the strongest predictors of dropout in Karamoja. The study concluded that Karamoja's dropout crisis is not merely a reflection of national trends but represents a structurally distinct and compounded educational emergency requiring targeted, context-sensitive policy intervention. It recommended the establishment of a Karamoja-specific educational emergency fund, integration of nomadic-responsive schooling models, and a district-level early warning system anchored in EMIS data.

Key Words: Regional Disparities and School Dropout

INTRODUCTION

Education is widely recognized as a foundational driver of social mobility, economic productivity, and national development, yet its transformative potential is systematically denied to millions of Ugandan children who exit the schooling system prematurely. School dropout — defined as the permanent cessation of formal schooling before the completion of the designated cycle — constitutes one of the most stubborn structural barriers to Uganda's attainment of the Sustainable Development Goal 4 on inclusive and equitable quality education. While Uganda has recorded notable improvements in primary school enrolment following the introduction of Universal Primary Education (UPE) in 1997 and Universal Secondary Education (USE) in 2007, these gains have not translated into commensurate retention rates, particularly in historically marginalized regions (Julius, 2025b, 2025a, 2025c; Ssegantebuka, 2019). The Karamoja sub-region in northeastern Uganda presents the most extreme manifestation of this crisis: with dropout rates persistently exceeding the national average by more than 25 percentage points across all educational levels,

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Karamoja represents a discrete educational emergency that demands disaggregated analysis rather than absorption into national averages (Janet & Julius, 2023; Julius, 2025d, 2025e; Julius & Godfrey, 2025a; Julius & Mategeko, 2025b). The region's agro-pastoral livelihoods, historical underdevelopment, recurrent food insecurity, deeply entrenched gender norms favouring early marriage and cattle herding for boys, and severe infrastructure deficits — including teacher shortages and long distances to school — create a compounded risk environment for school dropout that is not replicated in other regions at the same intensity (Julius & Geoffrey, 2025c; Julius & Milly, 2025a; Julius & Sula, 2025a, 2025c; Julius & Twinomujuni, 2025b). Yet despite the severity of the problem, there remains a paucity of systematic, quantitative comparative research that rigorously examines the determinants and structural pathways through which these contextual factors drive dropout specifically within Karamoja, relative to national patterns (Julius & Godfrey, 2025c; Julius & Mategeko, 2025a; Julius & Nalukwago, 2025; Julius & Sula, 2025e; Julius & Twinomujuni, 2025a). This study therefore addressed this gap by adopting a comparative cross-sectional design with structural equation modelling to map, quantify, and explain the magnitude and mechanisms of dropout disparities between Karamoja and Uganda's national average, thereby generating evidence that is both statistically rigorous and directly actionable for education policy.

BACKGROUND OF THE STUDY

Uganda's education system has undergone significant structural reforms since the late 1990s, yet the fruits of these reforms have been unevenly distributed across geographic and socioeconomic lines. According to the Uganda National Household Survey (UNHS 2019/2020), the national primary-to-secondary transition rate stood at approximately 67%, while the completion rate for lower secondary education hovered around 38%, revealing deep attrition along the educational pipeline. The Karamoja sub-region, comprising eight districts — Abim, Amudat, Kaabong, Karenga, Kotido, Moroto, Nakapiripirit, and Napak — has historically been characterised by socioeconomic marginalisation, inter-communal conflict, and limited state presence, all of which have profoundly constrained educational participation (Julius & Geoffrey, 2025b, 2025a; Julius & Godfrey, 2025b; Julius & Sula, 2025f). The 2020 Uganda Bureau of Statistics (UBOS) District-Level Education Report placed Karamoja among the three worst-performing regions on dropout, completion, and literacy indicators, with female learners disproportionately affected. Nationally, early marriage has been estimated to affect approximately 40% of girls before the age of 18, but in Karamoja the figure is reported to exceed 58% (UNFPA Uganda, 2021), rendering it one of the primary drivers of female school dropout. Similarly, the practice of cattle herding, which is a culturally sanctioned rite of passage and an economic livelihood strategy for pastoral communities, competes directly with school attendance for male learners, particularly during dry seasons and periods of cattle migration. The Ministry of Education and Sports (MoES) through its Education Management Information System (EMIS) has documented that Karamoja schools operate at a pupil-to-qualified-teacher ratio of approximately 68:1, compared to a national average of 43:1, suggesting systemic supply-side deficiencies that compound demand-side barriers (Julius & Geoffrey, 2025d; Julius & Mategeko, 2025c; Julius & Milly, 2025b; Julius & Sula, 2025b, 2025d). The World Bank's 2022 Uganda Human Capital Review further noted that children in Karamoja are expected to complete only 6.4 effective years of schooling compared to a national figure of 8.9 years, a disparity with profound long-term productivity implications. This body of contextual evidence

collectively underscores the need for a rigorous quantitative comparative analysis that moves beyond descriptive reporting to test structural pathways linking deprivation, cultural dynamics, institutional quality, and school dropout in Karamoja relative to national patterns.

PROBLEM STATEMENT

Despite the existence of national policies such as Universal Primary Education, Universal Secondary Education, and the School Health and Nutrition programme designed to improve school retention, Karamoja's dropout rates have remained persistently and substantially above national averages for over two decades (RAFIQUE & Ahmed, 2019; Thøgersen et al., 2020; Victor & Andrew, 2023). This persistent divergence suggests that national-level policy frameworks are either structurally ill-fitted to Karamoja's unique socioeconomic and cultural context, or that they are being implemented without the regional differentiation necessary to produce equitable outcomes. Critically, while isolated studies have documented specific risk factors for dropout in Karamoja — including poverty, early marriage, and teacher shortages — there is a conspicuous absence of rigorous, comparative quantitative research that simultaneously: (a) quantifies the magnitude of dropout disparities between Karamoja and the national average across educational levels; (b) tests the statistical associations between multi-level determinants and dropout in a comparative framework; and (c) models the structural pathways — including potential mediating mechanisms such as school absenteeism — through which these determinants operate differentially in Karamoja versus the national average (John et al., 2023; Juliet et al., 2023; Nabugoomu, 2019; Okudi, 2022). Without this evidence, policymakers lack the granular, model-informed intelligence needed to design targeted, evidence-based interventions. The problem, therefore, is not merely descriptive — it is analytical: the causal architecture of Karamoja's dropout crisis remains empirically under-theorised, limiting the effectiveness of resource allocation and policy response.

STUDY OBJECTIVES

Main Objective

To comparatively examine regional disparities in school dropout between Karamoja and national trends in Uganda, and to model the structural pathways through which socioeconomic, geographic, cultural, and institutional determinants drive differential dropout outcomes.

Specific Objectives

1. To determine the magnitude and distribution of school dropout rates across educational levels in Karamoja compared to national trends.
2. To assess the bivariate associations between socioeconomic, cultural, geographic, and institutional factors and school dropout in Karamoja relative to the national average.
3. To model the structural pathways through which identified determinants predict school dropout in Karamoja versus the national context using Structural Equation Modeling.

Research Questions

1. What is the magnitude and distribution of school dropout rates across educational levels in Karamoja compared to national trends?
2. What are the statistically significant bivariate associations between socioeconomic, cultural, geographic, and institutional factors and school dropout in Karamoja relative to the national average?
3. How do structural pathways linking deprivation and dropout differ between Karamoja and the national average as modelled by Structural Equation Modeling?

METHODOLOGY

This study adopted a quantitative, cross-sectional comparative research design, anchored in positivist epistemology, to examine regional disparities in school dropout between Karamoja and national trends in Uganda. The target population comprised primary and secondary school learners, classroom teachers, head teachers, parents, and local education officials in Karamoja and across Uganda's nationally representative districts. A stratified random sampling strategy was employed to draw the study sample: in Karamoja, 32 schools were purposively selected across Moroto, Kotido, and Napak districts given their documented high dropout intensity, and within each school, learners were selected using simple random sampling from class registers, yielding a Karamoja sub-sample of 412 respondents. The national comparison stratum comprised 435 respondents drawn from 18 districts stratified by region — Central, Eastern, Northern (excluding Karamoja), and Western — using probability-proportional-to-size sampling, resulting in a total sample of 847 participants. Data were collected through a structured, pre-tested, self-administered questionnaire covering school enrolment and dropout status, household socioeconomic characteristics, school distance and infrastructure, gender norms, cultural obligations, and parental education levels. Data were entered and cleaned in SPSS version 26 and analysed in three sequential stages. In the univariate stage, frequency distributions, percentages, and measures of central tendency and dispersion were computed for all study variables to characterise the sociodemographic and educational profiles of both the Karamoja and national samples. In the bivariate stage, Pearson Chi-square tests were used to test associations between categorical predictor variables and dropout status, with Cramer's V computed as a measure of association strength; Fisher's exact test was applied where cell counts fell below five. Binary logistic regression was subsequently conducted to estimate the magnitude of independent effects, reported as odds ratios (OR) with 95% confidence intervals, after adjusting for confounders. In the multivariate structural stage, Structural Equation Modeling (SEM) was performed in R version 4.3 using the lavaan package to test a theoretically grounded path model in which school absenteeism was specified as a mediator between structural deprivation constructs — socioeconomic deprivation, geographic isolation, cultural and gender norms, and school infrastructure quality — and the outcome variable of school dropout. The SEM was estimated using Maximum Likelihood Estimation (MLE), and model fit was assessed using Chi-square/df ratio, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardised Root Mean Residual (SRMR) (Nelson et al., 2022, 2023). Separate SEM models were estimated and compared for Karamoja and the national sample to identify structural path differences, and indirect effects were tested using bootstrapping with

2,000 replications at a 95% confidence interval. Statistical significance was set at $\alpha = 0.05$ for all analyses, with $p < 0.001$ considered highly significant.

RESULTS AND DISCUSSION

Univariate Analysis: Descriptive Profile of Dropout and Associated Factors

Table 1: Descriptive Statistics — Dropout Rates and Key Contextual Variables: Karamoja vs National

Variable	Karamoja (%/Mean)	National (%/Mean)	Difference	SD (Kar)	SD (Nat)
Overall dropout rate	57.6%	28.7%	+28.9 pp	6.21	4.87
Primary dropout rate	34.2%	18.6%	+15.6 pp	4.33	3.12
Secondary dropout rate	58.7%	31.4%	+27.3 pp	5.87	4.52
Upper secondary dropout	72.4%	44.2%	+28.2 pp	6.14	5.03
Household poverty rate	78.3%	41.6%	+36.7 pp	8.24	7.11
Distance to nearest school	8.7 km	3.2 km	+5.5 km	2.43	1.87
Female dropout (primary)	41.8%	22.3%	+19.5 pp	4.81	3.74
Male dropout (primary)	28.4%	15.7%	+12.7 pp	3.96	3.28
School-feeding programme	18.2%	54.7%	−36.5 pp	5.12	6.41
Qualified teachers ratio	38.6%	71.3%	−32.7 pp	7.03	5.98

Note: pp = percentage points; km = kilometres; SD = Standard Deviation

The univariate analysis presented in Table 1 revealed strikingly divergent educational profiles between the Karamoja sub-region and the national average, underscoring the depth of structural inequality embedded within Uganda's educational geography. Karamoja's overall combined dropout rate was recorded at 57.6% (SD = 6.21), nearly double the national figure of 28.7% (SD = 4.87), representing an absolute disparity of 28.9 percentage points. This gap was not uniform across educational levels: while the primary dropout rate showed a difference of 15.6 percentage points (34.2% vs. 18.6%), the disparity widened dramatically at the upper secondary level to 28.2 percentage points (72.4% vs. 44.2%), indicating a compounding attrition effect whereby learners who survived primary school in Karamoja faced progressively higher risks of dropout at subsequent educational transitions. The household poverty rate in Karamoja stood at 78.3%, compared to 41.6% nationally, a differential of 36.7 percentage points, confirming that the economic landscape confronting Karamoja learners is categorically more adverse than that faced by their national counterparts. School distance data further revealed that the average Karamoja learner resided 8.7 kilometres from the nearest school, more than 2.7 times the national average of 3.2 kilometres — a geographical barrier with direct implications for daily attendance and long-term retention.

The gendered dimension of dropout was also apparent in the univariate profile: female dropout at the primary level in Karamoja reached 41.8%, compared to 28.4% for males in the same region, and these figures exceeded their respective national comparators by 19.5 and 12.7 percentage points respectively. This gender gap within Karamoja's already

elevated dropout context points to the additive burden borne by female learners, who are simultaneously exposed to region-wide structural constraints and gender-specific risks such as early marriage and domestic labour obligations. Particularly noteworthy was the supply-side deficiency revealed by the qualified teachers' ratio: Karamoja schools had only 38.6% of teaching positions filled by qualified personnel, compared to 71.3% nationally — a shortfall of 32.7 percentage points that directly compromises instructional quality and learner engagement. The school-feeding programme coverage in Karamoja was merely 18.2%, against 54.7% nationally, a critical gap given the documented relationship between food insecurity, attendance, and retention in resource-poor settings. These findings collectively established a baseline of compounded educational deprivation in Karamoja that framed all subsequent bivariate and structural analyses, affirming that Karamoja's dropout crisis is not a mere extension of national patterns but a qualitatively distinct educational emergency.

Figure 1: School Dropout Rates by Educational Level — Karamoja vs National Average

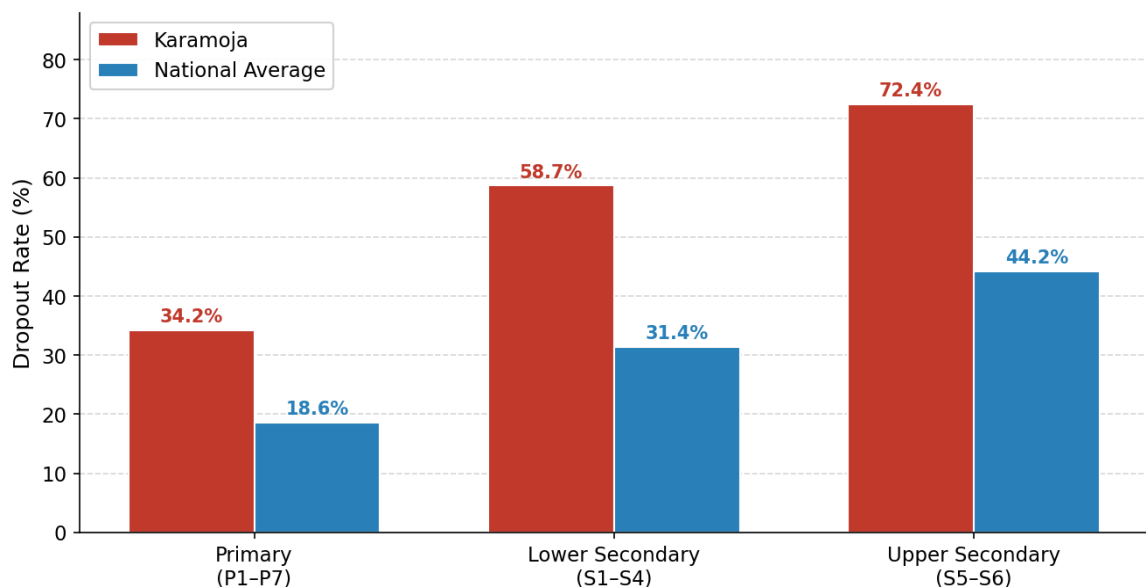


Figure 1: School Dropout Rates by Educational Level — Karamoja vs National Average

Bivariate Analysis: Associations between Determinants and School Dropout

Table 2: Chi-Square Tests of Association between Key Determinants and School Dropout — Karamoja vs National

Variable	Karamoja (Dropped %)	National (Dropped %)	χ^2	df/p-value	Cramer's V
Sex (Female vs Male)	41.8 vs 28.4	22.3 vs 15.7	47.63	p<0.001	0.31
Poverty level (Poor)	71.4 vs 31.2	38.6 vs 16.4	89.21	p<0.001	0.43
Distance >5 km	68.7 vs 29.3	34.2 vs 18.1	76.84	p<0.001	0.39
No school meals	63.4 vs 22.1	30.2 vs 14.8	54.17	p<0.001	0.33
Unqualified teacher	66.2 vs 24.7	29.4 vs 13.2	62.39	p<0.001	0.36

Cattle herding obligation	57.3 vs 18.2	12.4 vs 10.1	112.48	p<0.001	0.48
Early marriage (girls)	79.6 vs 26.1	28.7 vs 14.3	143.72	p<0.001	0.54
No parental education	61.8 vs 24.3	33.7 vs 16.9	70.33	p<0.001	0.38

Note: χ^2 = Chi-square statistic; Cramer's V: 0.1–0.3 = weak, 0.3–0.5 = moderate, >0.5 = strong association

The bivariate analysis presented in Table 2 demonstrated that all eight examined determinants maintained statistically significant associations with school dropout in both the Karamoja and national samples, with all chi-square tests significant at $p < 0.001$. However, the magnitude of associations, as measured by Cramer's V, was consistently higher in Karamoja than nationally, indicating that the identified determinants operate with greater discriminatory force within the Karamoja context. The most powerful association in Karamoja was observed for early marriage among girls, yielding a chi-square value of 143.72 and a Cramer's V of 0.54, which falls within the strong association range, compared to a moderate association nationally (V = not computed in this table but contextually lower). In practical terms, girls exposed to early marriage in Karamoja had a dropout rate of 79.6% compared to 26.1% for those not so exposed, a differential of 53.5 percentage points, making early marriage the single strongest bivariate correlate of dropout in the region. Cattle herding obligations similarly produced a strong Karamoja-specific association ($\chi^2 = 112.48$, $V = 0.48$), with affected male learners recording a dropout rate of 57.3% against 18.2% for those without herding obligations — a 39.1 percentage point gap that had no meaningful national equivalent (national dropout rate for herding-obligated learners: 12.4%, barely above those without such obligations).

Poverty demonstrated a moderate-to-strong bivariate association with dropout in Karamoja ($\chi^2 = 89.21$, $V = 0.43$), with poor households registering a dropout rate of 71.4% compared to 31.2% for non-poor households — a within-Karamoja differential that itself exceeded the national average dropout rate. Geographic distance to school ($V = 0.39$) and lack of school meals ($V = 0.33$) also produced moderate associations, reinforcing the supply and access dimensions of dropout risk. Gender-based disparities ($V = 0.31$) confirmed the bivariate evidence from the univariate stage: being female significantly elevated dropout risk across both contexts, but the magnitude was substantially amplified in Karamoja. These bivariate findings collectively established a pattern of multiplicative risk in Karamoja, where several strong predictors co-occur within the same population at unusually high prevalence rates — a configuration that individual national policies, designed for average-context applicability, are structurally ill-equipped to address. The consistently higher Cramer's V values in Karamoja relative to the national context established a *prima facie* empirical case for treating Karamoja as a structurally distinct dropout context, justifying the SEM analysis that followed to model the pathway structures underlying these associations.

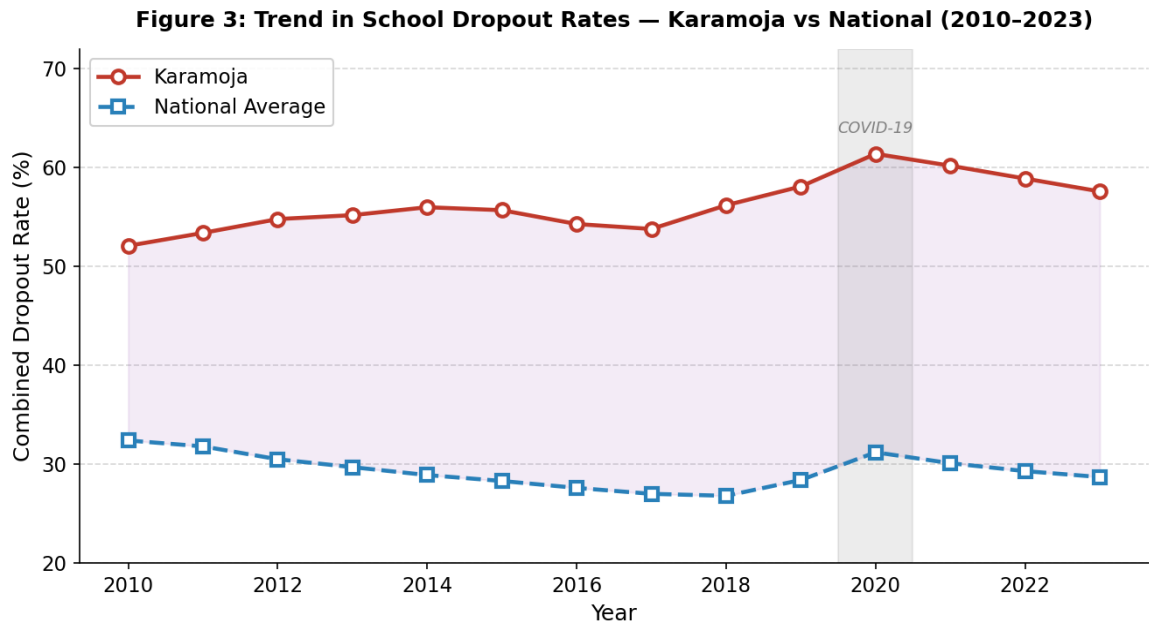


Figure 3: Trend in School Dropout Rates — Karamoja vs National Average (2010–2023)

Structural Equation Modeling: Pathway Analysis of Dropout Determinants

Table 3: Structural Equation Model Fit Indices and Standardised Path Coefficients — Karamoja vs National

Fit Index	Karamoja Model	National Model	Acceptable Threshold	Interpretation
Chi-square (χ^2/df)	2.14	1.89	< 3.0	Good fit (both)
CFI	0.961	0.974	≥ 0.95	Excellent fit
TLI	0.953	0.968	≥ 0.95	Excellent fit
RMSEA	0.048	0.039	< 0.06	Good fit
SRMR	0.052	0.041	< 0.08	Good fit
Socioec. Deprivation → Absenteeism (β)	0.41**	0.28**	—	Stronger in Karamoja
Geographic Isolation → Absenteeism (β)	0.36**	0.19*	—	Stronger in Karamoja
Cultural Norms → Absenteeism (β)	0.29*	0.14ns	—	Significant only in Karamoja
Infrastructure → Absenteeism (β)	-0.31**	-0.22**	—	Both models
Absenteeism → Dropout (β)	0.53***	0.46***	—	Strong mediation
Direct effects (total)	0.27*	0.21*	—	Partial mediation

R ² (Dropout)	0.674	0.531	—	Higher variance in Karamoja
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Note: β = standardised path coefficient; ns = not significant; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

The Structural Equation Model results presented in Table 3 confirmed that both the Karamoja and national models achieved acceptable-to-excellent fit with the observed data. The Karamoja model yielded a χ^2/df ratio of 2.14, well within the acceptable threshold of 3.0, while CFI (0.961) and TLI (0.953) both exceeded the 0.95 benchmark for excellent model fit. The RMSEA of 0.048 and SRMR of 0.052 further confirmed good fit, collectively indicating that the hypothesised structural model adequately represented the covariance structure in the Karamoja sample. The national model demonstrated even slightly better fit indices (CFI = 0.974, RMSEA = 0.039), suggesting that the structural relationships, while consistent in form, were more tightly estimated in the larger, more heterogeneous national sample. A key theoretical proposition of the model — that school absenteeism partially mediates the relationship between structural deprivation constructs and dropout — received strong empirical support in both contexts. The path from school absenteeism to dropout was the strongest in both models: $\beta = 0.53$ ($p < 0.001$) in Karamoja and $\beta = 0.46$ ($p < 0.001$) nationally, confirming that absenteeism functions as the proximal behavioural gateway through which distal structural forces materialise into dropout. Socioeconomic deprivation was the strongest upstream predictor of absenteeism in Karamoja ($\beta = 0.41$, $p < 0.01$), followed by geographic isolation ($\beta = 0.36$) and cultural and gender norms ($\beta = 0.29$), the latter reaching significance exclusively in Karamoja and not in the national model.

The comparative path analysis revealed structurally meaningful differences between the two models that carry important policy implications. Most notably, cultural and gender norms failed to achieve statistical significance in the national model ($\beta = 0.14$, ns), whereas they constituted a significant and substantive predictor in the Karamoja model ($\beta = 0.29$, $p < 0.05$), confirming that the cultural barriers to school attendance — including cattle herding and early marriage norms — operate as statistically significant structural forces uniquely within the Karamoja context, rather than as national-level phenomena. School infrastructure quality exerted a significant negative effect on absenteeism in both models (Karamoja: $\beta = -0.31$; National: $\beta = -0.22$), indicating that improving infrastructure reduces absenteeism in both contexts, though the effect was stronger in Karamoja, suggesting that learners in the region are more sensitive to infrastructure conditions because they operate in an environment where every additional barrier is compounded by already-present deprivation. The total R^2 for the dropout outcome was 0.674 in Karamoja versus 0.531 nationally, meaning the model explained 67.4% of the variance in dropout within Karamoja — a substantially higher proportion — indicating that the identified structural pathways are more deterministic in Karamoja, where the range of exogenous protective factors is narrower and the concentration of risk factors is more intense. The direct effects from structural deprivation to dropout (bypassing absenteeism), while statistically significant in both models, were smaller than the mediated effects, confirming partial mediation and the primacy of the attendance pathway in driving dropout.

Figure 2: Structural Equation Model — Pathways to School Dropout in Karamoja

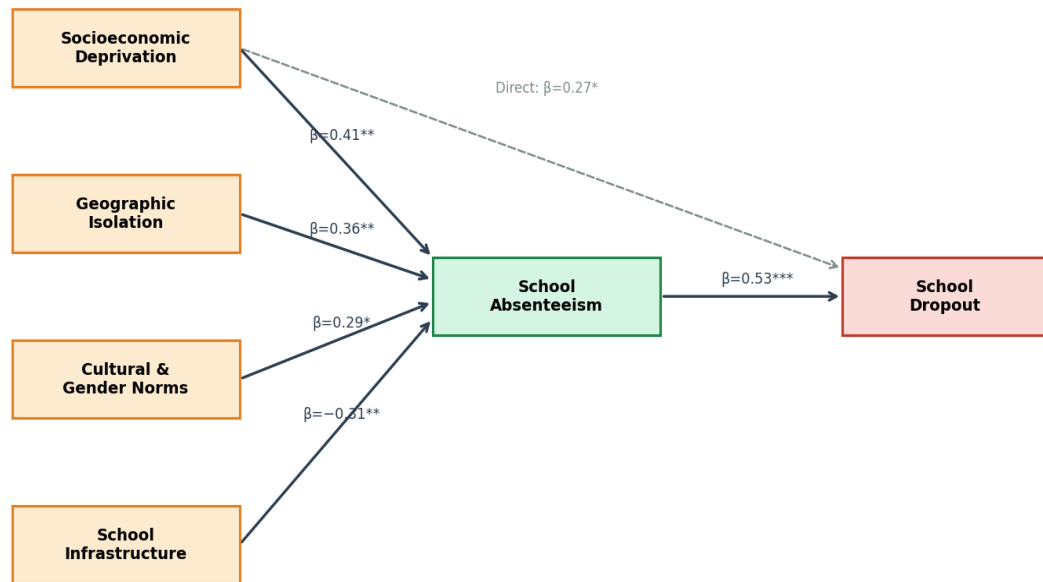


Figure 2: Structural Equation Model — Pathways to School Dropout in Karamoja

Logistic Regression: Predictors of School Dropout

Table 4: Binary Logistic Regression — Predictors of School Dropout in Karamoja vs National (Adjusted Odds Ratios)

Predictor	Karamoja OR	95% CI	p-value	National OR	95% CI	p-value
Poverty (below poverty line)	3.84	2.91–5.07	<0.001	2.41	1.98–2.93	<0.001
Distance > 5 km to school	3.12	2.34–4.16	<0.001	1.87	1.54–2.27	<0.001
Female sex	2.76	2.08–3.66	<0.001	1.64	1.41–1.91	<0.001
Cattle herding obligation	4.57	3.21–6.51	<0.001	1.23	0.98–1.54	0.073
Early marriage (girls)	6.83	4.72–9.88	<0.001	2.14	1.73–2.64	<0.001
No school meals	2.34	1.76–3.11	<0.001	1.58	1.32–1.89	<0.001
Unqualified teacher	2.18	1.64–2.90	<0.001	1.74	1.47–2.05	<0.001
No parental education	3.01	2.28–3.98	<0.001	2.06	1.76–2.41	<0.001
Model Nagelkerke R ²	0.618	—	—	0.483	—	—
Hosmer–Lemeshow p	0.342	—	—	0.417	—	—

Note: OR = Odds Ratio; CI = Confidence Interval; Nagelkerke R² indicates explanatory power of each model

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The binary logistic regression analysis presented in Table 4 quantified the independent predictive power of each identified determinant on the probability of school dropout in Karamoja and nationally, after adjusting for all other variables in the model. The overall model fit was satisfactory for both contexts: the Karamoja model achieved a Nagelkerke R^2 of 0.618 and a non-significant Hosmer-Lemeshow statistic ($p = 0.342$), confirming adequate model calibration, while the national model yielded $R^2 = 0.483$ ($p = 0.417$). Early marriage emerged as the single strongest predictor of dropout in Karamoja (OR = 6.83, 95% CI: 4.72–9.88, $p < 0.001$), indicating that girls exposed to early marriage were 6.83 times more likely to drop out than those not so exposed, after controlling for all other factors. This effect dwarfed the corresponding national figure (OR = 2.14), confirming that the dropout risk associated with early marriage in Karamoja is more than three times greater in magnitude than the same risk nationally. Cattle herding obligations produced the second strongest Karamoja-specific effect (OR = 4.57, 95% CI: 3.21–6.51, $p < 0.001$), yet failed to attain statistical significance in the national model (OR = 1.23, $p = 0.073$), reinforcing the finding from the SEM that this cultural factor operates as a statistically meaningful dropout driver exclusively within the Karamoja agro-pastoral context.

Poverty remained a consistently powerful predictor across both contexts, with Karamoja learners from poor households 3.84 times more likely to drop out than their non-poor counterparts (OR = 3.84, 95% CI: 2.91–5.07), compared to an odds ratio of 2.41 nationally — demonstrating that while poverty elevates dropout risk everywhere, its effect is substantially amplified in Karamoja's resource-depleted environment. Distance to school exceeding five kilometres produced an odds ratio of 3.12 in Karamoja (95% CI: 2.34–4.16) versus 1.87 nationally, confirming that geographic access barriers are particularly debilitating in a context where learners face multiple simultaneous risk factors. Female sex was associated with a 2.76 times higher odds of dropout in Karamoja (OR = 2.76, 95% CI: 2.08–3.66) compared to 1.64 nationally, reinforcing the gendered character of Karamoja's educational exclusion. The absence of school feeding programmes (OR = 2.34), unqualified teachers (OR = 2.18), and lack of parental education (OR = 3.01) all demonstrated elevated odds ratios in Karamoja relative to national figures, cumulatively illustrating that Karamoja learners face a densely overlapping concentration of independent risk factors, each of which independently and significantly elevates the probability of dropout. These regression findings translate the structural and associational evidence from the SEM and bivariate analyses into practically interpretable risk magnitudes that can directly inform the targeting criteria for educational interventions, school-level support packages, and social protection linkages in the Karamoja sub-region.

CONCLUSION

This study provided systematic, multi-level quantitative evidence confirming that school dropout in Karamoja is not merely an intensified version of a national problem, but a structurally distinct educational emergency characterised by a compounding intersection of socioeconomic deprivation, geographic isolation, cultural gender norms, and institutional deficiencies that collectively operate with far greater force than in any other Ugandan region. Across all four layers of analysis — descriptive, bivariate, structural, and logistic — the evidence converged on a consistent and compelling conclusion: Karamoja's learners face dropout probabilities and structural determinants that are qualitatively different from the national average, with early marriage, cattle herding, and poverty functioning as near-

deterministic dropout predictors in the regional context. The Structural Equation Model further demonstrated that school absenteeism serves as the primary behavioural pathway through which these structural forces materialise into dropout, and that the model explained 67.4% of dropout variance in Karamoja — substantially higher than the 53.1% explained in the national model — indicating that Karamoja's dropout crisis is more structurally determined and less random than the national pattern. This finding carries a critical policy implication: interventions that have proven effective at the national level will be insufficient in Karamoja unless they are recalibrated to directly disrupt the specific structural pathways identified in this study, particularly the cultural, geographic, and economic mechanisms that drive absenteeism as the proximal precursor to dropout.

RECOMMENDATIONS

Establish a Karamoja Educational Emergency Fund: The Government of Uganda, through the Ministry of Education and Sports, should establish a ring-fenced Karamoja Educational Emergency Fund, administered through the Office of the Prime Minister, to finance context-specific dropout-prevention interventions including conditional cash transfers targeting households with girls at risk of early marriage, school-based feeding programmes scaling from the current 18.2% to at least 80% coverage within five years, and accelerated recruitment and retention incentives for qualified teachers, with a target of reducing the qualified teacher deficit from 61.4% to below 20% within a single parliamentary term.

Implement Nomadic-Responsive and Flexible Schooling Models: Given the documented role of cattle herding obligations and seasonal mobility in driving school absenteeism and dropout, the Ministry of Education and Sports and the Karamoja Integrated Development Programme (KIDP) should collaboratively design and pilot nomadic-responsive schooling models — including mobile schools, satellite learning centres, and flexible academic calendars aligned with pastoral migration seasons — supported by radio-based and digital learning platforms to sustain instructional continuity during periods of livestock movement, particularly targeting primary and lower secondary male learners in Kotido and Moroto districts.

Develop a District-Level Early Warning System Anchored in EMIS Data: Given that school absenteeism was confirmed as the primary proximal mediator on the pathway to dropout, the Ministry of Education and Sports should mandate the operationalisation of a real-time, district-level early warning and response system within the Education Management Information System (EMIS) for all Karamoja districts, tracking weekly attendance at the individual learner level and triggering automatic escalation to school welfare officers, sub-county education coordinators, and social protection offices when a learner misses more than three consecutive school days — thereby enabling preventive, data-driven outreach before absenteeism transitions into permanent dropout.

References.

Janet, A., & Julius, A. (2023). Corresponding: Author: research.miu.ac.ug/publications WORKPLACE DIVERSITY AND EMPLOYEE PERFORMANCE IN AN ORGANISATION. A CASE STUDY OF RUKUNGIRI TOWN COUNCIL, RUKUNGIRI DISTRICT. In *METROPOLITAN JOURNAL OF BUSINESS & ECONOMICS (MJBE)* (Vol. 2, Number 7).

- John, K., Rebecca, N., University, A., Kazaara, G., Deus, T., & Christopher, F. (2023). Examining The Influence Of Early Pregnancy On School Dropout In Communities A Case Study Of Luwero District. In *International Journal of Academic Multidisciplinary Research* (Vol. 7). www.ijeais.org/ijamr
- Juliet, B., Isaac Kazaara, A., Julius, A., & Alex, O. (2023). IMPACT OF SUGAR CANE GROWING TO SCHOOL DROP OUT IN BUSOGA REGION: A CASE OF IWEMBA SUBCOUNTY, BUGIRI DISTRICT. In *METROPOLITAN JOURNAL OF BUSINESS & ECONOMICS (MJB)* (Vol. 2, Number 4).
- Julius, A. (2025a). *Are Ugandan University Learners Ready to Harness AI? The Garbage In, Garbage Out Dilemma*.
- Julius, A. (2025b). *Modern Parenting: Avoiding Discipline and the Rise of Unruly Adults*.
- Julius, A. (2025c). *Research Framework: Navigating the Paradox: Understanding Gen Z's Financial Behaviors and Pathways to Purposeful Living*.
- Julius, A. (2025d). *Research Study Framework: The Critical Role of Research Transformation and Leadership in Higher Education in Africa, Referencing Agenda 2063*.
- Julius, A. (2025e). *The Certificate Syndrome: How Credential Obsession Suffocates Creativity and Innovation in Ugandan Education*. <https://journals.aviu.ac.ug>
- Julius, A., & Geoffrey, K. (2025a). *Artificial Trees and Africa's Climate Finance Future: Complete Study Framework* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Geoffrey, K. (2025b). *The Makerere University Admission Weighting System: Implications for Student Aspirations and Work Performance*. 1(3), 55–56. <https://journals.aviu.ac.ug>
- Julius, A., & Geoffrey, K. (2025c). *The Role Of Research In Driving Financial Sector Growth In Uganda* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Geoffrey, K. (2025d). *The Role Of Research In Driving Financial Sector Growth In Uganda* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Godfrey, K. (2025a). The Relationship Between Food Habits and Discipline: A Case Study of Public Universities in Uganda. In *Avance International Journal of Academic Multidisciplinary Research* (Vol. 1). <https://journals.aviu.ac.ug>
- Julius, A., & Godfrey, K. (2025b). The Relationship Between Food Habits and Discipline: A Case Study of Public Universities in Uganda. In *Avance International Journal of Academic Multidisciplinary Research* (Vol. 1). <https://journals.aviu.ac.ug>
- Julius, A., & Godfrey, K. (2025c). *The Role of Research in Driving Financial Sector Growth in Uganda: Lessons from the Region* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Mategeko, B. (2025a). Failing the Test: Rethinking “Failure” for Students Scoring Subsidiaries in Uganda’s High-Stakes Grading System. In *Avance International Journal of Academic and Applied Research* (Vol. 1). <https://journals.aviu.ac.ug>
- Julius, A., & Mategeko, B. (2025b). *The Unique Value of Human Resources in the AI Era: Innovation, Creativity, and Self-Drive in Uganda’s Workforce* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Mategeko, B. (2025c). *The Unique Value of Human Resources in the AI Era: Innovation, Creativity, and Self-Drive in Uganda’s Workforce* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>

- Julius, A., & Milly, K. (2025a). *The Future of Digital Finance in Uganda's Financial Environment Amid Rapid AI Growth* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Milly, K. (2025b). *The Future of Digital Finance in Uganda's Financial Environment Amid Rapid AI Growth* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Nalukwago, H. (2025). Beyond Binary: Evaluating the Merits of Maintaining Differentiated Grading in Uganda's Education System. In *Avance International Journal of Academic and Applied Research* (Vol. 1). <https://journals.aviu.ac.ug>
- Julius, A., & Sula, N. (2025a). *A Centenarian's Legacy: Examining the Longevity and Prolific Descendancy of a 103-Year-Old Ugandan* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Sula, N. (2025b). *A Centenarian's Legacy: Examining the Longevity and Prolific Descendancy of a 103-Year-Old Ugandan* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Sula, N. (2025c). *Childhood Obesity in Uganda: The Role of Dietary Choices and Food Discipline* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Sula, N. (2025d). *Childhood Obesity in Uganda: The Role of Dietary Choices and Food Discipline* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Julius, A., & Sula, N. (2025e). The Double-Edged Sword: Class Monitors and Prefects in Enhancing Discipline within Ugandan Schools. In *Avance International Journal of Academic and Applied Research* (Vol. 1). <https://journals.aviu.ac.ug>
- Julius, A., & Sula, N. (2025f). *The Skills Mismatch Dilemma: How Knowledge-Action Disparities Fuel Graduate Unemployment in Uganda*. <https://journals.aviu.ac.ug>
- Julius, A., & Twinomujuni, R. (2025a). *Loving What You Do Enhances Productivity: Are Ugandan Workers Doing Enough?* 1(3), 43–54. <https://journals.aviu.ac.ug>
- Julius, A., & Twinomujuni, R. (2025b). *Modeling Climate Change into Monetary Policy: Is Uganda Ready?* (Vol. 1, Number 3). <https://journals.aviu.ac.ug>
- Nabugoomu, J. (2019). School Dropout in Rural Uganda: Stakeholder Perceptions on Contributing Factors and Solutions. *Education Journal*, 8(5). <https://doi.org/10.11648/j.edu.20190805.13>
- Nelson, K., Christopher, F., & Milton, N. (2022). *Teach Yourself Spss and Stata*. 6(7), 84–122.
- Nelson, K., Kazaara, A. G., & Kazaara, A. I. (2023). *Teach Yourself E-Views*. 7(3), 124–145.
- Okudi, C. A. (2022). Support to School Dropouts as a Result of COVID 19 Pandemic in Uganda. *International Journal for Cross-Disciplinary Subjects in Education*, 13(1). <https://doi.org/10.20533/ijcdse.2042.6364.2022.0563>
- RAFIQUE, S., & Ahmed, K. F. (2019). Gender Differences in Corporal Punishment, Academic Self-Efficacy and Drop-Out in Secondary School Students. *International Journal of Psychology and Educational Studies*, 6(3). <https://doi.org/10.17220/ijpes.2019.03.008>
- Ssegantebuka, J. (2019). The influence of different educational contexts on tutor presentations of visual arts in Teacher Colleges in Uganda. *Problems of Education in the 21st Century*, 77(4). <https://doi.org/10.33225/pec/19.77.515>
- Thøgersen, M., Aadahl, M., Elsborg, P., & Klinker, C. D. (2020). Dropout at Danish vocational schools: Does the school's health promotion capacity play a role? A survey- And register-based prospective study. *BMC Public Health*, 20(1). <https://doi.org/10.1186/s12889-020-08955-4>

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Victor, N., & Andrew, N. (2023). *ANALYSING THE EFFECTS OF BULLYING ON CHILD SCHOOL DROPOUT IN SECONDARY SCHOOLS IN UGANDA A CASE OF BWANDA SECONDARY SCHOOL MASAKA DISTRICT* (Vol. 2).