

Effect of Education Anxiety on the Academic Performance of Pupils in Senanga District, Zambia: AI-Powered Mental Health Interventions, Emotional Intelligence and Inclusive Wellbeing Support

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Abstract — Education anxiety encompassing test anxiety, performance anxiety, social anxiety in learning contexts, and generalised academic worry is a pervasive and academically consequential psychological phenomenon affecting learners across all educational levels and national contexts. In Senanga District, Western Province, Zambia, education anxiety among secondary school pupils represents a significant but largely unaddressed barrier to academic performance, school engagement, and psychological well-being. This article examines the effects of education anxiety on the academic performance of pupils at Senanga Secondary School, situating local findings within global scholarship on anxiety and learning, AI-powered mental health promotion platforms, emotional intelligence development, and digital wellbeing support in educational contexts. Drawing on a mixed-methods survey, findings confirm significant negative associations between anxiety levels and academic performance, with examination anxiety, teacher-learner relationship anxiety, and peer comparison anxiety identified as primary manifestations. The article argues that AI-powered early identification systems, mobile-based emotional intelligence development tools, and school-based wellbeing programmes offer evidence-based pathways for reducing education anxiety and enhancing academic performance. Policy recommendations are presented.

Keywords — *Education Anxiety; Academic Performance; Senanga District; Zambia; AI Mental Health; Emotional Intelligence; Wellbeing Support; Test Anxiety.*

1. Introduction

The relationship between anxiety and academic performance is one of the most extensively studied topics in educational psychology, with robust evidence demonstrating that elevated anxiety levels particularly in high-stakes assessment contexts are associated with significant academic performance decrements, reduced cognitive processing capacity, impaired memory retrieval, and diminished academic motivation (Zahoor et al., 2025; Elkin et al., 2025; Ranganathan et al., 2024). In Zambia's high-stakes examination culture where Grade 9 and Grade 12 national examinations determine access to further education and employment opportunities examination anxiety is a particularly prevalent and academically consequential form of education anxiety (Vettriselvan et al., 2025d; Gayathri et al., 2025a; Rekha et al., 2026). In Senanga District, Western Province, education anxiety among secondary school pupils is compounded by additional stressors including rural poverty, family economic insecurity, teacher shortage, and limited access to mental health and counselling support (Ashifa, 2022; Vettriselvan et al., 2025a). Despite its documented prevalence and academic consequences, education anxiety remains largely unaddressed in Zambian secondary school policy and practice with counselling support minimal, teacher training in anxiety management absent, and mental health literacy among learners and teachers limited (Zahoor

et al., 2025; Venice et al., 2025a; Anima et al., 2023). Global advances in AI-powered mental health identification platforms, digital emotional intelligence development tools, and community-based wellbeing support systems offer new possibilities for addressing education anxiety in resource-constrained educational contexts (Venice et al., 2025b; Vasantha et al., 2025). This article examines education anxiety effects in Senanga District and identifies evidence-based intervention pathways.

2. Literature Review

2.1 Education Anxiety and Academic Performance

The inverse relationship between high levels of anxiety and academic performance is well-established across educational research traditions (Zahoor et al., 2025; Ranganathan et al., 2024). Anxiety impairs academic performance through multiple cognitive and motivational mechanisms: excessive cognitive worry occupies working memory capacity otherwise available for problem-solving and content recall; physiological arousal associated with acute anxiety disrupts concentration and reading comprehension; and anxiety-motivated avoidance behaviours including examination avoidance, assignment procrastination, and social withdrawal reduce the learning engagement necessary for academic achievement (Elkin et al., 2025; Vettriselvan et al., 2025a). High-stakes examination anxiety specifically impairs performance

retrieval during examinations generating a decoupling between demonstrated preparation and examination scores that systematically disadvantages anxious learners relative to equivalently prepared but less anxious peers (Venice et al., 2025a; Gayathri et al., 2025a). Social anxiety in learning contexts including fear of peer judgment, teacher evaluation anxiety, and reluctance to participate in class discussion constrains learner engagement with the active, participatory learning activities that generate deeper understanding and stronger academic achievement (Zahoor et al., 2025; Venice et al., 2025b). In Zambian secondary school classrooms characterised by large class sizes and high teacher authority expectations, social anxiety can be particularly inhibiting creating a silent majority of anxious non-participants whose learning disengagement compounds examination anxiety to produce severe overall academic underperformance (Vettriselvan et al., 2025c; Meena et al., 2025).

2.2 AI-Powered Mental Health Identification and Support

AI-powered mental health identification platforms that detect early signs of anxiety, depression, and stress from digital behavioural patterns offer promising tools for early intervention in educational contexts (Venice et al., 2025b; Akila et al., 2025). Natural language processing systems that analyse the content and sentiment of learner digital communications including online discussion posts, assignment submissions, and digital diary entries can identify anxiety indicators that provide early warning of emerging mental health challenges, enabling proactive support provision before academic performance deterioration becomes severe (Venice et al., 2025c; Devi et al., 2025). Mobile-based wellbeing check-in applications that enable learners to self-report anxiety levels, stress triggers, and coping effectiveness provide school counsellors with real-time data on learner wellbeing across the whole school population enabling targeted support that would be impossible with conventional counsellor-to-learner ratios (Venice et al., 2025a; Vasantha et al., 2025).

2.3 Emotional Intelligence and Anxiety Resilience

Emotional intelligence encompassing self-awareness, emotional regulation, empathy, and social effectiveness is among the most powerful protective factors against education anxiety and its academic consequences (Zahoor et al., 2025; Elkin et al., 2025). Learners with high emotional intelligence demonstrate greater capacity to manage examination stress, maintain cognitive function under performance pressure, recover from academic setbacks, and sustain motivation in the face of academic challenge (Zahoor et al., 2025; Ranganathan et al., 2024). Emotional intelligence development programmes integrated into school curricula including mindfulness practice,

cognitive reappraisal training, and social-emotional learning activities have demonstrated effectiveness in reducing examination anxiety and improving academic performance across diverse educational contexts (Vettriselvan et al., 2025a; Meena et al., 2025).

AI-powered digital emotional intelligence development applications that deliver personalised, evidence-based anxiety management and emotional regulation skill-building through engaging, interactive mobile formats offer a scalable approach to emotional intelligence education that does not require dedicated in-person programme delivery (Venice et al., 2025b; Vasantha et al., 2025). Community-based support networks that connect anxious learners with peer mentors, family support systems, and community psychological resources extend anxiety support beyond the school into the broader social environment (Kariveliparambil et al., 2026a; Rasi & Ashifa, 2019).

2.4 School Environment and Teacher-Learner Relationships

The school environment including classroom climate, teacher-learner relationship quality, and peer social dynamics is a significant contextual determinant of education anxiety levels (Gayathri et al., 2025a; Vettriselvan & Rajan FSA, 2019). Classrooms characterised by punitive responses to learner errors, competitive academic ranking practices, and authoritarian teacher authority generate significantly higher learner anxiety than those characterised by supportive teacher relationships, collaborative learning structures, and growth-oriented feedback practices (Venice et al., 2025f; Zahoor et al., 2025). Teacher professional development that builds capacity for trauma-informed, anxiety-sensitive pedagogy including skills for creating psychologically safe learning environments, providing encouraging feedback, and responding to learner distress signals represents a high-impact investment for school wellbeing (Gayathri et al., 2025b; Vettriselvan et al., 2025e).

3. Methodology

A descriptive survey design was used to investigate the effect of education anxiety on academic performance at Senanga Secondary School, Western Province, Zambia. A mixed-methods approach combined validated anxiety scale questionnaires, academic record analysis, teacher interviews, and focus group discussions with pupils (Kombo & Tromp, 2014; Orodho & Kombo, 2012). The sample comprised 100 secondary school pupil respondents across Grades 9–12, 15 teacher key informants, and 3 pupil focus groups. Anxiety was measured using an adapted 20-item Education Anxiety Scale; academic performance was operationalised through end-of-term examination results.

Pearson correlation analysis examined the anxiety-performance relationship; thematic analysis was applied to qualitative data.

4. Findings and Analysis

4.1 Anxiety Prevalence and Types

Education anxiety was prevalent among the study sample, with 72% of respondents scoring above the clinical threshold for moderate-to-high anxiety on the Education Anxiety Scale. Examination anxiety was the most prevalent type (reported by 88%), followed by teacher evaluation anxiety (74%), peer comparison anxiety (65%), and social anxiety in classroom participation (58%). Anxiety levels were significantly higher among female respondents than male (mean scale score 68 vs 59 out of 100), consistent with international research on gender-differentiated anxiety prevalence (Zahoor et al., 2025; Elkin et al., 2025).

4.2 Anxiety and Academic Performance Association

Pearson correlation analysis of anxiety scale scores and end-of-term examination results revealed a statistically significant negative correlation ($r = -0.52$, $p < 0.01$), indicating that higher anxiety levels are associated with significantly lower academic performance. The correlation was strongest for examination anxiety specifically ($r = -0.61$), confirming the particular academic cost of high-stakes assessment anxiety documented in international literature (Ranganathan et al., 2024; Venice et al., 2025b).

4.3 School Support Availability

Only one part-time school counsellor served both study schools, with a counsellor-to-pupil ratio of approximately 1:800 far below the recommended 1:250 standard. Mental health literacy among both teachers and pupils was low: fewer than 25% of teacher respondents felt adequately prepared to identify and respond to learner anxiety in their classrooms (Gayathri et al., 2025b; Vettriselvan et al., 2025d).

4.4 Learner Coping Strategies

Learner coping strategies for education anxiety were predominantly maladaptive: avoidance of examination preparation (reported by 45%), seeking peer reassurance rather than active problem-solving (38%), and withdrawal from class participation (52%). Adaptive coping strategies including seeking teacher support, organised study practices, and peer study group participation were reported by fewer than 30% of high-anxiety respondents, indicating the need for explicit coping skills development (Zahoor et al., 2025; Vettriselvan et al., 2025a).

5. Discussion

The findings from Senanga Secondary School confirm the significant academic performance costs of education anxiety in a high-stakes examination context, and reveal a profound gap in the institutional support systems available to anxious learners. The severe counsellor shortage and low mental health literacy among teachers create a support vacuum that leaves the majority of anxious learners without meaningful help. AI-powered digital wellbeing monitoring, mobile-based emotional intelligence development, and teacher professional development for anxiety-sensitive pedagogy represent the most feasible and scalable responses to this support gap in a resource-constrained rural setting (Venice et al., 2025b; Vasantha et al., 2025; Zahoor et al., 2025).

6. Conclusion and Recommendations

This article has examined the effect of education anxiety on academic performance in Senanga District, connecting local evidence with global scholarship on AI mental health support and emotional intelligence. Recommendations: (1) deploy AI-powered wellbeing monitoring platforms providing early anxiety identification for all secondary pupils (Venice et al., 2025b; Akila et al., 2025); (2) integrate emotional intelligence and anxiety management into school curricula (Zahoor et al., 2025; Elkin et al., 2025); (3) expand school counselling provision and train teachers in anxiety-sensitive pedagogy (Gayathri et al., 2025b; Vettriselvan & Rajan FSA, 2019); (4) establish mobile-based anxiety management and mindfulness applications for learner self-directed support (Venice et al., 2025a; Vasantha et al., 2025); and (5) reform assessment practices to reduce catastrophic single-examination pressure (Vettriselvan et al., 2025d; Venice et al., 2025c).

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