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## RESEARCH ARTICLE

# Parents' Socioeconomic Factors and Students' Engagement in Learning in Tanzania: A Systematic Review of the Mediating Role of School Lunch Programs

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All authors contributed equally to this research.

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**ABSTRACT**

This systematic literature review examined the relationship between parents' socioeconomic factors, school lunch programs, and students' engagement in learning in Tanzanian government secondary schools. Guided by the PRISMA 2020 framework, the review analyzed empirical studies published between 2015 and 2025 to assess the mediating role of school lunch programs in addressing socioeconomic disparities in learning engagement. Studies were sourced from Scopus, ERIC, JSTOR, Web of Science, PubMed, ResearchGate, and Google Scholar. A total of 42 peer-reviewed studies met the inclusion criteria, including 17 empirical studies conducted in Tanzania. The synthesis was informed by Bronfenbrenner's Ecological Systems Theory and Maslow's Hierarchy of Needs, focusing on parents' socioeconomic factors income, education, occupation, and household living conditions and students' engagement in learning. Methodological quality was assessed using the Mixed Methods Appraisal Tool (MMAT, 2018). Findings indicate that parental socioeconomic conditions significantly influence students' learning engagement, particularly attendance, concentration, and classroom participation. School lunch programs were found to play a critical mediating role by reducing hunger-related absenteeism, enhancing cognitive readiness, and promoting equitable learning opportunities. Evidence from sub-Saharan Africa, including Tanzania, demonstrates that school lunch programs help mitigate the adverse effects of low parental income and food insecurity on students' engagement. However, the effectiveness of these programs is often constrained by inconsistent policy implementation and limited community contributions. The review concludes that integrating well-resourced and consistently implemented school lunch programs into the education system is essential for improving students' engagement in learning and reducing inequalities rooted in socioeconomic disadvantage.

**Keywords:** Parents' socioeconomic factors; school lunch programs; students' engagement in learning**INTRODUCTION**

Socioeconomic inequalities continue to influence students' engagement in learning and academic outcomes globally. Parental socioeconomic factors, typically measured by income, education, occupation, and living conditions, have been widely recognized as a key determinant of students' engagement in learning.

Children from wealthier families often have better access to nutrition, learning materials, and supportive environments. According to the report of the United Nations Educational, Scientific and Cultural Organisation (2023), children from disadvantaged backgrounds face multiple barriers that hinder learning engagement and performance. In low and middle-

income countries (LMICs), these disparities are compounded by food insecurity and poverty, which significantly affect students' cognitive, emotional, and readiness in learning (Bundy et al., 2020).

Educational engagement remains a cornerstone of academic achievement and long-term student development. In low- and middle-income countries such as Tanzania, the intersection between parents' socioeconomic factors and Students' engagement in learning has drawn significant research attention (George, 2025; Daftari & Umeodum, 2022). Parental income, education, occupation, and household living conditions collectively influence students' ability to remain attentive, participate in class, and sustain in academic activities (Coleman, 1966; Mketi et al., 2022; Byejuwe & Mwila, 2025).

Given the socioeconomic inequalities across Tanzanian communities, school lunch programs have emerged as a vital policy intervention designed to mitigate hunger and foster equitable educational outcomes by engaging students in learning (World Food Programme, 2023). Yet, while school lunch programs are increasingly recognized as critical mediators between household disadvantage and learning outcomes, there remains a limited systematic synthesis of empirical evidence from Tanzania. This review thus aims to consolidate recent literature (2015–2025) on how school lunch programs mediate the effects of parents' socioeconomic factors on students' engagement in learning in Tanzanian government secondary schools.

## LITERATURE REVIEW

This review is grounded in Bronfenbrenner's Ecological Systems Theory (1979) and Maslow's Hierarchy of Needs (1943). The theory together explains how environmental contexts and basic needs shape students' engagement in learning. Bronfenbrenner's model situates child development within interconnected systems ranging from the microsystem (family, school) to the macrosystem (cultural and policy influences), emphasizing the dynamic interaction between these layers through the mesosystem (Tong & An, 2024). Within this framework, parents' socioeconomic characteristics such as income, education, occupation, and living conditions form part of the microsystem and directly influence students' access to resources and attitudes toward engagement in learning. The school lunch program functions within the mesosystem, linking home and school factors to promote equitable educational outcomes (Amali et al., 2023).

Complementing this, Maslow's theory highlights that basic physiological and safety needs must be met before higher-order needs like motivation and self-esteem, so that learning engagement can be developed (Maslow, 1943; Hoyle et al., 2022). Thus, providing a school lunch program supports students' physiological needs, enhancing their concentration, cognitive performance, and overall engagement in learning.

Empirical evidence emphasises the critical role of the school lunch program as a mediator between parents' socioeconomic factors and students' learning engagement. Parents' income has long been recognized as a significant determinant of students' learning engagement, influencing access to educational resources, nutrition, and school participation. Earlier studies revealed that students from low-income households are more likely to experience hunger, absenteeism, and reduced classroom concentration and involvement in general compared to their peers from wealthier families (Coleman, 1966). In Tanzania, studies by Bakari (2025) and Mketi et al., (2022) found that inadequate household income constrained parents' ability to provide food and learning materials, leading to irregular school attendance. However, the introduction of school lunch programs has been shown to mitigate these disparities by offering equitable access to nutrition, improving concentration, and boosting participation, particularly among students from low-income families (Assey et al., 2025; George, 2025). Similarly, the United Nations Children's Fund (2024) reported that school feeding interventions in Tanzania helped bridge income-related gaps in educational outcomes by enhancing attendance and attention levels. These findings confirm that school lunch programs play a mediating role in reducing the negative effects of income disparities on students' engagement in learning (World Food Programme, 2023).

According to Wall et al. (2022), school lunch programs play a vital role in motivating accountability and inspiration to continuous improvement within the education system. Parents' education strongly predicts children's academic outcomes and engagement, as educated parents are more likely to value schooling, monitor progress, and support learning activities (Gu et al., 2024). In Tanzania, Alphonse (2024) and Byejuwe & Mwila (2025) found that parents with higher educational attainment demonstrated greater involvement in school meetings and contributed more effectively to sustaining school lunch program initiatives. This engagement translated into improved student attendance,

concentration, and participation. Conversely, Zuercher et al., (2024) and Robert et al.,(2025) explained that children from parents with lower educational levels were more dependent on external interventions such as the school lunch program to maintain consistent engagement. Daftari & Umeodum (2022) observed that school lunch programs particularly benefited female students from families with low parental education by improving motivation and reducing absenteeism. Hence, school lunch programs serve as a compensatory mechanism that offsets educational inequalities among parents by providing a common platform for nutritional and psychosocial support that enhances students' engagement in learning (Amali et al., 2023).

Moreover, empirical studies by various scholars have shown that the school lunch program, as a mediator between parents' occupation and students' engagement in learning, is a key determinant of socioeconomic factors that shape children's educational experiences and engagement in learning (Cohen et al., 2021; George, 2025). The type and nature of parents' work influence not only household income but also the time, attention, and academic values they transmit to their children. Empirical evidence shows that parents' occupations determine both their financial capacity and time availability to support children's education. Stable and formal employment enables consistent support for school expenses and participation in school activities, while informal or seasonal jobs limit parental involvement (Revocatus et al., 2025). In Tanzania, Shukia (2023) and Assey (2025) observed that children whose parents were self-employed or engaged in low-income occupations were more likely to depend on school lunch programs for daily meals. These programs ensured consistent attendance and reduced fatigue during lessons. Similarly, George (2025) found that the school lunch program preserved the negative effects of occupational instability by providing an equal learning environment for students from diverse occupational backgrounds.

However, while most studies affirm the impact of parents' occupation on engagement, they often treat the variable as isolated from broader socioeconomic dynamics. Few studies, particularly in Tanzania, have explored how occupation interacts with other factors, such as school lunch programs, to influence students' engagement in learning (Mwakisole & Moshia, 2022). The results create an empirical gap that this study

seeks to address by examining parents' occupation within a multidimensional socioeconomic framework. Therefore, school lunch programs act as a stabilizing factor, mediating the relationship between parents' occupation and students' engagement in learning (Mketo et al., 2022).

Furthermore, Household living conditions are crucial since they include housing quality, sanitation, access to clean water, electricity, and the presence of a study space, all of which are key indicators of parents' household living. Factors influence students' cognitive readiness and learning engagement. Poor household conditions often correlate with malnutrition, fatigue, and absenteeism (United Nations Children's Fund, 2024). In Tanzania, studies in Mbulu and Lushoto District Councils found that students from poor living environments exhibited lower participation and concentration levels than those from stable homes (Revocatus et al., 2025; Bakari, 2025). However, schools with structured lunch programs recorded higher engagement levels, as access to daily meals compensated for inadequate home nutrition (World Food Program, 2023). In the Tanzanian setting, research by Mamiro & Msuya (2024) in Morogoro revealed that poor housing correlated with high absenteeism and low engagement in learning. Global evidence also indicates that school feeding improves students' attention, energy, and motivation among students from poor backgrounds (Hoyle et al., 2022). Thus, the school lunch program effectively mediates the influence of poor household living conditions by providing a reliable source of nutrition that enhances classroom participation and engagement in learning (Gu et al., 2024).

The empirical insights from this review highlight the critical contributions of empirical evidence from Tanzania, as supported by international reviews, indicating that parents' socioeconomic factors (income, education, occupation, and household conditions) each affect student engagement through material, informational, and time resource pathways. School lunch programs emerge as a practical mediator by reducing hunger, stabilizing attendance, and fostering home-school linkages. Well-designed feeding interventions can alleviate parents' socioeconomic factors that contribute to gaps in students' learning engagement. The strength of mediation normally depends on program quality, coverage, and integration with broader services (Mabula et al., 2023).

## METHODOLOGY

This review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework. A comprehensive search was conducted in Scopus, ERIC, JSTOR, Web of Science, PubMed, ResearchGate, and Google Scholar for studies published between January 2015 and August 2025. The search orders included combinations of keywords such as parents' socioeconomic factors, school lunch programs, mediation, mediator, Tanzania, secondary schools, and students' engagement in learning. Only peer-reviewed empirical or systematic review studies published between 2015 and 2025 were included. Inclusion criteria required that studies: (1) examined relationships between socioeconomic factors, school lunch programs, Students' engagement in learning, and mediation; (2) focused mainly on Tanzanian or comparable sub-Saharan contexts; (3) provided empirical data; and (4) were published in English, and focused on either primary or secondary education. Exclusion criteria included studies lacking empirical data, studies without clear parental socioeconomic factors or Students' engagement in learning measures, studies without clear methodological frameworks or lacking direct relevance to school lunch program mediation effects, and non-peer-reviewed sources. A total of 248 articles were initially identified. After removing duplicates and screening abstracts, 88 articles met the eligibility criteria

for full-text review. Of these, 42 studies were finally included in the final synthesis, representing varied geographical settings and institutional backgrounds. Quantitative results were integrated using meta-analytic approaches, while qualitative evidence was examined thematically to uncover consistent trends. Ethical rigor was maintained through the accurate reporting of findings and proper acknowledgment of all intellectual contributions.

Furthermore, a mixed-methods appraisal tool (MMAT, 2018) was used to present the methodological quality assessment. A total of 42 studies met the inclusion criteria, of which 17 were based on Tanzanian empirical studies. This method (MMAT, 2018) was used to evaluate the rigor of each survey. Therefore, the tool evaluates methodological quality across qualitative, quantitative, and mixed-methods designs, rating each study against five criteria. The results are summarized below with qualitative judgments (High, Moderate, Low) reflecting the number of criteria satisfactorily met. Each study was screened for clarity of research questions and adequacy of data collection, followed by an assessment against five quality indicators relevant to its methodological category. Studies meeting at least four of the five criteria were judged to be of high methodological quality, while those meeting three were classified as moderate quality. Overall, the Tanzanian studies demonstrated moderate-to-high quality, suggesting sufficient rigor for inclusion in the synthesis.

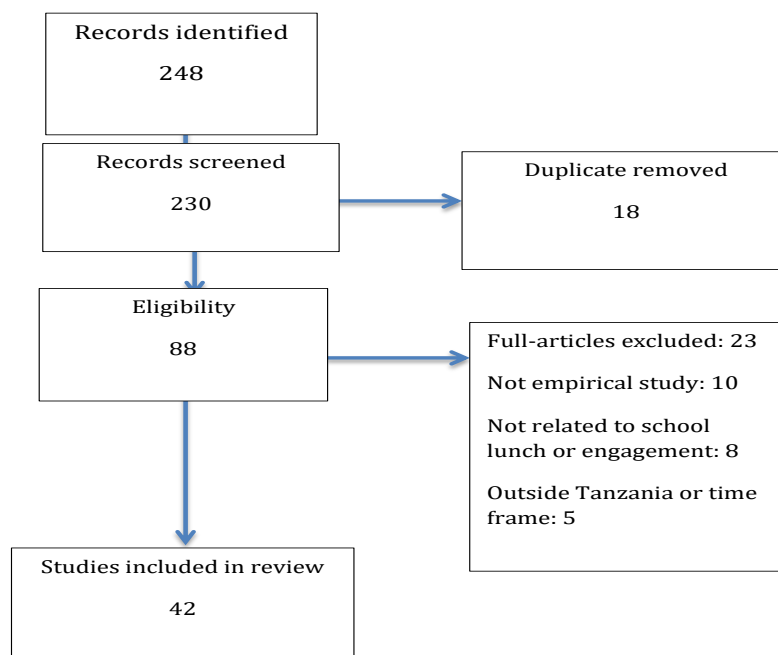


Figure 1. PRISMA 2020 Flow diagram for systematic reviews

Table 1. Mixed methods appraisal tool

Author(s) & Year	Title	Study Design	Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	Overall Quality Judgment
Assey, C. B. (2025)	Enhancing School Attendance Through School Feeding Programs: Evidence from Primary Schools in Ubungo Municipality, Tanzania	Quantitative non-randomized	Yes	Yes	Yes	Yes	Yes	High
Mketo, L. A., Mwakasangula, E., & Tefurukwa, O. W. (2025)	The influence of school feeding programmes on students' academic performance in Shinyanga Municipality, Tanzania	Quantitative non-randomized	Yes	Yes	Yes	Can't tell	Yes	High
Shukia, (2023)	R. Fee-free Basic Education Policy Implementation in Tanzania: A 'Phenomenon' Worth Rethinking	Qualitative	Yes	Can't tell	Yes	Can't tell	Yes	Moderate
Namwila, (2024)	J. Parents' Involvement in Sustaining School-based Feeding Programme in Tanzania: A Case of Public Secondary Schools in Namtumbo District	Mixed methods	Yes	Yes	Yes	Yes	Yes	High
Boi, B. L. (2020).	L. The Influence of Home Environment on Learning Achievements Among Students in Public Day	Quantitative descriptive	Yes	Yes	Yes	Can't tell	Yes	High

		Secondary Schools in Mbulu Town Council, Tanzania							
Kagosi, H. E., Mandila, T., & Koda, G. (2021).		Parental Contribution to Their Children's Education in Public Secondary Schools in Lushoto District Council, Tanzania	Qualitative	Yes	Yes	Yes	Yes	Can't tell	High
Daftari, M., & Umeodum, M. (2022)		Effects of school feeding programs on female students' academic performance in community secondary schools in Morogoro, Tanzania	Quantitative non-randomized	Yes	Yes	Can't tell	Yes	Can't tell	Moderate
George, (2025)	M.	School feeding programs and their influence on student retention in Tanzania	Quantitative non-randomized	Yes	Yes	Can't tell	Yes	Yes	High
Bakari, (2025)	G.	The impact of school feeding programs on pupils' learning engagement in Arusha District, Tanzania	Quantitative non-randomized	Yes	Yes	Yes	Can't tell	Yes	Moderate
Byejwe, P. A., & Mwila, P. M. (2025)		Enhancing student learning through parental participation in school meetings: A case study of secondary schools in Kinondoni Municipality,	Qualitative case study	Yes	Yes	Yes	Yes	Yes	High

Tanzania									
Mwakisole, B., & Masha, H. (2022)	Parents' employment and its influence on secondary students' school engagement in Tanzania	Quantitative non-randomized	Can't tell	Yes	Yes	No	Yes		Moderate
Revocatus, L., Lyamtane, C., & Muteti, P. (2025)	Food provision strategies and their effects on student attendance in Sikonge District, Tanzania	Quantitative non-randomized	Yes	Yes	Yes	No	Yes		Moderate
Mabula, P., Mkulu, D. G., & Tangi, F. (2023)	Implementation of School Feeding Program on Enhancing Students' Learning in Public Secondary Schools: Misungwi District, Tanzania	Quantitative non-randomized	Yes	Yes	Yes	Can't tell	Yes		Moderate
Alphonse, E. (2024)	Community perceptions of school feeding programs in secondary schools in Dar es Salaam City Council	Qualitative case study	Yes	Yes	Yes	Yes	Yes		High

Critical Appraisal Summary (MMAT, 2018)

**RESULTS AND DISCUSSION**

**The School Lunch Program as a Mediator Between Parents' Income and Students' Engagement in Learning**

Findings across the reviewed studies reveal that school lunch programs significantly mediate the relationship between parents' socioeconomic factors and students' engagement in learning in Tanzanian government secondary schools. In contexts of low parental income, these programs reduced short-term hunger and improved cognitive functioning (Bakari, 2025; Daftari & Umeodum, 2022). The observed mediation aligns with Bronfenbrenner's Ecological Systems Theory and Maslow's Hierarchy of Needs, suggesting that fulfilling

physiological needs enhances students' capacity for engagement and achievement (Gu, Li, & Chen, 2024). However, program implementation remains uneven due to local-level financing and logistical constraints (Alphonse, 2024). Several studies emphasize that irregular meal provision undermines attendance benefits (Revocatus et al., 2025). Moreover, limited longitudinal and experimental studies constrain causal understanding of the mediating effects. Future research should examine how school feeding interacts with gender and community participation to shape student engagement in learning. In Tanzania, the expansion of school feeding programs under the National School Feeding Strategy (2021–2026) has demonstrated tangible results in improving

participation among secondary school students in rural districts such as Mtwara. Empirical evaluations indicate that schools that implement lunch programs record higher daily attendance and lower dropout rates compared to non-beneficiary schools (MoEST, 2023). However, disparities like program coverage remain uneven across regions, and the sustainability of the programs continues to face challenges. Beyond nutrition, the psychosocial environment created by regular school meals fosters a sense of belonging and equity among learners. Studies from Kenya, Ghana, and Tanzania show that students who consistently access school lunches develop higher motivation and social interaction (Ahmed et al., 2018; Addae & Nyarko, 2019). Results suggest that lunch programs not only meet physiological needs but also strengthen emotional engagement and peer relationships as key elements of engagement in learning.

#### **The School Lunch Program as A Mediator Between Parents' Education Level and Students' Engagement in Learning**

Mamiro & Msuya (2024) reported a direct correlation between mothers' education and girls' academic performance, largely due to increased parents' involvement. Children from families with higher educational attainment were more likely to participate in classroom activities, complete homework, and exhibit higher academic motivation (Mwakisole & Mosha, 2022). These studies, however, primarily focus on cognitive outcomes, with limited attention to engagement as a multidimensional construct (behavioural, emotional, and cognitive engagement), suggesting a need for more emphasis to be researched.

#### **The School Lunch Program as A Mediator Between Parents' Occupation and Students' Engagement in Learning**

Mwakisole & Mosha (2022) found that students whose parents worked in stable jobs (civil servants, teachers, or health workers) exhibited stronger academic focus and more consistent school attendance. Conversely, those whose parents were involved in fishing, petty trade, or seasonal activities such as farming, common in regions like Mtwara, often missed school due to labour demands, food insecurity, or lack of learning support at home. The findings align with findings from the Ministry of Education's Education Sector Performance Report (MoEST, 2023), which pointed out that children from informal occupational backgrounds are more likely to struggle with school learning engagement.

However, while most studies affirm the impact of parents' occupation on students' engagement, they often treat the variable as isolated from broader socioeconomic dynamics. Few studies, particularly in Tanzania, have examined how occupation interacts with other factors, such as school lunch programs, household conditions, or parents' education, to influence students' engagement in learning. These insights create an empirical gap that this study seeks to address by examining parents' occupations within a multidimensional socioeconomic framework.

#### **The School Lunch Program as A Mediator Between Parents' Household Living Conditions and Students' Engagement in Learning**

A study by Daftari & Umeodum (2022) revealed that poor housing and living conditions were associated with a high absenteeism rate and low academic performance. These studies affirm the need to consider living standards as part of broader socioeconomic influences on engagement in learning. Also, a survey by Garrett-Peters et al. (2019) revealed that housing quality and overall living conditions have a significant impact on both physical and psychological readiness of students' engagement in learning. Poor housing conditions, such as overcrowding, lack of electricity, and absence of a study space, have been associated with reduced concentration and academic fatigue.

This review confirms that school lunch programs mediate the relationship between parents' socioeconomic factors and students' engagement in learning in Tanzanian government secondary schools. In contexts of low parents' income, these programs reduce short-term hunger and improve cognitive functioning (Bakari, 2025). The observed mediation aligns with Bronfenbrenner's Ecological Systems Theory and Maslow's Hierarchy of Needs, suggesting that fulfilling physiological needs enhances students' capacity for engagement and achievement (Gu et al., 2024). However, program implementation remains uneven due to low financing and logistical constraints (Alphonse, 2024). Several studies emphasize that irregular meal provision undermines students' attendance, concentration, and participation in learning activities (Revocatus et al., 2025). Moreover, limited longitudinal and experimental studies constrain causal understanding of the mediating effects. Future research should explore how school feeding interacts with gender, rurality, and community participation to shape learning engagement. Additionally, future research should employ longitudinal and mixed-method designs

with SEM or multilevel modelling to quantify the mediation effect of the school lunch program.

### CONCLUSION AND POLICY RECOMMENDATIONS

School lunch programs play a vital mediating role between parents' socioeconomic factors and students' learning engagement. Tanzanian empirical evidence between 2015 and 2025 supports the assertion that a well-implemented lunch program improves attendance, participation, and motivation, particularly among low-socioeconomic status students. Strengthening intersectoral collaboration between education and nutrition agencies is recommended to ensure sustainability and equity. Policy implementation guided by empirical monitoring will be essential to optimising the impact of school lunch initiatives on students' engagement in learning. Expand universal school lunch programs in Tanzania and other low- and middle-income countries by integrating feeding programs with broader social protection and educational initiatives. The program's sustainability will be ensured through government funding, community participation, and the encouragement of longitudinal research to evaluate mediation pathways. By addressing both physiological and academic needs, school lunch programs contribute to equitable and quality education, supporting global development goals and inclusive education.

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