



# Barriers to Effective Nutrition Education in Basic Schools in Ghana: A Conceptual Review

Faustina Abor-Adjei

Dodowa Health Research Center, Ghana Health Service, Accra, Ghana

Email: faadjei@gmail.com

**How to cite this paper:** Abor-Adjei, F. (2026) Barriers to Effective Nutrition Education in Basic Schools in Ghana: A Conceptual Review. *Open Access Library Journal*, 13: e14752. <https://doi.org/10.4236/oalib.1114752>

**Received:** December 15, 2025

**Accepted:** January 17, 2026

**Published:** January 20, 2026

Copyright © 2026 by author(s) and Open Access Library Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

Effective nutrition education is essential for promoting healthy dietary behaviors and lifelong well-being among school-aged children. In Ghana, basic schools provide a strategic platform for nutrition education, yet multiple barriers continue to undermine their effective delivery. This conceptual review synthesizes empirical literature, policy documents, and theoretical perspectives to examine the key structural, pedagogical, and institutional constraints affecting nutrition education in Ghanaian basic schools, with a focus on urban public schools. Guided by the Health Belief Model and Social Cognitive Theory, the review highlights challenges related to inadequate teacher preparation, limited teaching and learning resources, weak policy implementation, overcrowded curricula, and insufficient family and community engagement. The analysis also reveals significant gaps between curriculum intentions and classroom practice. The paper advances contextually grounded recommendations for policy reform, teacher professional development, curriculum enhancement, and school-community partnerships to strengthen skills-based, culturally relevant nutrition education in Ghana.

## Subject Areas

Public Health and Nutrition

## Keywords

Nutrition Education, Basic Schools in Ghana, School Health Policy, Critical Curriculum, Health Belief Model, Social Cognitive Theory

## 1. Introduction

Good nutrition during childhood is essential for healthy growth, cognitive development, and academic performance [1]. In Ghana, an emerging paradox of mal-

nutrition has been observed: undernutrition and micronutrient deficiencies persist alongside rising rates of childhood overweight and obesity in urban areas [2]. This double burden of malnutrition is especially evident in the Greater Accra region, the country's most urbanized area, where lifestyle changes and nutrition transition have increased children's exposure to energy-dense foods and sedentary behaviors [3] [4]. Ensuring effective nutrition education in basic schools (primary and junior high levels) is therefore critical not only to combat undernutrition and hunger but also to promote healthy eating habits that can prevent obesity and diet-related diseases. The school setting offers a strategic platform to impart nutrition knowledge and shape positive dietary behaviors at an early age [2] [5]. Indeed, nutrition literacy is increasingly recognized as a crucial life skill for children's long-term well-being [2].

Despite global and national calls to integrate nutrition into school curricula, including the World Health Organization's (WHO) recommendations for school-based initiatives to end childhood obesity, Ghana faces significant barriers in delivering effective nutrition education in public basic schools [2]. Previous studies and policy reviews reveal that nutrition education in Ghanaian schools has been treated as a low priority, often "buried" within other subjects and lacking dedicated attention [2]. Key stakeholders acknowledge the importance of nutrition education, yet systemic issues in the education sector, such as the Eurocentric curriculum and its theoretical base, have alienated most students from core educational benefits that are supposed to have been implemented by any critical curriculum [6]. As a result, many pupils complete basic education with limited nutrition knowledge and unhealthy eating habits, undermining both their health and educational attainment. This conceptual review examines the barriers to effective nutrition education in Ghana's public urban basic schools, with a focus on Greater Accra, drawing on perspectives from both education and health sectors. The review is grounded in two complementary behavior change theories—the Health Belief Model and Social Cognitive Theory—to analyze how individual beliefs, pedagogical practices, and environmental factors intersect to influence nutrition education outcomes. The study synthesizes evidence from peer-reviewed studies and policy documents and proposes recommendations to strengthen nutrition education for Ghana's basic school students. By addressing these barriers, Ghana can better leverage its schools to "*learn to eat well*" and, in turn, enable children to "*eat well to learn well*", ultimately supporting the achievement of both health and education goals.

The author is a Principal Public Health Officer at the Dodowa Health Research Centre under the Ghana Health Service, Accra, Ghana. This professional position shapes the author's perspective on nutrition education as both a public health intervention and a foundational component of child development and disease prevention. Through sustained engagement with community health programs, outreaches, research, school health initiatives, and policy implementation processes, the author brings practitioner-oriented insights into the structural, institutional,

and resource-related barriers that affect nutrition education in basic schools. At the same time, the author acknowledges that this background may privilege a health-sector interpretation of educational challenges. To mitigate this, the conceptual review intentionally integrates perspectives from education, curriculum studies, and behavioral science, drawing on diverse empirical and policy sources. The author approaches this work with the belief that equitable access to quality nutrition education is a social justice issue and remains reflexive about the power dynamics between policy, schools, families, and communities. This positionality informs a commitment to evidence-based, contextually grounded, and policy-relevant analysis that speaks to both health and education stakeholders in Ghana.

## 2. Literature Review

### 2.1. Barriers to Nutrition Education in Urban Ghanaian Schools

A major barrier to effective nutrition education in Ghana's basic schools is the absence of a clearly defined place for nutrition within the national curriculum and policy framework, resulting in significant curriculum and policy gaps. [2] note that nutrition is not taught as a standalone subject in Ghanaian primary schools but is instead weakly embedded within subjects such as science and physical education. This integration is often superficial, and comparisons between Ghana's primary syllabus and Food and Agriculture Organization (FAO) guidelines for nutrition education in developing countries reveal substantial deficiencies in nutrition content [2]. The physical education syllabus developed by the [7], which remains in use, does not provide a clear policy direction, scope, or sequence for nutrition education. Consequently, there are no official guidelines for teachers to follow when teaching nutrition. Stakeholders report that there are no Nutrition Education guidelines readily available in schools, compelling teachers to rely largely on personal knowledge rather than structured curricular direction [2]. As a result, nutritional education is often delivered in an ad hoc manner or omitted entirely because it is neither mandated nor formally assessed. Within Ghana's high-stakes examination system, subjects that are not examined in the Basic Education Certificate Examination (BECE) tend to receive minimal attention. Teachers admit that because nutrition is not examined, it is deprioritized and viewed as work that "does not really count", particularly amidst pressure to improve performance in core examinable subjects [2]. Over time, this systemic focus on examinable subjects marginalizes nutrition education, reinforcing policy-level barriers that ultimately constrain consistent classroom practice.

Another barrier to effective nutrition education in Ghana's basic schools is limited human capacity, particularly teachers' inadequate knowledge and training in nutrition science. [2] found that many teachers lack formal preparation in nutrition and receive little to no professional training on how to teach nutrition-related topics. In their study of primary schools in Ghana, teachers themselves identified knowledge insufficiency as a key impediment to effective instruction, with less than half reporting confidence in teaching nutrition due to their limited academic

background in the subject [2]. Nutrition is not sufficiently emphasized in pre-service teacher education, and in-service training opportunities on health and nutrition remain rare. As a result, teachers may skip nutrition topics entirely or provide incomplete or inaccurate information. Many rely on informal sources such as the internet, health

officials coming to give a talk, or NGOs, yet lack the pedagogical skills to translate this information into age-appropriate lessons [8]. This weak preparation contributes to the marginalization of nutrition education in schools and results in superficial instructional delivery. Additionally, teachers' limited capacity is compounded by low motivation for non-examinable subjects, further reducing their willingness to prioritize nutrition education [2]. Overall, inadequate teacher knowledge, confidence, and professional development remain critical barriers to effective nutrition education.

Also, resource and instructional material constraints present a significant barrier to effective nutrition education at Ghana's basic school level. Even when teachers are motivated, they often lack the tools required for meaningful instruction. Practical, skills-based nutrition education is most effective when supported by concrete teaching aids such as food models, posters, lesson guides, and real ingredients for demonstrations [9] [10]. However, such resources are largely unavailable in public basic schools in Ghana. Teachers report the absence of nutrition kits, food models, and visual aids, forcing instruction to remain largely theoretical instead of experiential [2]. This gap weakens pupils' ability to translate nutrition knowledge into practical dietary skills. Although some school-based nutrition interventions show positive outcomes when structured materials are provided, their long-term sustainability is constrained by persistent shortages of teaching and learning resources in most public schools [5].

Additionally, underfunding of school health programs remains a major constraint on effective, experiential nutrition education in Ghana's public basic schools. Although initiatives such as school gardens, cooking demonstrations, and nutrition clubs could enhance hands-on learning, these activities are rarely implemented due to limited financial and material support. Ghana's School Health Education Program (SHEP) outlines a comprehensive package of services, including health screening, hygiene education, and nutrition promotion; however, full implementation across regions is hindered by persistent resource constraints [11]-[13]. In practice, many school nutrition activities, such as deworming, micronutrient supplementation, or fruit and vegetable promotion days, occur sporadically and are often dependent on donor or NGO support [4]. Textbooks and teaching guides also provide limited structured nutrition content, offering few practical lesson plans. As a result, interactive and experiential learning opportunities, which are known to improve outcomes, are often difficult to sustain [5]. Overall, inadequate material and financial resources continue to undermine both the scope and quality of nutrition education in basic schools.

Again, there is limited family and community engagement in nutrition educa-

tion. Effective nutrition education for children is reinforced by the involvement of families and the community, but Ghana's current approach has gaps in this area. Research indicates that children's eating behaviors are strongly influenced by their family environment and caregivers [8]. However, school-based nutrition efforts in Ghana often operate in isolation from parents and community members. A recent Ghanaian study identified the non-involvement of parents and family members in nutrition education sessions as a teething challenge for school nutrition programs [5]. Meanwhile, the literature of [14] has found that parental involvement in the school environment greatly improves learning outcomes and enhances the academic performance of students. Parents are not routinely included in nutrition workshops or school health committees, and there is often a communication gap. For instance, if children learn about healthy eating at school, there may be no mechanism to convey that information to their homes. This disconnect can limit the impact of school lessons, as children return to home environments that may not reinforce the same messages or provide healthy options.

Moreover, caregivers' own nutritional knowledge may be limited. In [2] survey, only about 36% of primary school children in Ghana had ever heard the term "nutrition", and the majority of those who had learned about it from family members. Caregivers in the [2] study cited various reasons for not encountering nutrition information, indicating that community-level awareness is lacking. While Ghana's National Nutrition Policy emphasizes behavior change communication at the community level [1], these efforts may not directly link with what schools are teaching. Without deliberate strategies to engage parents, such as PTA meetings focusing on nutrition, sending educational materials or healthy recipes home, or involving parents in school feeding menu planning, children may receive mixed messages. This inconsistency can diminish the effectiveness of nutrition education. Engaging the wider community, including local health workers, food vendors, and traditional leaders, is also crucial for creating a supportive environment. In sum, the lack of strong family and community involvement is a barrier that leaves school-based nutrition education efforts without the complementary reinforcement needed for lasting behavior change.

Furthermore, the environment in and around schools in urban Ghana can sometimes counteract the goals of nutrition education. Most market women and working mothers, due to their busy schedules, are unable to prepare home food for their children when going to school and therefore resort to less expensive and junk foods for the school children [15]. Many urban public schools, especially in Greater Accra, have food vendors or canteens on or near campus that sell inexpensive snacks and meals to pupils. Often, these foods are energy-dense and nutrient-poor, such as fried snacks, sweets, sugar-sweetened beverages, and refined carb-heavy meals, which are commonly available around school premises [3]. This creates an obesogenic environment that makes it difficult for children to apply healthy eating lessons. The [3] survey of food and beverage advertising around primary and junior high schools in the Greater Accra Region found an abundance of unhealthy food advertisements in the vicinity of schools: fully 70% of food ads ob-

served were for non-core “junk” foods, with sugary drinks being the most advertised product. Such pervasive marketing of junk foods around schools can entice children and normalize the consumption of high-sugar, high-fat items, directly undermining any classroom teachings about choosing healthy foods.

Additionally, some school feeding or canteen programs may not strictly adhere to nutritional guidelines. The Ghana School Feeding Program (GSFP) provides daily meals in many public primary schools and has nutritional objectives, but in practice, the quality and diversity of meals can be inconsistent [16]. If school-provided meals are monotonous or lack fruits and vegetables, children may not experience the variety emphasized in nutrition lessons. Also, basic amenities that support nutrition and health, such as clean water for drinking and handwashing, or adequate time and space for physical activity, are sometimes lacking in crowded urban schools [4]. Ghana’s Nutrition-Friendly Schools Initiative (NFSI), introduced in recent years, aims to create a more supportive school environment by establishing standards for healthy school meals, safe food vendors, and integration of health services [4]. However, these guidelines are still in early stages of implementation, and not all schools meet the “nutrition-friendly” criteria. Until the school environment is aligned with the nutrition education curriculum, children receive mixed signals that healthy eating may seem like merely theoretical advice when the immediate choices available to them are unhealthy. This inconsistency is a barrier to internalizing healthy behaviors. As one study noted, the only noticeable health outcome being tracked in some schools was the prevention of hygiene-related disease outbreaks, highlighting that nutrition outcomes were not being systematically monitored or achieved [8]. In essence, the broader school environment—from food availability and marketing to infrastructure and extracurricular activities—plays a pivotal role in nutrition education effectiveness, and current gaps in creating a health-promoting environment form a significant barrier in urban Ghanaian schools.

The last challenge is the sociocultural beliefs and perceptions of students and the community. Sociocultural attitudes towards food and health can influence how nutrition education is received by students and the community. In Ghana, as in many cultures, certain foods carry beliefs, and these beliefs can clash with modern nutritional advice. Children may come to school with preconceived notions learned from family or peers that vegetables are only for sick people, or that a chubby body is a sign of good caregiving. Nutrition education must navigate these perceptions. If the curriculum simply provides facts without addressing underlying beliefs, students might be unconvinced to change their habits. The Health Belief Model (HBM) [17] reminds us that individuals will take up healthy behaviors only if they perceive a serious risk (susceptibility and severity) and believe the benefits outweigh the barriers.

In many cases, Ghanaian students (and even their parents) may not fully perceive the immediate risk of poor nutrition; for instance, the dangers of high sugar intake or micronutrient deficiencies might not be obvious to them. Adolescents may prioritize taste and cost over nutritional value, viewing healthy foods as less

palatable or more expensive—a perceived barrier that education must work to reduce. Additionally, most traditional norms in Ghana mandate men in the family to take a larger portion of meat than children, who need the meat most. Also, hierarchical school cultures mostly limit open discussion; students may hesitate to ask questions about food taboos or challenge misconceptions. Teachers also bring their own beliefs: if a teacher believes a certain traditional snack is harmless, they may not emphasize its health effects. Overcoming these sociocultural and perceptual barriers requires culturally sensitive pedagogy and engagement, which is currently underutilized. Without tapping into students' and families' belief systems and motivating them, nutritional education can fail to resonate. This review uses behavior change theories to further unpack how such beliefs and perceptions affect nutritional education, as discussed in the next section.

In summary, multiple interrelated barriers, including policy-level, teacher-related, resource-based, environmental, and sociocultural factors, impede the effective delivery of nutrition education in Ghana's public urban basic schools. These barriers from the education system perspective (curriculum, teachers, resources) and the health context (community practices, food environment, health beliefs) converge to limit children's opportunities to learn about and practice healthy eating. The complexity of these challenges underscores the need for a comprehensive approach, informed by theoretical frameworks that account for individual, interpersonal, and systemic factors. Accordingly, the following section outlines the Health Belief Model and Social Cognitive Theory as lenses through which to analyze and address these issues.

## 2.2. Theoretical Framework

To better understand and address the barriers identified, this review is anchored in two theoretical models that are widely applied in health education—the Health Belief Model (HBM) [17] and Social Cognitive Theory (SCT) [18]. These frameworks offer insight into the cognitive and environmental factors that influence behavior change, providing a dual lens from both the individual (beliefs, knowledge, attitudes) and social-environmental (peer influence, resources, policy) perspectives. Using HBM and SCT in tandem helps bridge education and health domains, as they highlight how personal motivations and external conditions together shape the outcomes of nutrition education. Notably, both models have been successfully used in nutrition education program design, and their constructions can guide the development of more effective interventions in the school context [19] [20].

## 2.3. Health Belief Model (HBM)

The Health Belief Model [17], [21] explains health-related behaviors based on individuals' beliefs about health risks and the perceived benefits and barriers to acting. According to HBM, people are more likely to adopt health-promoting behaviors when they perceive themselves as susceptible to a health problem, believe the

condition is serious, recognize benefits in acting, perceive minimal barriers, receive a cue to action, and feel confident in their ability to act (self-efficacy). Within the context of nutrition education in Ghanaian schools, HBM is relevant to both students' eating behaviors and teachers' instructional practices. For students, the model suggests that knowledge alone is insufficient to change behavior unless it reshapes core health beliefs. If children do not perceive malnutrition, obesity, or poor diet as real threats ("I feel fine, why eat vegetables?"), they are unlikely to apply what they are taught. In many urban schools in Accra, nutrition-related challenges such as gradual weight gain or mild vitamin deficiencies are not immediately visible, contributing to low perceived severity. A more recent national-level study on the school food environment: The School Food Environment in Ghana is Associated with Dietary Diversity, and Anemia found associations between school food environment and anemia among in-school adolescents, suggesting that deficiencies and poor dietary quality persist among students [22]. Therefore, nutrition education should include age-appropriate, relatable examples to heighten students' perceived susceptibility and severity, such as linking excess sugary drink intake to dental cavities or explaining how skipping breakfast can cause weakness and poor concentration in class. By emphasizing tangible benefits like improved energy, growth, and academic performance, HBM-informed instruction can strengthen motivation for healthier food choices and reinforce the relevance of nutrition education.

For teachers and school administrators, the Health Belief Model (HBM) helps explain their level of engagement with nutrition education. Teachers are more likely to invest time in nutrition lessons if they believe their pupils are at real risk of nutrition-related problems and that instruction will yield meaningful benefits. However, perceived barriers such as limited time, overloaded curricula, and lack of content mastery discourage participation, as reported by Ghanaian teachers [2] [5]. Strengthening teachers' self-efficacy through targeted training and provision of structured lesson plans can reduce these constraints. Evidence from a recent systematic review shows that HBM-based nutrition programs are effective in changing dietary behaviors because they directly address these belief components [19]. In Ghana's context, HBM also underscores the need to reshape how pupils, families, and educators perceive nutrition risks and benefits.

#### **2.4. Social Cognitive Theory (SCT)**

Social Cognitive Theory (SCT), developed by Albert Bandura in 1986, posits that learning and behavior change occur in a social context through the dynamic interaction of personal factors, behavioral practices, and environmental influences—a concept known as reciprocal determinism [20]. SCT is highly pertinent to school-based nutrition education because it accounts for the fact that children learn not only through direct instruction but also via observation of others, imitation, and the influence of their environment. Key constructs of SCT include observational learning (modeling), outcome expectancies, self-efficacy, and environ-

mental facilitation. This theory has been widely used in designing elementary nutrition programs, acknowledging that multiple avenues, like knowledge, skills, and environmental support, must be addressed to change behavior [20].

In practice, applying SCT to nutrition education in Ghana means recognizing, for example, that students develop eating habits by observing role models (teachers, peers, family, media) and by reacting to the rewards or consequences they see. If a teacher models unhealthy habits, such as drinking soda in front of students or not valuing nutrition lessons, children receive the implicit message that nutrition is not important. Conversely, if teachers and school staff visibly practice healthy eating and discuss it, students are more likely to emulate those behaviors. This highlights the need for teachers to serve as positive role models in nutrition education—an aspect that current training does not emphasize. Additionally, SCT would encourage involving peer influence: student-led health clubs or peer educators could harness observational learning among classmates.

Self-efficacy, a core construct of SCT that overlaps with HBM, is particularly important in the adoption of behavior. In the context of nutrition, self-efficacy refers to the confidence of individuals to make healthy food choices or, for teachers, to successfully teach nutrition topics. Research has shown that higher self-efficacy in children correlates with healthier eating behaviors. For instance, [20] study found that 5th graders with high self-efficacy were significantly more likely to consume fruits, eat breakfast regularly, and engage in other healthy eating behaviors than those with low self-efficacy. Unfortunately, if Ghanaian students rarely get the chance to practice nutrition-related skills like selecting foods from a variety of options, reading food labels, or preparing simple healthy snacks, their confidence remains low. Traditional didactic teaching does little to build this confidence.

Also, environmental factors emphasized in Social Cognitive Theory (SCT) highlight that personal behavior change is strongly shaped by surrounding conditions. In Greater Accra's urban schools, this environment includes the availability of healthy versus unhealthy foods, exposure to food advertising, and the level of administrative support for health initiatives. SCT suggests that nutrition education is more effective when the environment supports healthy choices, often described as making the "healthy choice the easy choice". This can involve school policies such as restricting the sale of soda and candy on campus, ensuring access to clean drinking water, or introducing scheduled fruit breaks. The media environment is also critical, as Ghanaian children are widely exposed to junk food advertising [3], requiring complementary media literacy education and regulatory advocacy around schools. By recognizing these external influences, SCT aligns with the need for multi-component interventions. Evidence indicates that SCT-based programs for children aged 4 - 13 have improved diet and physical activity through combined strategies involving education, parental engagement, and environmental modification [20]. In Ghana, pilot interventions integrating nutrition education with physical activity demonstrate positive outcomes for children's nu-

trition knowledge and weight status, reinforcing the value of comprehensive SCT-informed approaches [1].

### 3. Methodology: Conceptual Review Approach

This study adopted a conceptual review methodology to critically examine barriers to effective, skills-based nutrition education in public urban basic schools in the Greater Accra Region of Ghana. A conceptual review is appropriate for this study because it enables the integration of theoretical perspectives, empirical research, and policy documents to generate an interpretive synthesis of key ideas, trends, and systemic challenges within school-based nutrition education. Rather than estimating effect sizes or adhering to the rigid procedures of a systematic review, this approach emphasizes theoretical integration, contextual analysis, and conceptual clarity to advance understanding of how structural, institutional, and pedagogical factors shape nutrition education practice in Ghanaian schools.

The literature reviewed was drawn from peer-reviewed journal articles, international policy reports, and national education and health policy documents. Electronic databases, including Scopus, Web of Science, PubMed, ERIC, Google Scholar, and African Journals Online (AJOL), were searched to identify relevant studies. Key search terms included combinations of nutrition education, school feeding, school health education, skills-based learning, Health Belief Model, Social Cognitive Theory, basic schools, urban schools, and Ghana. Additional sources were identified through backward and forward citation tracing of key articles to ensure coverage of influential works in the field of education and health.

To ensure relevance and quality, studies were included if they focused on school-based nutrition or health education, examined basic or primary school contexts, addressed pedagogical practices, teaching resources, or systemic barriers, and were published in peer-reviewed journals or reputable policy outlets. Priority was given to studies published within the last fifteen years, although seminal theoretical works on the Health Belief Model and Social Cognitive Theory were included irrespective of publication date. Studies that were not school-based, lacked relevance to nutrition or health education, or did not address educational or behavioral dimensions were excluded.

The selected literature was analyzed through a theory-informed thematic synthesis guided by the Health Belief Model (HBM) and Social Cognitive Theory (SCT). These frameworks provided the analytical lens for organizing findings related to (a) perceived benefits and barriers to nutrition education, (b) self-efficacy and behavioral capability, (c) observational learning, (d) environmental constraints, and (e) reciprocal interactions between schools, families, and communities. The synthesis process involved iterative reading, coding, and categorization of recurring themes, which were then organized into higher-order conceptual categories reflecting structural, institutional, and classroom-level barriers.

In addition to empirical studies, key policy documents were reviewed, including Ghana's School Health Education Program (SHEP) framework, national nutrition

policy documents, and international guidance from organizations such as the World Health Organization (WHO) and the Food and Agriculture Organization (FAO). These documents were analyzed to examine the alignment between policy intentions and practical implementation, especially concerning experiential learning initiatives such as school gardens, cooking demonstrations, and nutrition clubs.

Although the review drew on both global and African literature, particular emphasis was placed on studies conducted in Ghana and comparable sub-Saharan African urban contexts to enhance contextual relevance. To strengthen the trustworthiness of the synthesis, triangulation across empirical studies, policy documents, and theoretical models was employed. Reflexive engagement with literature was maintained throughout the process to minimize bias and to ensure that interpretations remained grounded in both theory and contextual realities.

## 4. Discussion

The findings of this review highlight that barriers to effective nutrition education in Ghana's basic schools are deeply intertwined with both educational system challenges and public health factors. By examining these barriers through the combined lenses of the Health Belief Model and Social Cognitive Theory, we can better understand not only *what* the barriers are, but *why* they persist and how they might be alleviated. Here, I discuss the implications of the key barriers identified, the interplay between education and health perspectives, and how the theoretical frameworks inform a path forward.

### 4.1. Interplay of Education and Health Perspectives

One overarching insight is that improving nutrition education is not solely an educational endeavor nor solely a health intervention; it fundamentally requires a collaboration between the education sector (schools, teachers, curriculum planners) and the health sector (public health authorities, nutritionists, community health programs). Ghana recognized this as far back as the establishment of SHEP in 1992, which was a joint directive by the Ministries of Education and Health to integrate health into schools [4] [11]. However, the execution of this integration has faced hurdles. From an education perspective, schools are focused on academic outcomes and often constrained by curricular and exam demands. Nutrition education, being non-examinable, fell through the cracks as an "extra". From a health perspective, the urgency of malnutrition calls for early preventive education, but health agencies alone cannot reach children effectively without the school platform. The lack of an explicit nutrition education policy meant that this critical area became "everyone's and no one's responsibility". That's, it wasn't clearly owned by the curriculum planners, nor systematically supported by health services in schools. The result is the current gap where the importance of nutrition is acknowledged in principle, but undervalued in practice within the school system, as postulated by [8]. Bridging this gap will require reframing nutrition edu-

cation as a foundational component of quality education (supporting SDG4 on education quality) and as a cornerstone of child health (supporting SDG2 on zero hunger and nutrition) simultaneously [23].

#### 4.2. Policy and Curricular Implications

It should be noted that the 2019 curriculum reform made formal provisions for nutrition education for Basic Schools in Ghana, but there has been a persistent implementation gap. Prior to the 2019 curriculum reform, nutrition education in Ghana's basic schools was constrained primarily by policy and curricular gaps rather than by implementation capacity. Nutrition content was weakly embedded within subjects such as science and physical education, with no standalone framework, clear learning outcomes, or grade-specific competencies. This lack of explicit policy direction meant that nutrition education was neither systematically planned nor pedagogically prioritized. Teachers operated without official guidelines, structured teaching materials, or assessment expectations, reinforcing the marginal status of nutrition within an examination-driven system. As a result, inconsistencies in coverage were largely attributable to the absence of a coherent national curriculum mandate and supporting policy instruments, rather than failures at the school or teacher level. In this pre-2019 context, nutrition education suffered from structural invisibility within curriculum design, making ad hoc delivery the norm rather than the exception.

By contrast, the post-2019 standards-based curriculum reform represents a policy turning point, as it formally recognizes health, nutrition, and wellbeing within basic education learning areas. However, the persistence of weak nutrition education outcomes in schools now reflects implementation failures rather than policy absence. Despite curricular provision, many schools lack the material resources, teacher training, instructional time, and institutional support required to translate curriculum intentions into effective, skills-based classroom practice. Teachers continue to report limited access to teaching aids and insufficient professional preparation, while nutrition remains non-examinable and therefore deprioritized in practice. This disconnect highlights a critical implementation gap: nutrition education exists on paper but is insufficiently operationalized within classrooms. Distinguishing these post-2019 challenges from earlier policy gaps sharpens the central argument of this review by demonstrating that Ghana's current barriers are less about *whether* nutrition education is recognized and more about *how* it is enacted, resourced, and sustained within everyday school practice.

The absence of a formal nutrition education curriculum or policy framework in Ghana has several implications. First, it leaves implementation up to individual schools or teachers, resulting in inconsistency. An enthusiastic teacher in one school might cover nutrition topics thoroughly, while another school might skip them entirely. This inequity is particularly concerning in public schools serving lower-income urban communities, where students might not get nutrition knowledge from home or elsewhere. It was noted that only about one-third of

Ghanaian schoolchildren surveyed had even heard the term “nutrition”, and most learned about it informally from family [2]. That indicates a systemic shortfall in delivering basic nutrition concepts through schooling. Meanwhile, Ghana’s curriculum has undergone reforms, notably a major reform around 2019 introducing a new standards-based curriculum, which provided an opportunity to integrate health and wellness more explicitly [24]. The findings of [2] came just after these reforms and highlighted that the prior syllabus had shortfalls.

It must be emphasized that the new curriculum reforms in Ghana [24] do make formal provision for nutrition/food education at the basic and pre-tertiary level. However, there is a substantial implementation gap such that in reality, many schools fail to deliver effective, skills-based nutrition education. This aligns with this study’s argument that teaching aids, resources, and practical components are often missing even though the curriculum nominally supports nutritional education. Here, a policy-level intervention is needed: possibly a dedicated School Nutrition Education Policy or the inclusion of nutrition as a required component of the “Life Skills” or “Science” curricula with clear learning objectives per grade. The discussion around making nutrition examinable is delicate—while one solution to ensure teaching is to include it in national exams, over-emphasis on exams can also lead to rote learning. A balanced approach would be to integrate nutrition knowledge and practice into school-based assessments or projects, which count toward students’ continuous assessment scores, thereby giving teachers a mandate to teach it without making it a high-stakes test.

### 4.3. Teacher Capacity and Incentives

Teachers’ lack of training and confidence in nutritional content emerged as a pivotal barrier, but it is also one of the more addressable issues. From an HBM perspective, teachers currently might not feel a strong “cue to action” to teach nutrition; it’s not examined, they haven’t been trained, and they may not see immediate benefits. To change this, the GES and Colleges of Education can incorporate nutrition and health education modules in both pre-service and in-service training. This would directly improve teachers’ knowledge, which fills the gap noted where many teachers only get information from NGOs or the internet, as reported by [10], and improve their teaching self-efficacy. As SCT predicts, increased self-efficacy can change behavior; a teacher who feels well-prepared is far more likely to implement engaging nutrition lessons. Some positive moves in this direction could include workshops using new nutritional education toolkits. Interestingly, [9] work is cited as showing how organized nutrition learning kits for teachers improved their ability to teach the subject. Ghana could adapt that idea to produce simple kits with lesson plans, visual aids, perhaps food models or flashcards about local foods, and distribute them to basic schools, accompanied by training sessions on how to use them. Such resource support addresses a concrete barrier and serves as a cue that nutritional education is officially expected. This will change the normative environment within the education sector toward nutrition education.

Moreover, teacher attitudes might shift if they understand the link between nutrition and student outcomes they care about, like attention span and learning capacity. Here, the health perspective provides compelling evidence: undernourished or iron-deficient children have difficulty concentrating and often perform worse in school, while well-nourished children have better cognitive function and school attendance [23]. Communicating these links to teachers, for example, through seminars or educational materials, can frame nutrition education as helping teachers achieve their primary goal of educating students. If teachers are motivated that spending 30 minutes a week on a nutrition activity could actually improve student behavior or performance in class (perceived benefit), they may be more inclined to value it. That's to say, teachers' enthusiasm mostly translates into students' improved level of learning. The research by [25] on "*Motivation and Academic Performance*" showed that when teachers are motivated, their enthusiasm and commitment are readily transmitted to learners, shaping pupils' own attitudes toward learning. He argued that motivated teachers tend to create more engaging, supportive, and interactive classroom environments, which encourage curiosity, persistence, and active participation among children. [25] further contends that through teachers' energy, expectations, and instructional practices, they model positive learning behaviors that pupils often emulate. HBM contends that people are more likely to adopt health-promoting behaviors when they perceive themselves as susceptible to a health problem. Relating HBM to teacher self-efficacy, pupils taught by motivated teachers are more likely to demonstrate higher levels of interest, confidence, and intrinsic motivation toward their learning tasks and behavior. This approach essentially finds a win-win intersection of health and education objectives.

#### 4.4. Student Engagement and Behavior Change

The ultimate target of nutrition education is the student's behavior by developing lifelong healthy eating habits. The discussion must acknowledge that knowledge alone does not equal behavior change, an understanding strongly supported by both HBM and SCT. Many school-based studies worldwide have shown that knowledge can improve while behavior remains stubbornly unchanged if other factors are not addressed [5] [20]. For Ghanaian students, especially in urban Accra, changing behavior might mean opting for water over a sugary drink, or choosing a bean pie over chips, or convincing their family to include vegetables in the evening meal. These are not trivial changes; they involve taste preferences, peer influence, convenience, and cost. Nutrition education, if done traditionally, may raise awareness but might not equip students with strategies to overcome these real-life barriers. Here, the HBM notion of perceived barriers and SCT's emphasis on skills and environment should inform the discussion: programs need to directly tackle common barriers. For instance, if "healthy food is not tasty" is a perception, schools could organize tasting sessions of nutritious but appealing snacks or a healthy cooking competition to show that healthy food can be delicious. If

cost is a barrier, lessons could include budgeting exercises or identifying affordable, local, nutrient-rich foods. If peer pressure leads to buying fizzy drinks, a class could do a project on sugar content that mobilizes students to collectively reduce intake, making it a positive norm.

One promising approach is the idea of “learning by doing”—converting some nutrition education into practical activities. Some Ghanaian schools, often at the outskirts, such as some schools in Dodowa, have trialed school gardens where children grow vegetables and learn about nutrition through tending the garden and eventually tasting the harvest. A study conducted on *Urban Sprawl and Food Security in the Shai Osudoku District of Greater Accra* found that the expansion of urban areas, which has shrunk agricultural lands, has led to the increase of backyard gardening, which provides a substitute for the dwindling farmlands in the area [26]. The study highlighted backyards and school gardens as an alternative to ensure food security. Such experiential learning through school gardens not only builds knowledge but changes outcome expectancies and self-efficacy: students see the effort it takes to produce food (building respect for it) and taste fresh produce (which can dispel notions that they don’t like any vegetables). The BMC Public Health study by [5] underscored that interventions were most effective when they connected with parents and offered experiential learning opportunities, supported by teachers. This comprehensive method is essentially SCT in action—involving multiple facets of a student’s life. In Greater Accra’s context, involving parents might include sending newsletters, as [5] did, or inviting parents to school health fairs where students showcase what they learned. This not only engages parents but could also alter parents’ own health beliefs as they get exposed to new information via their children. It should be noted that children can be “change agents” in families, a concept seen in some health interventions.

#### 4.5. Environment and Policy Reinforcement

The discussion of the school environment and outside-school factors like advertising reveals that some solutions lie beyond the classroom and require policy measures. It is encouraging that Ghana has been participating in international initiatives and acknowledging these issues. The Frontiers study by [3], which documented extensive junk food advertising around Accra schools, concluded that policy actions such as restricting unhealthy food marketing in children’s settings are needed. Environmental constraints resonate with SCT, which argues that learning and behavior change occur in a social context through the dynamic interaction of personal factors, behavioral practices, and environmental influences. This suggests that the government should consider environmental regulations, for example, limiting billboard advertisements for sugary drinks or high-calorie soda drinks near schools, or controlling sales of certain items on school grounds. Such public health policies would create a more supportive environment for the nutrition education taught in schools to translate into actual choices. If a child isn’t constantly tempted by brightly advertised junk food, the healthy diet messages can hold

stronger. Similarly, strengthening the flagship Ghana School Feeding Program (GSFP) to improve the nutritional quality of school meals complements classroom education: when children are served a diverse, balanced meal at school, it reinforces the lessons about what a balanced diet looks like.

[23] highlighted that Ghana's school feeding had positive impacts on cognition and that there have been pilot projects combining feeding with education. One implication is that scaling up these integrated interventions, meal provision and nutrition, and physical education could institutionalize good practices. For example, every school meal could be accompanied by a one-minute nutrition tip or a student-led presentation on the food being eaten (turning the lunch hall into a mini-classroom). While that might not always be feasible due to certain factors, such as time, it's the kind of creative reinforcement needed.

Again, the Nutrition-Friendly Schools Initiative (NFSI) guidelines in 2019 for Ghana [4], which revolve around creating a health-promoting school environment, if fully implemented, would mitigate many identified barriers: they call for skills-based health education (addressing teacher training and curriculum gaps), a safe food environment (addressing vendors and food availability), and school-based health services. However, as noted, implementation has been slow and partial due to resource constraints [4]. The discussion, therefore, points to an essential insight: political will and resource allocation are as crucial as technical strategies. Ghana will need to invest in these school health programs, perhaps leveraging partnerships with NGOs, international agencies like UNICEF or the World Food Program (WFP) that have supported school health, to fund teacher training, materials, and monitoring.

#### 4.6. Cultural Context and Evaluating Progress

It's important to discuss whether any intervention or policy must be culturally sensitive and context-specific. Ghana is a country with rich food traditions and diverse ethnic cuisines. Nutrition education should celebrate and leverage healthy aspects of local diets, such as promoting local legumes, grains, and fruits, rather than imposing foreign food concepts. Barriers like belief in certain food taboos can be overcome by involving community elders or health personnel who are respected, to endorse the nutrition messages. For example, if some families believe eggs are not good for children (a common myth in some places), having a local Nutritionist or respected figure address that in community forums can support the school's efforts.

A final discussion point is the need for better monitoring and evaluation of nutrition education outcomes. Presently, as one study noted, schools are primarily tracking health outcomes in terms of absence of disease outbreaks, not improvements in dietary behavior [8]. To ensure accountability and to learn what works, Ghana's education and health sectors should collaborate on simple indicators to track, such as changes in students' nutrition knowledge, which could be assessed via periodic quizzes or surveys, changes in the school environment like whether

unhealthy food vending have been replaced or modified, and even anthropometric or dietary indicators in the student population over time. This would make it easier to identify which barriers are being effectively addressed and which persist. For instance, if knowledge improves but behavior doesn't, that signals environmental or cultural barriers still at play. If some schools manage to implement innovative practices, documenting those success stories can provide models for others.

In conclusion to this discussion, the barriers to nutrition education in Ghana's urban basic schools are multifaceted but not insurmountable. They span from the high-level (policy implementation absence) to the grassroots (student attitudes), and addressing them requires interventions at multiple levels: policy reform, teacher development, resource provision, community engagement, and environment shaping. The HBM and SCT help reinforce that both the cognitive and social dimensions must be tackled. The education perspective ensures we consider curriculum, pedagogy, and school dynamics; the health perspective ensures we focus on outcomes like dietary behavior and link to broader nutrition initiatives. When these perspectives converge, as they must, the result can be a robust strategy that treats nutrition education as a pillar of both healthy schooling and educated healthfulness. The next section provides concrete recommendations emanating from this analysis, aiming to guide stakeholders in strengthening nutrition education for Ghana's young learners.

## 5. Recommendations

Based on the challenges identified and the theoretical insights gained, the following recommendations are proposed to enhance the effectiveness of nutrition education in public urban basic schools in the Greater Accra region of Ghana. These recommendations target multiple levels: policy, school administration, teachers, community, and students, reflecting the need for a comprehensive approach.

1) There is a need for a clear national policy framework for nutrition education in Ghana's basic schools. The Ghana Education Service, Ministry of Health, and Ghana Health Service should develop a National Nutrition Education Strategy, either as a stand-alone policy or integrated into existing frameworks. The policy should specify age-appropriate nutrition competencies, such as knowledge of food groups, balanced Ghanaian meals, hygiene, and physical activity by the end of primary school. Formalizing this policy would signal that nutrition education is mandatory, align school instruction with national health goals, and enable inspectors to monitor and enforce implementation.

2) Nutrition education should be systematically integrated into both pre-service and in-service teacher training in Ghana to address knowledge gaps and build instructional confidence. Colleges of education should include modules on basic nutrition, school health, and interactive teaching strategies within science or educational psychology courses. For practicing teachers, the Ghana Education Service and district education offices should organize regular professional development workshops focused on effective nutrition education pedagogies. In line with the

SHEP framework, a trained cadre of SHEP coordinators or health education champions should be strengthened in every school to provide mentorship and peer support. Training should also emphasize the importance and benefits of nutrition education, consistent with the Health Belief Model. Additionally, teachers should be supplied with user-friendly resource kits, including posters, flipcharts, games, and storybooks, produced collaboratively by government and development partners.

3) To strengthen the link between school meals and nutrition learning, this review recommends the formal integration of the Ghana School Feeding Program (GSFP) with classroom nutrition curricula, positioning the daily school meal as a structured, hands-on learning resource rather than a parallel welfare intervention. Specifically, nutrition concepts taught in class—such as food groups, balanced meals, dietary diversity, and hygiene—should be deliberately aligned with GSFP menus through simple pedagogical strategies, including short pre- or post-meal discussions, student-led identification of food groups on their plates, and reflective activities connecting meals to lesson objectives. Teachers, SHEP coordinators, and GSFP caterers could collaborate to ensure that menus not only meet nutritional standards but also serve demonstrative purposes for instruction. This integration would reinforce theoretical learning through lived experience, enhance students' self-efficacy in recognizing healthy meals, and reduce the disconnect between what children are taught and what they consume at school. By embedding GSFP into routine teaching and continuous assessment activities, schools can transform feeding from a standalone intervention into a consistent experiential learning platform that supports both educational and public health goals.

4) Curriculum enhancement should prioritize not only the quantity but also the quality and cultural relevance of nutrition education content. As [27] argues, a critical and meaningful curriculum must remain responsive to the lived realities of the learners it serves. Nutrition content should therefore reflect Ghanaian local diets, food practices, and student interests while aligning with international standards such as the FAO's nutrition education curriculum guide. Experiential learning should be embedded through practical activities such as school or container gardens in urban settings, healthy cooking demonstrations, and tasting sessions of locally prepared meals with healthy adaptations. Strong community partnerships should be encouraged, with local nutritionists and agricultural extension officers supporting school-based activities. The curriculum should also promote cross-curricular integration by linking nutrition to mathematics, English language, and social studies to reinforce learning across subjects.

5) Schools should strengthen their School Health Committees, as envisioned under SHEP, by actively involving teachers, parents, students, and local health workers in nutrition education efforts. These committees can promote student-centered initiatives such as termly "Health Days", where learners showcase nutrition knowledge through drama, posters, and cooking activities, reinforcing learning and influencing families through reciprocal social interaction. Community

engagement should also extend to local food vendors operating near schools. Rather than viewing them solely as sources of unhealthy food, schools can set basic nutrition standards and encourage vendors to provide healthier options such as fruits, water, or unsweetened porridge. Incentives such as a “Healthy Vendor Award” can promote compliance. Overall, positioning nutrition education as a shared community responsibility will strengthen behavior change and sustain healthy practices beyond the classroom.

6) Nutrition education programs and curriculum updates should be intentionally grounded in behavior change theories, particularly the Health Belief Model (HBM) and Social Cognitive Theory (SCT). Lessons should address learners’ perceptions of risk, severity, benefits, and barriers by using relatable, age-appropriate messages about anemia and healthy eating challenges. Interventions should also strengthen self-efficacy through practice, encouragement, and positive feedback. Role modeling is essential; inviting local sports figures or identifying student “health champions” can make healthy behaviors visible and aspirational. Peer learning should be promoted through group activities such as planning healthy menus and class presentations. In line with SCT’s reciprocal determinism, programs should also include feedback mechanisms, such as gathering student responses to healthy snack policies, to foster ownership, improve relevance, and strengthen sustained engagement.

7) Lastly, transformational leadership in GES and GHS can play a critical role in addressing the barriers to effective nutrition education in Ghana’s basic schools by inspiring collective commitment, strengthening teacher motivation, and driving systemic change. School leaders who model a strong vision for student health can elevate nutrition education from a marginal activity to a shared school priority. Through intellectual stimulation, leaders can encourage innovative, context-responsive teaching strategies despite limited resources, while individualized support can build teachers’ confidence to teach effectively [28]. Transformational leaders also foster collaboration with families, health workers, and community partners, helping to mobilize resources and sustain programs. In this way, leadership becomes a catalyst for overcoming policy, capacity, and resource constraints that undermine nutritional education.

By implementing these multifaceted recommendations, Ghana can make significant strides in dismantling the barriers to nutrition education in its basic schools. The recommendations aim to create an enabling environment where teachers feel capable and compelled to teach nutrition, students find the learning engaging and relevant, and the school setting reinforces healthy messages. Over time, this will not only improve the health literacy of the students but is likely to yield improvements in their nutritional status and even educational outcomes, which truly combines the education and health perspectives for mutual gains.

## 6. Limitations of the Review

While this conceptual review provides a comprehensive synthesis of barriers to

effective nutrition education in Ghanaian basic schools, some limitations should be acknowledged to enhance interpretive clarity and scholarly rigor. First, the review focuses primarily on public urban basic schools in the Greater Accra Region, which may limit the generalizability of the findings to rural or peri-urban contexts. Rural schools in Ghana often face distinct challenges, including greater resource scarcity, limited access to trained health personnel, infrastructural deficits, and different food availability patterns, which may shape nutrition education in ways not fully captured in this analysis. Second, as a conceptual review, the study relies on secondary sources, policy documents, and existing empirical literature rather than primary data, which constrains the ability to assess real-time classroom practices or implementation fidelity across schools. Finally, although the review integrates education and public health perspectives through established theoretical frameworks, variations in local school leadership, community engagement, and district-level policy enforcement may produce outcomes that differ from those discussed here. Acknowledging these limitations underscores the need for future empirical studies, particularly comparative research across urban and rural settings, to validate and extend the insights generated by this review.

## 7. Conclusions

Nutrition education in Ghana's basic schools stands at the nexus of educational development and public health, offering a powerful opportunity to shape the well-being of the next generation. It is an undeniable fact that a sound mind lives in a healthy body. Students' health impacts their academic performance. This conceptual review has illuminated the key barriers that currently impede effective nutrition education in public urban basic schools in the Greater Accra region, and by extension, similar contexts in the country. These barriers—spanning from policy implementation omissions and curriculum undervaluation to unprepared teachers, scarce resources, limited parental involvement, and unsupportive food environments—form a complex web that has thus far constrained children's learning about healthy diets. These challenges ultimately impact students' health and their learning ability. Through the analytical lenses of the Health Belief Model and Social Cognitive Theory, it has been seen that these challenges are not merely logistical or content-based; they are deeply rooted in perceptions, motivations, and social conditions. Teachers did not prioritize nutrition because they lacked both the self-efficacy and external incentives to do so, as shown in the reviewed literature. Students may not internalize nutrition lessons if their environment bombards them with contrary cues, or if the lessons never feel personally relevant to their lives.

However, within these challenges lie the seeds of solutions. The review found evidence that change is possible. Numerous studies and pilot programs demonstrate that when nutrition education is done right, it can indeed improve knowledge, attitudes, and even dietary practices among children. The recommendations put forth call for coordinated action: the education sector taking leadership in insti-

tuting policies and curriculum changes, the health sector supporting with expertise and community outreach, and resources being invested into teacher training and educational materials. The Greater Accra region, being highly urban and exposed to rapid nutrition transition, can be an ideal starting point for intensive interventions, which can then be adapted to other regions. Urban schools have challenges like pervasive junk food advertising, but they also tend to have better access to media, health facilities, and potential partner organizations, which can be leveraged to implement the recommended changes.

One of the crucial insights of this review is the importance of seeing nutrition education not as an “add-on” but as an integral part of a quality basic education. Just as literacy and numeracy are fundamental, so too is health literacy. A child who understands nutrition is empowered to make choices that affect their capacity to learn and thrive. In practical terms, this means that a paradigm shift is needed: school principals and teachers should treat the health of their students as part of their educational mission. Encouragingly, all the key stakeholders in Ghana—from government to families—recognize the value of nutrition education. The task ahead is to translate this recognition into concrete actions and daily practices in schools.

The Health Belief Model guided us to realize that we must nurture the belief among educators and students that nutrition matters greatly now, not just in some distant future when diseases strike. The Social Cognitive Theory reminded us that knowledge must be paired with skills and a conducive environment. When a school garden flourishes, and students taste what they grow, when a teacher proudly displays a certificate from a nutrition training workshop, when a parent chooses water over soda drinks for their child because the child insisted on a healthier choice—these are small victories that signal a culture shift. Over time, these individual changes can coalesce into a systemic change where healthy practices are the norm.

In conclusion, addressing the barriers to effective nutrition education in Ghana’s basic schools requires a holistic, theory-informed, and context-sensitive approach. By implementing the recommended actions, Ghana can move towards a future where every child in a basic school not only learns about reading and arithmetic, but also graduates with the knowledge, attitudes, and support to maintain a healthy diet. Such a future promises multifaceted benefits: improved child health indicators, better educational outcomes, and the long-term economic gains of a healthier population. The journey will demand commitment and collaboration across sectors, but it is a worthwhile investment. Equipping young Ghanaians with nutrition knowledge and healthy habits is akin to planting seeds – seeds that will grow into healthier adults and communities, breaking the cycle of malnutrition and unlocking human capital for the nation’s development.

### **Conflicts of Interest**

The author declares no conflicts of interest.

## References

- [1] Kwansa, A. and Akparibo, R. (2025) Integrating Education Initiatives within Ghana's National Nutrition Framework. Caribbean and African Health Network (CAHN) & The University of Sheffield.
- [2] Quaidoo, E., Ohemeng, A., Kushitor, M.K. and Antwi, J. (2022) Nutrition Education Incorporation into Mainstream Primary School Curriculum in Ghana: Stakeholders' Sources of Nutrition Information and Perceived Barriers. *PLOS ONE*, **17**, e0262359. <https://doi.org/10.1371/journal.pone.0262359>
- [3] Amevinya, G.S., Vandevijvere, S., Kelly, B., Afagbedzi, S.K., Aryeetey, R., Adjei, A.P., et al. (2022) Advertising of Unhealthy Foods and Beverages around Primary and Junior High Schools in Ghana's Most Urbanized and Populous Region. *Frontiers in Public Health*, **10**, Article ID: 917456. <https://doi.org/10.3389/fpubh.2022.917456>
- [4] Ghana Health Service, Ghana Education Service (2019) Ghana National Guidelines for Improving the Nutrition of School-Aged Children and Adolescents (Nutrition-Friendly Schools Initiative)—Draft. <https://nema.gov.gh>
- [5] Mogre, V., et al. (2024) A School-Based Food and Nutrition Education Intervention Increases Nutrition Knowledge and Healthy Habits among School-Age Children in Northern Ghana. *BMC Public Health*, **24**, Article No. 1739.
- [6] Dabie, P.K. (2025) Contemporary Legacy of Colonialism in Ghana's Education. *Open Access Library Journal*, **12**, e13086.
- [7] Ministry of Education (2007) Teaching Syllabus for Physical Education (Primary 1-6). MOE.
- [8] Puoane, T., et al. (2012) Schools as Ideal Settings to Promote Children's Healthy Eating: African Perspectives. *Public Health Nutrition*, **15**, 1291-1292. <https://journals.plos.org>
- [9] Schneider, E. and Theobald, C. (2016) Development and Evaluation of Food and Nutrition Teaching Kits for Teachers of Primary Schoolchildren. *Nutrition Bulletin*, **41**, 55-66. <https://doi.org/10.1111/nbu.12189>
- [10] Food and Agriculture Organization (FAO) of the United Nations (2020) School-Based Food and Nutrition Education: A White Paper on the Current State, Principles, Challenges, and Recommendations for Low- and Middle-Income Countries. FAO.
- [11] Ghana Education Service (1992) School Health Education Program (SHEP): Policy Framework [Policy Document]. Gomoa East District Education Directorate Blog. <https://gomoaeasteducation.blogspot.com/shep-policy>
- [12] Adu-Mireku, S. (2004) Schools and Health: A District-Level Evaluation of School Health Education in Ghana. *Journal of Social Development in Africa*, **18**, 105-118. <https://doi.org/10.4314/jsda.v18i2.23828>
- [13] Gyasi, P.A. and Zhou, Y. (2024) Barriers to School-Based Health Programs Implementation in Basic Schools in Ghana: Education Stakeholders' Perspective. (Journal/Report)
- [14] Dabie, P.K. and Mackenzie, A.H. (2025) Insights from Ghana: Strengths and Challenges of Parental Involvement in the School Environment. *International Journal of Applied Research in Social Sciences*, **7**, 252-267. <https://doi.org/10.51594/ijarss.v7i4.1868>
- [15] Sodzi-Tettey, S. and Dabie, P.K. (2025) The Social Justice Implications of Jolts on the Marketplace. In: Amaechi Ejiribe, E.C., Sodzi-Tettey, S. and Ofori-Dankwa, J., Eds., *African Women Entrepreneurs in the Informal Economy: Social Justice Implications of Market Jolts in Ghana*, Springer, 71-96.

- [https://doi.org/10.1007/978-3-031-70468-0\\_5](https://doi.org/10.1007/978-3-031-70468-0_5)
- [16] Liguori, J., Amevinya, G.S., Holdsworth, M., Savy, M. and Laar, A. (2024) Nutritional Quality and Diversity in Ghana's School Feeding Programme: A Mixed-Methods Exploration through Caterer Interviews in the Greater Accra Region. *BMC Nutrition*, **10**, Article No. 127. <https://doi.org/10.1186/s40795-024-00936-9>
- [17] Rosenstock, I.M. (1974) Historical Origins of the Health Belief Model. *Health Education Monographs*, **2**, 328-335. <https://doi.org/10.1177/109019817400200403>
- [18] Bandura, A. (1986) *Social Foundations of Thought and Action: A Social Cognitive Theory*. Prentice Hall.
- [19] Siyou, S.F. (2025) A Systematic Review of the Effectiveness of the Health Belief Model-Based Nutrition Education for Dietary Behavior Change and Chronic Disease Risk Reduction. *Nutrition and Health*. <https://doi.org/10.1177/02601060251383095>
- [20] Hall, E., Chai, W., Koszewski, W. and Albrecht, J. (2015) Development and Validation of a Social Cognitive Theory-Based Survey for Elementary Nutrition Education Program. *International Journal of Behavioral Nutrition and Physical Activity*, **12**, Article No. 47. <https://doi.org/10.1186/s12966-015-0206-4>
- [21] Becker, M.H. (1974) *The Health Belief Model and Personal Health Behavior*. Charles B. Slack.
- [22] Jenkins, M., Amoafu, E.F., Abdulai, M., Quartey, V., Ofosu-Apea, P., Aballo, J., *et al.* (2025) The School Food Environment in Ghana Is Associated with Dietary Diversity and Anemia: Findings from the 2022 National Nutrition and Health Survey of In-School Adolescents. *Food and Nutrition Bulletin*, **46**, 78-92. <https://doi.org/10.1177/03795721251348343>
- [23] UNESCO (2025) *Learn to Eat Well-Education and Nutrition: Global Monitoring Report*. <https://www.unesco.org/gem-report/nutrition>
- [24] National Council for Curriculum and Assessment (2019) *Standards-Based Curriculum: Learning Areas/Subjects for Basic Schools*. NaCCA. <https://nacca.gov.gh/learning-areas-subjects>
- [25] Dabie, P.K. (2025) Motivation and Academic Performance: Evidence from Two Senior High Schools in Ghana. *Open Journal of Social Sciences*, **13**, 497-527. <https://doi.org/10.4236/jss.2025.133034>
- [26] Dabie, P.K., Atua, E.M. and Kusimi, J.M. (2018) Urban Sprawl, Agricultural Land Use, and Food Security in Shai Osudoku District, Ghana. *Research Journal of Geography*, **5**, 1-12.
- [27] Dabie, P.K. (2025) Challenging the Dominant Knowledge Systems through Critical Curriculum Studies Education. *International Journal on Cybernetics & Informatics*, **14**, 117-129. <https://doi.org/10.5121/ijci.2025.140208>
- [28] Dabie, P.K. and Asare, J. (2025) Revisiting Transformational Leadership in U.S. Higher Education: A Critical Conceptual Review. *International Journal of Applied Research in Social Sciences*, **7**, 673-684. <https://doi.org/10.51594/ijarss.v7i9.2039>