MAPPING THREE DECADES OF SCHOOL FEEDING IN THE SOUTH AFRICAN NATIONAL SCHOOL NUTRITION PROGRAMME (NSNP): A SCOPING REVIEW OF EVIDENCE

By

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ABSTRACT

Background: The South African National School Nutrition Programme (NSNP) was established in 1994 as part of broader government efforts to alleviate poverty, reduce food insecurity, and improve access to education in historically disadvantaged communities. Over three decades, the programme has expanded in scope and scale, positioning school feeding as both an educational and a social protection intervention.

Aim: This scoping review aims to map and synthesise available evidence on the NSNP in South Africa over the past three decades, with attention to programme success, implementation experiences, challenges and research gaps.

Objectives: (i) To review the evidence on the success of the NSNP in South Africa in the past three decades (1994-2024), (ii) To identify implementation experiences of the NSNP in South Africa in the past three decades (1994-2024), (iii) To explore challenges regarding the NSNP in South Africa over the past three decades (1994-2024) and, (iv) To identify gaps in current research and provide recommendations for future studies.

Study design: The study employed a scoping review approach to systematically review and synthesise evidence from existing published literature. Literature was searched across three databases SA e-publications, PubMed, and EBSCOhost.

Methods: The review process followed a structured, stepwise approach consistent with scoping review methodology and the PRISMA 2020 guidelines. A total of 26 studies were included.

Results: Findings indicate that although the NSNP has enhanced learner nutrition, attendance, and overall educational engagement, its effectiveness is constrained by persistent implementation challenges. Ongoing food safety concerns were attributed to inadequate staff training, limited knowledge of HACCP principles, substandard hygiene practices, and infrastructural deficiencies, including insufficient access to clean water and electricity (n = 7).

Conclusions: Strengthening the programme requires sustained investment in infrastructure, standardised and continuous training, monitoring systems, and context-specific implementation strategies. Further longitudinal research is needed to assess the school feeding programme’s long-term nutritional, educational, and socioeconomic impacts.

PREFACE

The research work described in this dissertation was conducted in the School of Agriculture Sciences, College of Agriculture, Engineering and Science at the University of KwaZulu-Natal between July 2023 and December 2025, under the supervision of Dr Laurencia Govender and Dr Candice Groenewald.

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Candice Groenewald (Co-supervisor)

DECLARATION OF ORIGINAL WORK

- I, **Ms Mafanato Gladys Maluleka**, declare that the research reported in this dissertation, except where otherwise indicated, is my original research.
- This dissertation has not been submitted for any degree or examination at any other university.
- This dissertation does not contain other persons' data, pictures, graphs or other information unless specifically acknowledged as being sourced from other persons.
- This dissertation does not contain other persons' writing unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
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Signature: [redacted] Date: 19 May 2026

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ABBREVIATIONS

COVID-19	Coronavirus disease 2019
DBE	Department of Education
DOH	Department of Health DOH
GSFP	Ghana School Feeding Programme
HACCP	Hazard Analysis and Critical Control Points
HSSREC	Humanities and Social Sciences Research Ethics Committee
LMIC	Low- and middle-income countries
MDG	Millennium Development Goals
NSNP	National School Nutrition Programme
PSNP	Primary School Nutrition Programme
RDP	Reconstruction and Development Programme
SA	South Africa
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.1 Background of the study

The democratic government established the Primary School Nutrition Programme (PSNP) in schools in 1994, which was later renamed the National School Nutrition Programme (NSNP) following an intensive review (Department of Basic Education Annual Report, 2020). The NSNP was introduced nationwide in South Africa with the aim of alleviating poverty and food insecurity as part of the government's Reconstruction and Development Programme (RDP), as well as improving access to education and learner well-being in historically disadvantaged communities (Department of Basic Education, 2014). The programme was introduced to alleviate hunger among school-going children, thereby making basic education more accessible to children from disadvantaged communities. The programme initially targeted learners in primary schools in quintiles 1-3, which are typically located in rural areas, townships, and informal settlements, and serving learners from historically disadvantaged and low-income communities. During the first ten years of its implementation (1994-2003), the PSNP was coordinated by the Department of Health (DOH) (Public Service Commission (PSC), 2008; Department of Basic Education, 2014).

However, in 2004, the programme was reallocated to the Department of Education. The PSNP was formally renamed the NSNP in 2004. Later, it was expanded to include secondary schools starting in 2009, with full inclusion of secondary schools in quintiles two and three by 2011 (Department of Basic Education, 2014). The provision of food within the NSNP programme aims to improve learner attendance, concentration span, cognitive development, and performance. NSNP's fundamental goal is to improve educational quality and overall health by increasing learning ability, minimising short-term hunger, improving school attendance and punctuality, and acting as a vehicle for conveying micronutrients to school-aged children (Department of Basic Education, 2014). Joao and Sitao, (2018) defined school feeding as a widely recognised assistance programme in low-middle income countries (LMICs). It is anticipated that providing meals or take-home rations to children experiencing food insecurity will enhance their food intake and improve their nutritional status, particularly for low-income families who cannot afford enough food to properly feed their children (Devereux *et al.*, 2018). According to the Department of Basic Education, (2011), learners receive five cooked meals per week in schools as part of the NSNP. Every day, the cooked meal provided in the feeding programme includes a food item from each of the following food groups: protein, carbohydrate,

and vegetable, with a fruit added once a week, resulting in a high level of dietary diversity throughout the week (Department of Basic Education, 2011, 2014).

The NSNP in South Africa (SA) offers learners access to a variety of nutrient-dense foods that support their physical wellness and capacity to succeed in schoolwork (Department of Basic Education). However, stigma and social isolation may also arise from school feeding programmes, particularly when underprivileged students or orphans are given preference when receiving school meals. When the receipt of meals is associated with poverty, eligible learners may become discouraged from participating in the programme or from attending school altogether (Devereux et al., 2018).

The NSNP is one of the government's programmes for reducing poverty (Department of Basic Education, 2014). According to World Food Programme (WFP), (2023) school feeding programs are best seen as both educational interventions and essential parts of larger frameworks for food security, social protection, and human capital development. The school feeding programme also serves as a source of income and employment for food handlers. In LMICs, including South Africa, food handlers are recruited from communities and are often women from food-insecure households (World Food Programme (WFP), 2023; Department of Basic Education, 2014). The NSNP operates not only as a learner-focused nutritional intervention, but also as a household-level food security mechanism within South Africa's broader social protection system (Devereux et al., 2018).

1.2 Problem statement

Since 1994, South Africa's NSNP has provided daily nutritious meals to millions of learners, functioning as a critical social protection and food security intervention and contributing to improved educational participation and child outcomes. The programme such as the NSNP, currently reaches over nine million learners in more than 20 000 quintile 1-3 and special public schools, making it one of the largest school feeding programmes in Africa (South African Government, 2024).

Over the past three decades (1994-2024), the NSNP has undergone substantial policy, institutional, and implementation changes, including its transition from the Department of Basic Education, expansion to secondary schools, and adaptations during national crises such as the COVID-19 (Coronavirus disease 2019) pandemic. These shifts have occurred within

highly diverse provincial, socio-economic, and administrative contexts, influencing programme delivery and outcomes.

Although a growing body of literature has examined various aspects of the NSNP, including nutritional outcomes, educational impacts, governance, implementation challenges, and equity concerns, the available evidence remains fragmented across time periods, disciplines, methodologies, and geographic settings (Public Service Commission, 2008; Zenebe, et al., 2018; Devereux et al., 2018). There is currently no comprehensive scoping review that systematically maps and synthesises this body of evidence across the full lifespan of the programme.

This lack of consolidated evidence limits policymakers, implementers, and researchers' ability to draw lessons from past experiences, identify consistent successes and persistent challenges, and recognise critical research gaps. A systematic mapping of three decades of NSNP evidence is therefore required to strengthen policy learning, guide future programme improvements, and support the programme's contribution to national development priorities and the Sustainable Development Goals (SDGs), particularly SDGs 2, 3 and 4.

1.3 Aim of the study

This scoping review aimed to review and synthesise available evidence on the South African NSNP over three decades (1994–2024), with a focus on assessing programme success, documenting experiences, exploring challenges, and identifying gaps in the existing body of research to inform future studies.

1.4 Objectives of the study

The objectives of this study were:

- To review the evidence on the success of the NSNP in South Africa in the past three decades (1994-2024)
- To identify implementation experiences of the NSNP in South Africa in the past three decades (1994-2024)
- To explore challenges regarding the NSNP in South Africa over the past three decades (1994-2024)
- To identify gaps in current research and provide recommendations for future studies

1.5 Research questions

1.5.1 What evidence exists in the literature on the reported successes, outcomes and impacts of the National School Nutrition Programme (NSNP) in South Africa over the period 1994–2024?

1.5.2 What implementation experiences, including delivery approaches and contextual variations, of the NSNP have been reported in South Africa across different contexts and time periods between 1994 and 2024?

1.5.3 What challenges, constraints, and barriers affecting the implementation and effectiveness of the NSNP have been documented in the literature from 1994 to 2024?

1.5.4 What gaps exist in the current evidence base on the NSNP in South Africa, and what research priorities and directions for future research have been identified?

1.6 Definition of terms

Disadvantaged communities : Disadvantaged communities refer to communities that lack access to resources and opportunities. They often experience high unemployment rate, low income and high poverty levels (Nyathi *et al.*, 2024).

Food handlers : Food handlers in school feeding programmes (often called Volunteer Food Handlers or VFHs) are typically unemployed community members or parents, often women, appointed by school governing bodies to prepare, cook, and serve nutritious meals, and clean kitchens (Chelule and Ranwedzi, 2022).

Nutrition coordinators : The Nutrition Coordinator oversees day-to-day activities, such as receiving and storing food, keeping records, supervising volunteer food handlers, and reporting on the quantity of meals delivered (Department of Basic Education, 2023).

Primary school : Primary schools form the foundational phase of the basic education system and typically cater for learners from Grade R to Grade 7, covering early childhood development, the

foundation phase, and the intermediate phase of schooling (Veermans, 2022).

Secondary school : A school that offers all or a selection of grades from Grade 8 to Grade 12 (Veermans, 2022).

1.7 Dissertation outline

This dissertation is laid out as follows:

Chapter 1: This chapter introduces the background of the study, problem statement, aim of the study, objectives of the study, research questions and definitions of term used.

Chapter 2: This chapter focuses on the literature review. The review includes the introduction, overview of the NSNP, stakeholder experiences, implementation challenges and gaps.

Chapter 3: This chapter explains the methodology carried out in conducting the study.

Chapter 4: This chapter presents the results of the study.

Chapter 5: This chapter discusses the challenges, impact and success of the NSNP.

Chapter 6: This chapter concludes the study based on the results. It also includes the policy, implementation and future research recommendations.

1.8 Reference style

The referencing in this study follows the Harvard author-date system, in accordance with the University of KwaZulu-Natal guidelines.

1.9 Summary

In summary, this chapter has introduced the background and problem statement for the study, outlining the history of the National School Nutrition Programme in South Africa. The chapter presents the research aim, objectives, and key questions guiding the study, as well as the significance of the research within the NSNP. Chapter 1 establishes the foundation for the analysis that follows. The next chapter reviews relevant literature providing the challenges, success and impact of understanding the implementation of school feeding programmes over the past three decades.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

While this study entails a scoping review, which will be presented in the results chapter, this chapter will describe the key concepts of interest in this review. That is a) school feeding schemes, b) the South African National School Nutrition Programme (NSNP), c) stakeholders associated with the NSNP, and d) the value of school feeding schemes.

2.2 Conceptualising school feeding schemes and school nutrition programmes

According to the broader literature, school feeding schemes are multi-sectoral interventions oriented to address child hunger and malnutrition while supporting educational participation and learner wellbeing (Jomaa, McDonnell and Probart, 2011;.World Food Programme, 2020). While earlier accounts positioned school feeding primarily as welfare support for children, more recent literature recognise the broader benefits of such programmes for both the beneficiaries and implementers (Verguet *et al.*, 2020). For example, research shows that such programmes facilitate social protection systems that may impact health, education, and local economies through procurement and employment pathways (World Food Programme, 2022) ; Mensah and Karriem, 2021). Additionally, global syntheses emphasise that school feeding schemes can act as "platform" interventions, particularly in LMIC, by linking nutrition delivery with schooling, health services, and community participation (World Food Programme, 2020)

The literature indicates that school feeding schemes differ across contexts. According to the Department of Basic Education, (2011), these programmes vary in terms of the type of meal provided. The meals offered to the learners depend on the school's location, resources, and the specific needs of the learners. Each school meal is designed in line with the South African Food-Based Dietary Guidelines and includes three main food groups: starch, protein, vegetables and fruits (Department of Basic Education, 2011). In addition, procurement processes differ across programmes and can either be centralised or decentralised, and with some sourcing food from local suppliers and others relying on foreign in-kind donations (Department of Planning, Monitoring and Evaluation & Department of Basic Education, 2016).

The NSNP in SA is widely recognised in the literature as a multifaceted intervention that delivers nutritional, educational, social, and economic benefits, especially for learners from socioeconomically disadvantaged communities (Mulaudzi, Reyneke and Gcelu, 2023). The (Department of Basic Education, 2014) notes that while the primary goal of school feeding

programmes is to alleviate short-term hunger, growing evidence shows that its benefits extend far beyond providing immediate meals. Social protection has played a significant role in mitigating poverty and inequality in South Africa (Woolard et al., 2021). School feeding programmes are essential to achieving SDG 3 which aims to ensure healthy lives and promote well-being for all at all ages, and SDG 4 which aims to ensure inclusive and equitable quality education and promoting lifelong learning opportunities for all. The programme is also highly relevant to SDG 5, which focuses on achieving gender equality and empowering all women and girls, given that girls are more likely than boys to drop out of school (Wang *et al.*, 2021; Wineman *et al.*, 2022).

According to the (Department of Basic Education (2011), the NSNP is intended to mitigate the consequences of home food poverty and vulnerability by offering students attending public no-fee schools a nutritious meal. School meals have been promoted by the DBE as a way to meet children's nutritional needs and lessen learning obstacles caused by hunger, especially in low-income households (Department of Basic Education, 2014). Evidence indicates that the programme significantly increases learner's daily calorie and micronutrient consumption, particularly among children from food-insecure households, despite the lack of large-scale nutritional outcome research in South Africa (Zenebe *et al.*, 2018). One of the most frequently reported outcomes in both South African and foreign literature is the educational advantage of school feeding. Regular access to school meals has been linked to increased student focus in the classroom, reduced absenteeism, and improved attendance (Joala and Gumede, 2018). In South Africa, it is often reported that students who receive meals through the NSNP are better able to concentrate in class, especially in the morning (Devereux *et al.*, 2018).

2.3 Overview of the South African National School Nutrition Programme (NSNP)

In South Africa, the NSNP is among the most extensive school-based interventions aimed at improving learner nutrition and supporting educational participation in socioeconomically disadvantaged communities. According to the DOE, the programme targets learners in public schools, particularly quintile 1–3 no-fee schools, with a focus on alleviating short-term hunger and enhancing learning conditions (Department of Basic Education, 2011). Also, the NSNP is frequently discussed in relation to the broader constitutional and policy commitment to children's wellbeing and educational access. The initiative is essential for advancing students' constitutional rights to basic nutrition (Section 28(1)(c) of the Constitution) by preventing malnutrition, lowering hunger, and increasing school attendance. As a national programme, the

NSNP must be implemented in accordance with the Constitution, which is the highest law of the nation's government. The NSNP consists of a number of interrelated elements, such as the provision of a balanced meal, nutrition education, and sustainable food production through school food gardens (Department of Basic Education, 2011). According to the Department of Basic Education (2011), the school meals are made in accordance with the South African Food-Based Dietary Guidelines ensuring a balanced diet for the learners. Volunteer food handlers from the local community prepare these meals, which also helps to create jobs and support local economic development (Devereux et al., 2018; Chelule and Ranwedzi, 2022;).

The NSNP includes nutrition education in addition to food provision to encourage parents, teachers, and students to eat healthily (Laurie, Faber and Maduna, 2017). This element aims to support the development of school environments that promote health and have an impact on lifelong eating habits. School food gardens are also promoted as a useful teaching tool that can be included in the curriculum and as an additional supply of fresh vegetables (Laurie, Faber and Maduna, 2017).

Studies and government assessments have shown difficulties with the NSNP's implementation, despite its benefits to learner wellbeing and educational access. These include inconsistent meal quality, food delivery delays, inadequate infrastructure, and differing levels of school-level monitoring. These challenges highlight the need for continued research into the programme’s sustainability, management, and effectiveness, particularly at the school and community levels (Department of Basic Education, 2014; Devereux et al., 2018).

2.4. Outcomes associated with school feeding programmes

2.4.1 Nutritional outcomes and dietary diversity

In nutrition research, dietary diversity is frequently used as a stand-in for micronutrient adequacy and diet quality, especially in low-income environments where diets may be dominated by starchy staples with little variation (Food and Agriculture Organization, 2011). Compared with what many food-insecure households can regularly provide, the NSNP's menu standards aim to offer balanced meals that include core food groups, thereby supporting improved nutritional composition and increased energy intake (Department of Basic Education, 2011). This is particularly relevant for learners whose household diets may be restricted by cost and availability challenges, making school meals a significant part of their daily intake.

Micronutrient deficiencies can adversely affect educational engagement by contributing to illness, low energy levels, and impaired concentration. Adequate intake of micronutrients is essential for children's physical growth, immune function, and cognitive development. Despite this, micronutrient adequacy remains a significant public health concern, as South African nutrition surveillance and related data continue to demonstrate persistent nutritional challenges affecting children (Shisana et al., 2013). In this regard, the NSNP can be viewed as a program that has the potential to close nutrient gaps by providing a consistent meal that enhances food quality and promotes healthier growth.

However, implementation challenges such as inconsistent meal quality, delayed deliveries and infrastructure constraints may weaken the programme's ability to deliver consistent dietary diversity across schools, reinforcing the need for research that assesses not only programme coverage but also meal composition and nutritional adequacy in practice (Department of Basic Education, 2011; World Food Programme, 2020).

2.4.2 Educational outcomes: attendance, participation and learning conditions

Notably, educational outcomes are among the most frequently cited benefits of school feeding. Additionally, global evidence synthesised by the World Food Programme indicates that learners in feeding programmes often show improved attendance and attentiveness, although the strength of effects varies by context and programme quality (World Food Programme, 2022).

Within the South African context, the National School Nutrition Programme (NSNP) has been widely associated with improved learner attendance, attentiveness, and concentration in classrooms (Mkhombo, Manka and Odhav, 2024). Several evaluations and qualitative studies report positive perceptions from educators, school managers, and learners regarding the programme's contribution to daily school participation and learner readiness to learn (Department of Basic Education, 2014).

However, the peer-reviewed literature shows that the majority of this evidence is based on self-reported perceptions and initial experiences, with comparatively few studies using reliable, standardised measures of cognitive outcomes or academic performance (Public Service Commission, 2008; Department of Planning, Monitoring and Evaluation & Department of Basic Education, 2016). As a result, reports addressing the direct impact of the NSNP on learning outcomes should be considered with caution.

Notably, research indicates that the potential educational benefits are reduced in situations when NSNP implementation is inconsistent due to issues like delayed food delivery, infrastructure limitations, or inadequate monitoring (Department of Basic Education, 2014; Devereux *et al.*, 2018). This emphasises the significance of process elements and stakeholder experiences in placing reported results in context and emphasises the necessity of looking at implementation quality in addition to educational impact.

2.4.3 Social and household-level outcomes

Beyond nutrition and education, school feeding schemes may generate broader social outcomes. According to global summaries, school feeding can contribute to household food security by reducing the food burden for families and may also strengthen social cohesion through community participation in meal preparation and oversight (World Food Programme, 2022). In addition, where programmes incorporate local procurement, school feeding may support local farmers and stimulate local economic activity.

In SA, current literature on public food procurement highlights both opportunities and constraints associated with linking feeding programmes to local food systems. Mensah and Karriem, (2021), for instance, discuss public food procurement and the potential for leveraging procurement for broader sustainability goals, while also acknowledging implementation challenges. Thus, such evidence suggests that NSNP outcomes should be understood not only at the learner level, but also in relation to local systems of supply, governance and accountability (Mensah and Karriem, 2021).

2.5. Stakeholder experiences and roles in school feeding

2.5.1 Learners as direct beneficiaries

Learners are the direct beneficiaries of school feeding schemes and frequently experience benefits in the form of reduced short-term hunger, improved concentration, and increased willingness to attend school (Zenebe *et al.*, 2018; World Food Programme, 2022). While quantitative studies often measure learner outcomes through attendance and nutritional indicators, qualitative accounts emphasise that learner's satisfaction is closely shaped by meal palatability, portion adequacy, meal timing, and consistency of provision (Semegn et al., 2023; Tshisikhawe, Runhare and Litshani, 2024). Qualitative evaluations of the NSNP show that inconsistent meal provision, poor palatability, and inadequate portion sizes reduce learner

participation and undermine the programme's ability to support concentration and engagement in class (World Food Programme, 2020). School feeding participation has been associated with improvements in attendance and reductions in absenteeism. For example, a study conducted in Ethiopian shows that absenteeism was lower among school feeding programme beneficiaries, with fewer days missed from school. This evidence suggests that meals can function as incentives for school participation in food-insecure households (Zenebe et al., 2018). However, the literature notes that where meal quality is poor or provision is irregular, learners may lose confidence in school feeding programmes, thereby weakening their educational impact (Ndlovu *et al.*, 2022).

2.5.2 Parents and caregivers

Parents and caregivers feature in the literature both as supporters of the school feeding programme (Qila and Tyilo, 2014). According to international studies, school feeding may reduce household food stress and partially substitute a child's daily meal, thereby freeing limited household resources for other needs (Abizari et al., 2014; World Food Programme, 2020). Zuercher et al., (2024), found that parents experiencing household food insecurity were more likely to view school meals as an important source of nutritional and financial support.

Within the South African NSNP context, parent's experiences are most often discussed indirectly, through analyses of community involvement, school governance structures, and perceptions of programme fairness and accountability rather than through focused inquiry into parental attitudes themselves. Existing evaluations and policy-oriented studies emphasise the role of parents via School Governing Bodies and community participation in programme oversight, reflecting concerns about procurement, accountability, and implementation efficiency (Van Wyk, 2007). Comparatively, international studies on school feeding programmes demonstrate more extensive qualitative engagement with caregiver perceptions, highlighting a gap in the South African literature regarding parental voices and lived experiences within the NSNP (Zuercher *et al.*, 2024)

2.5.3 Teachers, school administrators and principals

Teachers and school management occupy dual roles as implementation facilitators and as educators whose primary responsibilities remain instructional. According to implementation studies, school management teams often oversee aspects of procurement coordination, record-keeping, hygiene supervision, and liaison with service providers, which may create additional

administrative burdens (Devereux *et al.,* 2018). According to research, teachers frequently view school meals as a supportive intervention that improves classroom circumstances by lowering student hunger, weariness, and inattention when it is well-coordinated with the regular school schedule (Devereux *et al.*, 2018; World Food Programme, 2020).

Teachers indicate that after meals, especially in the morning, students are more at ease in the classroom and more capable of participating in the lessons (Devereux et al., 2018; Niyibizi, 2024). On the other hand, school feeding may be viewed as interfering with teaching methods if feeding schedules are irregular or poorly matched with class time. According to South African implementation studies, students may leave classrooms due to delays in food preparation or delivery, which can disrupt classroom management and lesson flow. According to the literature, instructors are often expected to take on informal supervisory or coordination responsibilities during mealtimes, especially in understaffed institutions (Qila and Tyilo, 2014). Various opinions about school feeding may result from these extra obligations, particularly if teachers believe that feeding responsibilities interfere with instruction or go beyond their scope of work (Devereux et al., 2018). Teacher's opinions about school feeding are therefore strongly correlated with both the perceived advantages for students and the efficiency with which feeding activities are planned and supported at the school level (Qila and Tyilo, 2014; Devereux *et al.*, 2018).

Overall, the data shows that teacher's opinions of school feeding are influenced more by how the program is implemented on a daily basis within the school schedule than by the programme's premise. In order to ensure that school feeding is perceived as improving rather than interfering with the teaching and learning environment, efficient scheduling, clear task allocation, and administrative support are essential (World Food Programme, 2020).

2.5.4 Food handlers and operational staff

Interestingly, the literature identifies food handlers as central yet often underrecognised stakeholders in school feeding schemes. Research on school feeding implementation in South Africa and comparable contexts shows that the effectiveness and safety of school meals depend on the capacity and working conditions of those responsible for food preparation, particularly in settings with limited infrastructure and high meal volumes (Devereux et al., 2018; World Food Programme, 2020).

The literature also documents a range of operational challenges that shape the roles and experiences of food handlers in school feeding programmes. Studies report that inadequate kitchen facilities, insufficient equipment, limited access to training, and low or irregular remuneration can constrain food handler's ability to meet hygiene and quality standards, thereby affecting both meal quality and programme reliability (Chelule and Ranwedzi, 2022). These constraints are frequently associated with broader institutional and resource limitations in under resourced schools.

In addition, implementation and policy-oriented analyses note that food handlers often occupy marginal positions within school governance structures, with limited formal recognition or support despite the critical role they play in daily programme (Devereux *et al.*, 2018; World Food Programme, 2020). This body of literature underscores the importance of recognising food handlers as a key stakeholder group in examining the functioning, quality, and sustainability of school feeding programmes within the South African context.

2.6. Implementation challenges and contextual barriers

Inadequate infrastructure, delayed food delivery, and limitations in programme management are operational issues in South African school nutrition programs. According to implementation studies, Devereux et al., (2018), insufficient institutional capacity inside schools might hinder the translation of policy goals into successful practice. Moreover, food safety constraints are repeatedly cited as a practical risk where food preparation occurs within under-resourced school environments (Chelule and Ranwedzi, 2022). Chelule and Ranwedzi (2022) emphasise that food handler knowledge and practices directly influence safety outcomes, which implies that training, supervision and resourcing are essential components of programme quality. Furthermore, governance fragmentation and unclear accountability arrangements may complicate implementation, particularly where multiple actors such as schools, service providers, and education departments share responsibility (Van Wyk, 2007; Devereux *et al.*, 2018).

It is worth noting that the COVID-19 pandemic unprecedentedly presented a compounding layer of disruption to school feeding schemes by interrupting routine meal provision to learners through prolonged school closures and mobility restrictions. According to evidence from various settings, these disruptions exposed the extent to which school meals operate, not only as providing nutritional support but also as a stabilising agent for household food security,

particularly among low-income families (Amolegbe, 2020; Parnham et al., 2020). Additionally, empirical work notes that where alternative delivery mechanisms were implemented, such as "grab-and-go" meals and emergency food benefits, negative effects of school closures on children's access to food were alleviated. Although in terms of access and reach, such aspects varied across districts and eligibility arrangements (Kenney et al., 2022; Plank et al., 2022). Furthermore, research from the United Kingdom highlights that significant proportions of eligible children did not access free school meal support during lockdown periods, illustrating how administrative challenges and uneven implementation can destabilize programme continuity during crises (Parnham et al., 2020); McIntyre et al., 2022). In the South African context, these lessons are particularly relevant to strengthening resilience within the NSNP, as they highlight the importance of contingency planning, transparent and flexible delivery modalities, and communication strategies that sustain access to meals when routine schooling is interrupted. While these lessons are broadly relevant to school feeding programmes globally, they are particularly salient within the South African context due to the scale and centrality of the National School Nutrition Programme (NSNP) as a key social protection intervention. The NSNP reaches over nine million learners daily and operates within a context of high child poverty, deep socio-economic inequality, and reliance on schools as stable points of service delivery. Periods of disruption, such as prolonged school closures, therefore pose a disproportionate risk to food access for vulnerable learners. In this context, the emphasis on contingency planning, transparent and flexible delivery modalities, and robust communication strategies is critical to sustaining access to meals when routine schooling is interrupted (Amolegbe, 2020;Katz et al., 2022).

While these barriers are significant, the literature indicates that effective implementation of school nutrition programmes is possible where monitoring systems are functional, procurement processes are transparent, and stakeholder roles and responsibilities are clearly defined (Devereux *et al.*, 2018; World Food Programme, 2022). However, within the South African NSNP literature, process-focused analyses remain relatively limited in comparison to outcome-oriented discussions. As a result, there is a recognised need for more studies that examine how implementation barriers are experienced, managed, and negotiated by different stakeholders at school and community level (Department of Planning, Monitoring and Evaluation & Department of Basic Education, 2016).

2.7 International perspectives and transferable lessons

Internationally, school feeding schemes are implemented across diverse socioeconomic settings, and global syntheses offer lessons that can inform programme refinement without promoting a simplistic policy transfer. According to the World Food Programme's global overview, programmes in more resourced contexts tend to have stronger monitoring systems and stable funding, while programmes in lower-resourced settings often face sustainability pressures linked to financial constraints and supply chain limitations (World Food Programme, 2022).

International evidence indicates that consistent access to school meals can enhance dietary diversity and contribute to improved micronutrient adequacy, especially when menus are planned or fortified to address common dietary gaps. School feeding programme has therefore been implemented mainly as a food-for-education programme in resource-poor settings in Africa and other developing continents, not only to increase school enrolment and attendance but also as a way to improve nutritional status through increased energy and nutrient intakes (Abizari et al., 2014). In the African context, empirical work from Ghana demonstrates that school feeding contributes meaningfully to children's nutrient intake, highlighting the potential of school meals to complement household diets in food-insecure settings (Danquah *et al.*, 2012). While South African studies are more limited in rigorous nutritional assessment, the NSNP is similarly positioned as a mechanism to mitigate short-term hunger among learners in socio-economically disadvantaged schools.

Additionally, it is noteworthy that international evidence increasingly emphasises the value of integrating nutrition education, food safety systems, and community oversight into feeding programmes (Verguet *et al.*, 2020). However, the literature also cautions that successful models rely on local governance capacity and cultural context, indicating that South Africa's NSNP should be strengthened through context-appropriate reforms informed by stakeholder feedback rather than by merely adopting external models uncritically (Mensah and Karriem, 2021; World Food Programme, 2022).

2.8 Gaps in the existing literature and rationale for the current study

Despite the expanding body of literature on school feeding and the NSNP, several significant gaps remain. Firstly, there is limited peer-reviewed qualitative research that captures the perspectives of multiple stakeholder groups simultaneously within the NSNP context. While

individual studies discuss implementation barriers, fewer studies deliberately examine how learners, teachers, parents and food handlers experience the programme together and how their respective experiences interact to shape programme functioning. Secondly, evidence remains uneven comparatively.

Although African and global studies provide useful benchmarks, there is a relative lack of research that explicitly compares South Africa's NSNP implementation dynamics and stakeholder experiences with those of other African and international feeding schemes using similar conceptual frames (Abizari *et al.*, 2014; Zenebe *et al.*, 2018; World Food Programme, 2022). Thirdly, outcome claims are often not matched with process explanations, meaning that the mechanisms through which feeding schemes produce benefits or fail to do so remain insufficiently documented. Finally, the literature indicates that operational issues such as food safety, training, and infrastructure are important but inadequately integrated across stakeholder analyses.

2.9 Conclusion

The literature demonstrates that school feeding schemes are important interventions with the potential to benefit nutrition, educational participation, and broader social wellbeing. In South Africa, the NSNP remains a key programme supporting learners in disadvantaged schools, yet its effectiveness is closely linked to the quality of its implementation and to stakeholders' varied experiences. While existing evidence documents both achievements and challenges, there remains a need for more systematic stakeholder-focused and comparative research. This scoping review, guided by established scoping review frameworks, is therefore positioned to clarify the evidence landscape and identify meaningful directions for future research and programme strengthening (Arksey & O'Malley, 2005; (Munn *et al.,* 2018).

CHAPTER 3: METHODOLOGY

3.1 Study design

This study employed a scoping review approach to systematically review and synthesise evidence from existing published literature (Pham *et al.*, 2014). In this scoping review, the researcher systematically identified, screened, and synthesised the existing literature on the National School Nutrition Programme (NSNP) in South Africa. The scoping review followed an established scoping review methodology to map the extent, nature, and characteristics of available evidence published between 1994 and 2024. In this way, the review was conducted transparently and reproducibly. The review focused on literature published between 1st January 1994 and 31st December 2024, reflecting the period following South Africa's democratic transition and the formal implementation of national school nutrition initiatives.

3.2 Framework for the scoping review

The Preferred Reporting Items for Systematic Reviews and MetaAnalyses (PRISMA) guideline is an evidence-based reporting methodology created to improve the consistency, transparency, and completeness of evidence synthesis and systematic reviews (Page *et al.*, 2021). To enable readers, reviewers, and policymakers to critically evaluate and interpret review findings with confidence, PRISMA provides authors with structured instructions for clearly disclosing why a review was conducted, how it was conducted, and what was found (Page et al., 2020). The review process followed a structured, stepwise approach consistent with scoping review methodology and the PRISMA 2020 guidelines. The study selection process is illustrated in Figure 3.1 (PRISMA flow diagram).

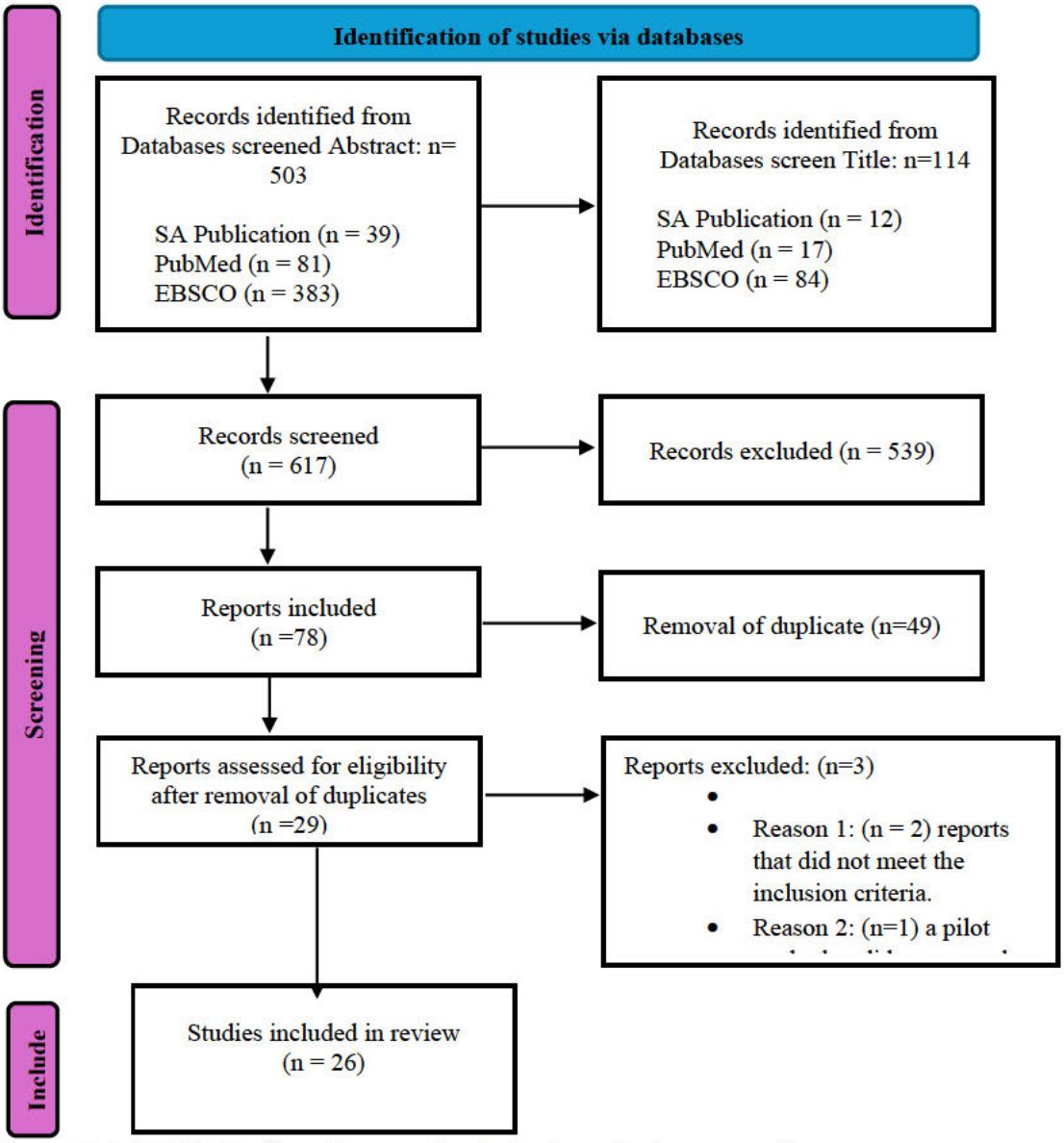


Figure 3.1: PRISMA flow diagram for inclusion of relevant studies

3.3 Search strategy

A comprehensive literature search was conducted across three databases:

- SA e-publications
- PubMed
- EBSCOhost web

SA e-Publications was included because the review focused specifically on the South African context and captures locally published research that may not be indexed internationally. PubMed was selected because it indexes literature in biomedical, life sciences, and public health, which are directly relevant to the nutritional focus of this study. EBSCOhost web was

included due to its broad coverage of multidisciplinary academic journals and its advanced filtering options, including publication date, peer-review status, and subject area, which enhanced the precision and quality of the search.

The searches were limited to studies published between 1994 and 2024 and to research conducted within South Africa**.**

3.4 Search terms

Given the objectives of the study, that is, to scope the literature on the successes and challenges associated with the implementation of the NSNP, the study scoped all the literature that related to school feeding within the time parameters. This broader scoping approach was purposive to avoid missing any relevant articles. Search terms that represent the National School Nutrition Plan are listed in the table below, and, as illustrated, these terms were searched in conjunction with context-specific terms, given the study's focus on the South African context. Ultimately, the inclusion of all nine provinces in South Africa enables a perspective that encompasses the various cultural, economic, and political contexts in which school feeding programs operate across the country's provinces.

NSNP search terms	"school feeding" OR "school meal*" OR "school nutrition" OR "feeding scheme*" OR "school nutrition programme" OR "school nutrition program" OR "National school nutrition program" OR "national school nutrition programme" OR "national school nutrition program" OR "school environment" OR "school food environment"
AND	
Context search terms	"South Africa" OR "South African" OR "KwaZulu-Natal" OR "Limpopo" OR "Eastern Cape" OR "North West" OR "Northern Cape" OR "Western Cape" OR "Mpumalanga" OR "Gauteng" OR "Free State"

The search strategy was slightly adapted for each database to accommodate differences in indexing and search functionality.

3.5 Inclusion criteria

Aligned with the objectives of the study, the inclusion criteria entailed the following:

- Peer-reviewed articles
- Articles that report empirical findings
- Articles where the research was conducted in South Africa published between 1994 and 2025
- Articles published in English

3.6 Exclusion criteria

The scoping review excluded studies published in languages other than English. Conference abstracts, editorials, commentaries, and dissertations without subsequent peer-reviewed publication were also excluded. In addition, studies that focused exclusively on policymakers or officials, without reference to NSNP implementation or outcomes, were not considered.

3.7 Screening of results

A total of 617 records were identified across three databases through title (n = 114) and abstract (n = 503) searches. All identified records were screened by title and abstract, resulting in the exclusion of 539 records that did not meet the inclusion criteria. A total of 78 records were retained as potentially eligible. After removing duplicate records, 29 unique records remained. These 29 full-text articles were assessed for eligibility, of which 26 studies met the inclusion criteria and were included in the final review.

3.8 Coding and analysis

Thematic analysis was used to analyse the literature. Thematic analysis is an analysis strategy that is commonly used in qualitative research for identifying, analysing, and reporting patterns within data (Braun and Clarke, 2006). As proposed by Braun and Clarke (2006), the study applied a six-step process of thematic analysis. A full-text screening of 26 articles included in the study was conducted. Thematic analysis was used to synthesise findings from the 26 included studies, following Braun and Clarke's six-phase approach. The first step applied was full-text screening, where a spreadsheet was created to extract relevant information from each article. The information included the author's name, the article title, the publication year, the research design, and the provinces where the studies were conducted. Key study characteristics and findings were recorded in the spreadsheet. The researcher read through the articles to

familiarize themselves with each article. The focus area of the study and the key finding were also extracted. Initial codes were generated directly from the results and discussion sections of the articles. These codes were then reviewed and organised into themes. Themes were reviewed and refined through merging or splitting where overlap occurred. Final themes were defined and named, and the synthesis was written as a narrative thematic report.

3.9 Ethical considerations

As this study involved the review of publicly available secondary data, no human participants were directly involved. The ethical exemption for this scoping review protocol was granted by the Biomedical Research Ethics Committee (BREC) at the University of KwaZulu-Natal (Appendix A). However, ethical principles of academic integrity were upheld through accurate citation, transparent reporting, and correct representation of original study findings.

CHAPTER 4: RESULTS

4.1. Introduction

This chapter presents a thematically organised scoping review of the literature on school feeding schemes, with particular emphasis on the South African National School Nutrition Programme (NSNP). In keeping with scoping review conventions, the purpose of the review is to systematically map the available evidence, clarify key concepts, and identify research gaps rather than to provide a narrowly confined effectiveness assessment (Arksey & O'Malley, 2005; Munn *et al.,* 2018). Additionally, the review is written to align with the current study's rationale and objectives, namely a) to explore challenges regarding the NSNP in South Africa over the past three decades (1994-2004), b) to explore successes regarding the NSNP in South Africa in the past three decades (1994-2004), c) to identify gaps in current research and provide recommendations for future studies. This section presents the findings derived from the analysis of studies included in the scoping reviews. The results are organised according to two broad sections, namely 1) characteristics of the included studies and b) emerging thematic areas identified across the literature.

4.2 Characteristics of included studies

As presented in Table 4.1, 26 articles published between 1994 and 2024 were included in this review. Across these articles, a range of methodologies were employed, including qualitative (n=7), quantitative (n=9), and mixed-methods approaches (n=4). The commonly used approaches were cross-sectional surveys (n=9) and qualitative interviews (n=7). Most of the studies (n=15) were conducted in schools classified as quintile 3 in rural and urban areas. Across the studies, the participants included learners, food handlers, teachers, principals, NSNP nutrition coordinators, service providers, school managers, garden workers and district officials. Studies were conducted across multiple provinces, with a focus on KwaZulu-Natal (n=5), Gauteng (n=4), Mpumalanga (n=2), Limpopo (n=2), Eastern Cape (n=1), Free State (2), and North West (1). A few (n=5) studies examined the NSNP at the national level across nine provinces, while three studies were conducted across different provinces. In terms of thematic area, the majority (n=16) of the studies focused on the challenges of implementing the NSNP, while only two explicitly covered the successes associated with its implementation. Five studies focused on the impact of school feeding programmes, while three specifically examined the challenges and successes of the programme during the COVID-19 pandemic in the context of school closures (n = 3).

Table 4.1: Summary of included studies

Number	Study title	Authors	Research approach	Year	Province/ Country	Category	Key focus/findings
1	A generational catastrophe: COVID-19 and children's access to education and food in South Africa	Shepherd and Mohohlwane	Mixed method	2022	South Africa	Challenge / Impact	COVID-19 disrupted feeding; learners collected food parcels; meal vouchers were proposed
2	A training framework for food handlers in the national school nutrition programme in Gauteng province	Berejena and Kleynhans	Mixed methods	2024	Gauteng	Challenge	Lack of structured food handler training
3	Assessing the food safety attitudes and awareness of managers of school feeding programmes in Mpumalanga, South Africa	Sibanyoni and Tabit	Quantitative	2017	Mpumalanga	Challenge / Success	Limited HACCP training and infrastructure; 89.3% contacted by DOE
4	Assessing the quality of food served under a South African school feeding scheme: A nutritional analysis	Nhlapo, Lues, Kativu and Groenewald	Quantitative (Food Samples)	2015	Free State	Challenge	Limited food variety; meals often nutritionally inadequate
5	Assessment of food gardens as a nutrition tool in primary schools in South Africa	Laurie, Faber and Maduna	Quantitative	2017	South Africa	Success	School gardens managed by learners/community; supported NSNP food supply
6	Challenges encountered in a South African school nutrition programme	Mafugu	Mixed methods	2021	South Africa	Challenge	Training gaps, late payments, feeding delays, food preferences

Number	Study title	Authors	Research approach	Year	Province/ Country	Category	Key focus/findings
7	Challenges faced by school managers in implementing national school nutrition programme in the Harry Gwala District, KwaZulu-Natal	Zulu	Qualitative	2024a	KwaZulu-Natal	Challenge	Financial, logistical, infrastructure and time constraints
8	Challenges faced by teachers in implementing National School Nutrition Program in the Harry Gwala District, KwaZulu-Natal	Zulu	Qualitative	2024b	KwaZulu-Natal	Challenge	Infrastructure issues, vandalism, and insufficient feeding time
9	Cookie-cutter cooperatives in the KwaZulu-Natal school nutrition programme	Beesley and Ballard	Qualitative	2013	KwaZulu-Natal	Impact / Challenge	Local economic development; limited business skills
10	Development of an energy-dense biscuit for primary school learners the South African National School Nutrition Programme.	Hassanally, Naicker and Singh	Quantitative (Food Samples	2021	KwaZulu-Natal	Impact	High learner acceptability
11	Ensuring the Continuation of School Feeding Programmes during COVID-19 Pandemic: A Case of "New Normal" Management	Kwatubana and Molaodi	Qualitative	2021	Not specified	Challenge / Success	Food collection challenges; introduction of food parcels
12	Evaluating food safety and hygiene knowledge and practices among foodservice staff of the feeding scheme in the primary schools in Soweto	Mgqibandaba, Madilo, Du-Preez, Mjoka and Unathi	Quantitative	2020	Gauteng	Success	Food handlers showed food safety knowledge

Number	Study title	Authors	Research approach	Year	Province/ Country	Category	Key focus/findings
13	Food safety knowledge and awareness of food handlers in school feeding programmes in Mpumalanga, South Africa	Sibanyoni, Tshabalala, and Tabit	Quantitative	2016	Mpumalanga	Challenge	Lack of training and HACCP knowledge
14	Improving soya mince recipes in the National School Nutrition Programme in South Africa	Muller, van Deventer, Pretorius and Schönfeldt	Quantitative	2023	Gauteng	Challenge	Low learner acceptance of soya mince
15	Management of school nutrition programmes to improve environmental justice in schools: a South African case study	Mawela and van den Berg	Qualitative	2020	Gauteng	Challenge / Success	Role clarity among managers; workload and delivery challenges
16	Menu Evaluation versus Health and Well-being of Children Participating in School Feeding Programmes in South Africa	Kesa and Onyenweaku	Mixed methods	2024	Multiple provinces	Success / Impact / Challenge	Good hygiene, improved attendance; nutrient benchmarks unmet
17	Microbial counts of food contact surfaces at schools, depending on the feeding scheme	Nhlapo, Lues and Groenewald	Quantitative (Food Samples)	2014	Free State	Challenge	Poor hygiene facilities; high microbial counts on aprons
18	Microbiological quality assessment of fresh produce: Potential health risk to children and urgent need for improved food safety in school feeding schemes	Msimango, Duvenage, du Plessis and Korsten	Quantitative (Food Samples)	2023	Gauteng & Mpumalanga	Challenge	Fresh produce is sometimes non-compliant with safety standards Food safety challenge in NSNP.

Number	Study title	Authors	Research approach	Year	Province/ Country	Category	Key focus/findings
19	Nutritional status of children on the National School Nutrition Programme in Capricorn District, Limpopo Province, South Africa	Malongane and Mbhenyane	Quantitative	2017	Limpopo	Impact	Children within the acceptable weight range
20	Salmonella food-poisoning outbreak linked to the National School Nutrition Programme, North West province, South Africara	Motladiile, Tumbo, Malumba, Adeoti, Masekwane, Mokate and Sebekedi	Quantitative (Food Samples)	2019	Northwest	Challenge	Food poisoning symptoms among learners
21	Salt used for the National School Nutrition Program (NSNP) in Rural Schools of Limpopo Province, South Africa has Adequate Levels of Iodine	Ramugondo, Fhumudzani and Mabapa	Quantitative	2021	Limpopo	Challenge / Success	Adequate iodine in salt; poor handler knowledge
22	Situational Analysis: Implementation Of The National School Nutrition Programme In Low Socio-Economic Primary Schools In Nelson Mandela Bay	Gresse, Anele Nomvete and Walter	Qualitative	2017	South Africa	Challenge	Lack of facilities and hygiene practices
23	The Impact and Challenges of South African School Feeding Programmes in the COVID-19 Context	Onyenweaku and Kesa	Qualitative	2023	Multiple provinces	Impact / Challenge	New ways of providing food. Food wastage learners not collecting food
24	The implementation of the school feeding scheme (SFS) in South African Public primary schools	Munje and Jita	Qualitative	2019	South Africa	Impact / Challenge	Improved learner performance; late meals and poor coordination

Number	Study title	Authors	Research approach	Year	Province/ Country	Category	Key focus/findings
25	Towards value addition in school feeding programs: The influence of seasonal factors geographical localazation and facility design on airborne microbial contaminants	Venter and Noe	Quantitative (Food Samples)	2010	South Africa	Challenge	Food storage constraints
26	Using the school of feeding system as a vehicle fortification: Experience from South Africa	van Stuijvenberg	Mixed method	2005	South Africa	Impact / Challenge	Positive micronutrient outcomes; existing deficiencies

As shown in Table 4.2, most studies employed quantitative cross-sectional designs, followed by qualitative approaches and food sample analyses. Mixed-methods approaches were less frequently used, and only one study adopted a trial-based design. Table 4.2 summarises the final set of included studies.

Table 4.2: Overview of studies included in the review

Methodological Approach	Study Design Description	Data collection/research methods	Number of Studies (n)
Quantitative	Cross-sectional surveys	Structured questionnaires	8
Qualitative	Case study and phenomenological designs	Interviews, focus group discussions, and qualitative case studies	8
Quantitative (Food sample / laboratory-based studies)	Food sample / laboratory-based studies	Nutritional analysis and/or food safety testing of meals provided through the NSNP	5
Mixed-methods	Convergent or explanatory mixed-methods design	A combination of quantitative surveys and qualitative interviews	5
Total			**26**

4.3 Emerging themes

A close analysis of the studies revealed three main themes (Figure 4.1), which have been categorised as follows: 1) Challenges associated with implementing the NSNP, 2) Successes associated with implementing the NSNP, and 3) Impact of the NSNP.

4.4 Challenges associated with implementing the NSNP

4.4.1 Food safety, hygiene knowledge and practices

Food safety concerns emerged as a prominent theme across several studies (n=7). Results indicated that food handlers and programme managers demonstrated varying levels of food safety knowledge, with many studies reporting inadequate understanding of hygiene practices and the prevention of foodborne disease, with nutritional, educational, and social implications for learners participating in the National School Nutrition Programme (NSNP).

A key focus in two studies was the microbiological quality and safety of the food and surfaces used during school feeding programmes (Nhlapo, Lues, and Groenewald, 2014; Msimnago et al., 2023). The types of foods used in meal preparation were assessed. Meals had limited diversity, relying mainly on maize, rice, cabbage, potatoes, and soya products, with minimal fruits and dairy.

For example, in a study that assessed the microbiological quality of fresh produce used in school feeding programmes, Msimango et al. (2023) found substantial food safety concerns within the NSNP, indicating poor microbiological quality that posed potential health risks to children, including foodborne illnesses, gastrointestinal infections, and exposure to harmful pathogens. Msimango et al. (2023) further found that a large proportion of fresh produce sourced from both school gardens and suppliers exceeded acceptable microbiological safety guidelines, increasing the risk of contamination-related diseases such as diarrhoea, nausea, and vomiting among learners. Specifically, 62.5% of the samples they collected contained Enterobacteriaceae above recommended limits, 86% exceeded coliform criteria, and 31.6% surpassed E. coli guidelines, posing a severe risk to children. The study demonstrated that contamination levels were high in both gardens and in produce stored in the storeroom, with inadequate storage facilities and inconsistent access to clean water likely contributing to the bacterial load (Msimango et al., 2023).

Similarly, a study by Nhlapo, Lues, and Groenewald (2014) focused on food contact surfaces where samples on microbial counts were assessed through the feeding programme at 10 primary, intermediate, combined and special schools, categorised under the three quintiles in rural and urban areas. High microbial counts were found on food-contact surfaces, particularly on food handler aprons, although hands generally showed lower contamination levels. The study identified that food handler aprons had high microbial counts, indicating poor hygienic practices during food preparation and handling. Aprons are in frequent contact with hands, raw food materials, cooked food, work surfaces, and the surrounding environment; therefore, they can easily become contaminated. Contaminated aprons have been found to be a particularly prevalent one within the school feeding programme, which acts as a vehicle for cross-contamination, transferring microorganisms from dirty surfaces or raw foods to ready-to-eat foods. This poses a significant food safety risk, particularly in school feeding programmes where food is prepared for learners.

Another key focus area was the lack of essential infrastructure, such as handwashing facilities, hot water, and hygiene equipment within food preparation areas. They were seen across several studies (n=5) affecting the food safety of the National School Nutrition Programme (NSNP). One of the studies conducted by Sibanyoni and Tabit (2017) focused on the managers of the NSNP on food safety attitudes and awareness. About 300 NSNP managers were assessed. The results concluded that schools, especially in rural areas, lack electricity and tap water for cooking during the NSNP (Sibanyoni and Tabit, 2017). Poor infrastructure and lack of resources that interfere with the school feeding, as it affects the feeding time and the food safety.

Additionally, the five studies discussed above collectively identified limited awareness and implementation of Hazard Analysis and Critical Control Points (HACCP) systems across the schools implementing the NSNP, substantially increasing the potential risk of food contamination within the programme. Evidence from one of the studies conducted in Mpumalanga by Sibanyoni and Tabit (2017) shows that schools did not implement the HACCP. This shows that school managers and food handlers as the implementers of school feeding, lack training on the HACCP. This study is similar to the study conducted by Sibanyoni, Tshabalala and Tabit (2016), that indicate that the lack of HACCP implementation within the NSNP weakens food safety control mechanisms, increasing the risk of food contamination and foodborne illness among learners. Without a structured preventive system, food safety practices remain inconsistent and heavily dependent on individual food handler's knowledge, particularly in under-resourced school settings. (Sibanyoni, Tshabalala and Tabit 2016; Sibanyoni & Tabit, 2017).

4.4.2 Operational challenges

Even though the NSNP has been running for more than three decades, this review found that operational challenges still compromise the implementation of the NSNP. Several operational challenges affecting the implementation of NSNP were identified. A recurring management challenge identified across the reviewed studies (n=12) is the lack of effective monitoring and oversight within the NSNP. A study conducted by Zulu (2024b) with the key focus on the challenges managers encounter in assessing the school feeding programme. Study showed that late payment of service providers, delayed food delivery, poor infrastructure, and inadequate storage facilities were among the challenges that managers experienced. Similarly, to a study that was conducted by Venter et al., (2010), Sibanyoni and Tabit, (2017); Kesa and Onyenweaku, (2024), significant operational challenges were identified, including inadequate

food delivery, poor quality vegetables supplied by contractors, food shortages linked to rising enrolments, and the heavy workload placed on nutrition coordinators who were required to balance teaching with programme oversight. Additional barriers such as insufficient kitchen infrastructure, lack of water and land for school gardens, and the absence of breakfast provision in secondary schools further undermined programme implementation.

In the study previously referred to by Eridiong et al., (2023), the authors reported that for provinces (Western Cape, Gauteng, North West, and KwaZulu Natal) where schools provided learners with breakfast and lunch, they still experienced operational challenges such as lack of resources in implementing the school feeding programme (Onyenweaku and Kesa, 2023).

Similarly, the study conducted by Mawela and Geesje van den Berg, (2020) which was assessing the management of the school nutrition programme, The study reported that insufficient supervision of food handlers partly due to overwhelming workloads placed on nutrition coordinators, has led to compromised oversight of daily meal preparation, storage conditions, and menu compliance, increasing the risk of unsafe practices in school kitchens (Mawela and van den Berg, 2020). Without consistent monitoring from district officials, principals, and programme managers, issues such as poor quality, food delivery, unhygienic facilities, and failure to meet prescribed nutritional requirements often go unaddressed. This gap in routine oversight undermines the programme's ability to provide safe, nutritious meals and reduces accountability across implementation levels.

4.4.3 Food Security and access to school feeding programme

Three studies reported significant disruptions during the COVID-19 pandemic, as school closures temporarily suspended feeding programs. One study examined how COVID-19 impacted the NSNP, focusing on the challenges encountered, and found that school feeding disruptions were affected by school closures (Kesa & Onyenweaku, 2024). During the school closure learners could not access food, which affected about 1.5 million learners who were not receiving meals (Shepherd & Mohohlwane, 2021). This has put a major challenge on the food security for a lot of learners as a lot of parents have also lost their jobs during that time. This was negatively impacting the health and well-being of learners.

Another study that focused on the school feeding during the COVID-19 pandemic which was conducted by Kwatubana and Molaodi (2021). Findings indicated that although food was prepared in some instances, it was not consistently collected or distributed, leading to increased

food insecurity among children. Despite these challenges, some schools developed alternative feeding strategies to ensure continuity of food provision. These included providing food parcels to learners, having learners come to the school to collect them, and distributing food parcels to learners (Kwatubana and Molaodi, 2021).

4.4.4 Training and capacity of NSNP implementors

Six studies showed that food handlers and NSNP coordinators generally lacked formal training in food safety, nutrition, and hygiene practices. Studies conducted in Gauteng, Mpumalanga, Limpopo, and KwaZulu-Natal reported that many food handlers relied on informal knowledge and experience rather than structured training programmes (Mafugu, 2021; Sibanyoni, Tshabalala and Tabit, 2016).

A study that focused on the training of food handlers in Gauteng province found that food handlers lacked training in food safety and hygiene practices. The study revealed several systemic and operational challenges that undermine the effective management of the NSNP in Gauteng Province. Food handlers lacked comprehensive and standardised training. Training focused mainly on hygiene, safety, and first aid, while crucial competencies such as nutrition education, food preparation, purchasing, and quality control were largely neglected (Berejena & Kleynhans, 2024). A similar study conducted by (Gresse *et al.*, 2017) which assessed the NSNP in eight primary schools classified as quintile 3. The results showed that there is a lack of training, which led to unsafe food handling practices, increasing the risk of cross-contamination and foodborne illness outbreaks. Inadequate training resulted in poor meal quality, improper cooking procedures, and a lack of adherence to food safety protocols (Gresse *et al.*, 2017). Similarly, a study conducted by Mawela and van den Berg, (2020) on management of school feeding, nutrition coordinators and principals also indicated a lack of training in key management areas such as time management, human resource coordination, menu compliance, and food handler supervision. This gap contributed to inefficiencies and inconsistencies in programme implementation (Mawela and van den Berg, 2020).

A cross-sectional study conducted in Mopani and Vhembe districts assessed iodine levels in salt used for NSNP meal preparation and the iodine nutrition knowledge of food handlers (Ramugondo, Mushaphi and Mabapa, 2021). The study confirmed that food handler's iodine nutrition knowledge was generally low, and many reported storage practices likely to reduce iodine content, indicating a gap between micronutrient policy intentions and practical

implementation. Across the dataset, the absence of standardised training frameworks and ongoing professional development contributed to inconsistencies in food preparation and handling practices.

4.5 Impact of the NSNP

A few of the studies (n=7) focused on the impact of the NSNP. Evidence showed that school feeding programmes contribute to improved access to food, especially in rural and township schools classified as quintile 3 (Kesa and Onyenweaku, 2024; and Gresse et al., 2017). Although benchmark per meal nutritional requirements were not consistently met across provinces, evidence showed that school feeding programmes continued to yield positive educational benefits. Studies have shown that the NSNP and related school feeding interventions have improved school attendance, enhanced learner participation, and contributed to better academic performance. In addition, these programmes have been identified as potential vehicles for delivering micronutrients, with positive effects on learners' micronutrient status, growth, morbidity, and cognitive functioning (Munje & Jita, 2019; Malongane & Mbhenyane, 2017; van Stuijvenberg, 2005).

For example, an evaluation of the School Feeding Scheme in South Africa found that access to school meals positively influenced learners' academic performance (Munje and Jita, 2019). Similarly, a study conducted in the Harry Gwala District revealed that the implementation of the NSNP reduced absenteeism and increased school enrolment, further highlighting the programme's role in supporting learner attendance and engagement (Zulu, 2024b). Whereas another study showed that a significant proportion of learners participating in the NSNP fell within the acceptable weight range, suggesting a positive nutritional impact of the programme (Malongane and Mbhenyane, 2017).

One study explored supportive strategies such as school food gardens and food fortification initiatives. Results indicated that school gardens served as supplementary food sources and were often managed by learners. Despite food gardens being widely regarded as a beneficial strategy, Mawela and van den Berg (2020) identified them as a significant challenge in their study examining the role of school feeding in promoting environmental justice. Several reasons, including a lack of land, time constraints, and a water shortage, were highlighted. Although this demonstrated a willingness to address the vegetable shortage by establishing a school vegetable garden, it was not always easy, and this added another management responsibility to the workload (Mawela and van den Berg, 2020). Mawela and van den Berg, (2020), found that

the NSNP played a crucial role in improving learner well-being, punctuality, school attendance, and academic performance, particularly among learners from disadvantaged households who often rely on the school meal as their primary source of daily nutrition. Principals and nutrition coordinators demonstrated a clear understanding of their management responsibilities, which included supervising food handlers, monitoring food quality, maintaining safe storage, and ensuring that all needy learners received meals.

The role of SMME cookie-cutter cooperatives in the KwaZulu-Natal School Nutrition Programme was examined in a study that found a quantifiable influence. The investigation focused on four selected cooperatives responsible for providing meals for the school feeding programme. The results showed that cooperative involvement in the KwaZulu-Natal school nutrition initiative had positive developmental impacts, as participation in the program encouraged local economic growth (Beesley and Ballard, 2013). Even though the study has shown a positive impact, there are still challenges, such as limited business experience among cooperatives and weak supply chain management constrained these benefits. This indicates that complementary support mechanisms are necessary to maximise the programme's economic impact.

4.6 Success of the NSNP

A few studies focused specifically on the successes of the NSNP, while others that primarily examined its challenges also highlighted positive outcomes. Both of these categories of studies will be referred to in this section.

Three studies related to food quality indicated the success of the NSNP. A cross-sectional survey conducted in Gauteng, Western Cape, North West, and KwaZulu-Natal provinces on evaluating the menu of the school feeding programme found that the food handlers followed good hygiene practices in the four provinces, when preparing school meals (Kesa & Onyenweaku, 2024)

Research by Mgqibandaba et al. (2020), a cross-sectional study conducted in 13 primary schools in Soweto, assessed food safety knowledge and hygiene practices among 42 food handlers involved in the school feeding scheme. The results showed that frequent handwashing (95.2%), sanitising knives and cutting boards (95.3%), and checking expiry/best before dates (92.8%). In addition, maintaining clean kitchen surfaces was widely recognised as important, with 80.9% of participants reporting adherence to this practice, suggesting generally good

awareness of basic hygiene standards among food handlers in the programme (Mgqibandaba et al., 2020).

Similar results were reported in another study assessing meal quality, which found that food handlers followed DBE guidelines when preparing meals. The study was conducted by Nhlapo et al., (2015) in Free State were the quality of food served was assessed, showing that food handlers followed recommendations of the DBE in preparing the meals (Nhlapo et al., 2015). Despite these positive findings, there remains a notable gap in the literature. Few studies (n=7) have comprehensively explored the positive impacts of school feeding programmes, indicating the need for further research to better understand the full benefits of the NSNP.

CHAPTER 5: DISCUSSION

The current review examined the challenges**,** impacts**,** and successes of implementing the National School Nutrition Programme (NSNP) in South Africa, in line with the study objectives. Specifically, the review sought to synthesise empirical evidence on how the programme has influenced learner nutrition, educational outcomes, and community development, while also identifying persistent barriers that affect its effective implementation across different provincial contexts. Overall, the evidence showed that while the programme has made important contributions to learner nutrition, school attendance, and community development, its effectiveness is constrained by systemic implementation challenges, training gaps, and infrastructure constraints that vary across provinces.

5.1 Challenges associated with the implementation of the NSNP

The interpretation of the scoping review results highlights food safety as a recurring and serious concern across multiple provinces, directly addressing the study objective of examining implementation challenges within the NSNP. The consistent reporting of limited food safety knowledge, inadequate Hazard Analysis and Critical Control Points (HACCP) training, poor hygiene infrastructure, and evidence of microbial contamination indicates systemic weaknesses in food handling practices (Sibanyoni, Tshabalala and Tabit, 2016; Sibanyoni and Tabit, 2017). Although some studies reported acceptable levels of food safety knowledge among food handlers, this knowledge did not consistently translate into safe practices, particularly in contexts with poor infrastructure, where schools lack essential resources such as clean running water and electricity (Sibanyoni and Tabit, 2017). The occurrence of foodborne illness outbreaks associated with the NSNP further highlights the public health risks of inadequate food safety controls, emphasising the critical role of food safety in programme implementation (Motladiile et al., 2019).

These findings point to a persistent gap between national policy guidelines and actual practice on the ground, particularly in relation to monitoring and evaluation mechanisms, which was a key focus of this review. The findings have significant implications for the NSNP's larger goals, namely its role in improving student wellbeing, educational involvement, and community-based development, even if food safety emerged as the main implementation challenge.

Evidence from studies conducted in Kenya and Ethiopia similarly demonstrates that school feeding programmes face comparable operational challenges, including limited access to clean

water, delays in ration delivery, poor-quality food provision, insufficient food allocation, inadequate infrastructure, and limited training in sanitation and hygiene for cooks (Ann and Mwangi, 2019; Desalegn, Gebremedhin and Stoecker, 2022; Semegn *et al.*, 2023). From a policy perspective, these findings suggest that strengthening food safety outcomes within the NSNP requires more than policy formulation alone; it necessitates context-sensitive implementation strategies, sustained investment in infrastructure, standardised and continuous training, and robust monitoring systems that are responsive to provincial disparities. Taken together, the results indicate that the NSNP does not operate as a uniform programme across South Africa, highlighting the need for differentiated provincial support when assessing programme effectiveness and long-term sustainability (Sibanyoni and Tabit, 2017; Devereux et al., 2018) .

According to the scoping review results, strengthening food safety systems through standardised training on HACCP principles, modernising basic infrastructure such as water and sanitation facilities, and improving monitoring and evaluation systems at the school and district levels are all necessary for improving NSNP implementation (Sibanyoni and Tabit, 2017). Additionally, rather than using a single integrated national strategy, execution strategies should be diversified across provinces to accommodate contextual variations in resources and capacity. To lessen persistent inequalities in programme delivery and results, targeted assistance for rural and underfunded schools is needed (Mawela and van den Berg, 2020).

Access to school feeding was also affected by the COVID-19 pandemic. The COVID-19 pandemic significantly disrupted education globally, with 1.6 billion children forced out of schools, amplifying the importance of school meal programmes (Bouterakos et al., 2021) Similarly, it was experienced in South Africa, where schools were affected during the school closure due to the pandemic. The results have shown that challenges included the disruption of feeding, collection of food and food wastage (Shepherd and Mohohlwane, 2021). Due to learners not going to school everyday food handlers prepared a lot of food which ended up being a wastage as learners did not collect. However, strategies were developed in South Africa where learners had an option to be served food at school, to collect food from a central point, or to receive school feeding as food parcels (Kwatubana and Molaodi, 2021). Similar findings have been reported in other countries, where alternative strategies were implemented to maintain school feeding support. For instance, Brazil provided financial assistance directly to families, while Peru implemented cash transfers alongside food rations (Reis et al., 2020). The

results demonstrate that the COVID-19 pandemic posed significant operational challenges to the NSNP, disrupting regular feeding schedules and access to meals. However, the findings also reveal adaptive responses by school managers and authorities (Kwatubana and Molaodi, 2021). The introduction of new strategies like providing of food parcels and, in some cases, meal vouchers illustrate the programme's capacity for resilience and innovation under crisis conditions. Furthermore, the impact of the COVID-19 pandemic, was not uniform across provinces. According to Le Grange (2021), the Western Cape government, provided emergency funds to feed children in high-risk areas during the lockdown. Some schools in the Western Cape were the only ones that opened their doors, arranged for pupils to follow on open fields at a distance from one another, and fed them with take-home food rations to the 483 000 learners (World Food Programme, 2020). In comparison with other countries which differ in national policy frameworks, the National School Feeding Programme in Brazil responded to school closures by distributing food baskets and directly transferring financial resources to families. This allowed households to purchase food on their own while still providing children with nutritional support (Reis et al., 2020).

The reported food wastage during periods of school closure also reveals weaknesses in demand forecasting, communication, and coordination between schools and households, suggesting the need for more responsive planning mechanisms during disruptions (Shepherd and Mohohlwane, 2021). These adaptive responses highlight the importance of institutional flexibility within the NSNP and point to the need for formalised emergency response protocols that can be activated during future crises to ensure continuity of learner access to food (Kwatubana and Molaodi, 2021). Beyond operational disruption, the interruption of school feeding during COVID 19 had significant implications for learner food security and wellbeing, particularly for children from low-income households who rely on school meals as a primary source of daily nutrition (Shepherd and Mohohlwane, 2021; Amolegbe, 2020; World Food Programme, 2020).

Across the reviewed studies, inadequate training among food handlers, school managers and other NSNP stakeholders emerged as a central barrier to effective programme implementation (Mafugu, 2021; Sibanyoni, Tshabalala and Tabit, 2016; Mawela and van den Berg, 2020; Zulu, 2024a). Evidence of limited knowledge in key technical areas such as basic nutrition, correct iodine use, food hygiene, and Hazard Analysis and Critical Control Points (HACCP) principles suggests that many implementers are insufficiently equipped to meet the programme's food safety and quality requirements. Importantly, this points to a persistent implementation gap in

which policy intent is not consistently translated into routine practice at school level. Similar capacity constraints have been documented in other African school feeding contexts, where insufficient training in sanitation and hygiene among cooks has been identified as a major implementation challenge (Ann and Mwangi, 2019; Desalegn, Gebremedhin and Stoecker, 2022; Semegn et al., 2023). However, nations like Brazil, where food handlers operate within a more professionalised system supported by ongoing training and standard operating procedures, greater consistency in food safety compliance was found (WFP Centre of Excellence, 2020).

In practical terms, inadequate training increases the likelihood of unsafe food handling behaviours and cross-contamination risks, particularly in under-resourced environments where implementers may lack both the competencies and the enabling conditions to comply with prescribed standards. Strengthening implementation therefore requires not only the provision of initial training, but continuous, standardised capacity building linked to supportive monitoring and evaluation systems that can identify gaps, reinforce compliance and ensure accountability over time. Overall, the prevalence of training gaps in school feeding programmes reflects systemic governance, resource, and design constraints rather than individual-level weaknesses. Therefore, in order to close these gaps, it is necessary to institutionalise ongoing training, improve oversight and accountability, define roles clearly, and make investments in infrastructure that will enable food safety knowledge to be implemented on a regular basis.

5.2 Impact of the NSNP

The data that is currently available reveals that the NSNP has had a beneficial impact on learner wellbeing, especially in connection to nutritional status and school attendance and involvement, even though the review found relatively few research that specifically addressed program impact. Many students enrolled in the NSNP fell within acceptable weight ranges, according to studies done in Limpopo, indicating that the program helps meet basic nutritional needs (Malongane and Mbhenyane, 2017). The role of school meals as an incentive for regular school attendance and improved academic engagement was highlighted by consistent reports of increased attendance (Mostert, 2021). Similarly, analysis of the Ghana School Feeding Programme (GSFP) has shown a positive impact on nutrition and health, enhancing school attendance, and supporting local farms (Quaye, 2008).

The study showed that the Home-grown School Feeding Program (HG-SFP) was successful in improving class attendance and academic performance of school children in a study conducted in Kenya. In addition, the programme had a contribution in saving the parent's money and time as a result of the food provided (Desalegn, Gebremedhin and Stoecker, 2022; Niyibizi, 2024). These data suggest that the NSNP acts through multiple mechanisms, including reducing short term hunger, enhancing attentiveness in class, and providing homes with a guarantee of at least one daily meal for learners. Thus, school feeding promotes both educational engagement and adequate nutrition, especially in situations when household food insecurity is present. These comparable findings suggest that the impacts observed in South Africa align with broader evidence from similar programmes in LMIC settings.

However, it is important to note that much of the existing evidence focuses on short-term outcomes such as attendance and weight status, with limited longitudinal research examining sustained nutritional, educational, or socioeconomic impacts (Devereux *et al.*, 2018; Wang *et al.*, 2021). The very small number of impact focused research also restricts the extent to which causal conclusions can be derived about long-term programme success. Overall, despite ongoing implementation challenges and gaps in the impact evidence base, the findings affirm the NSNP's role as both a nutrition intervention and a social protection strategy, particularly for learners from low-income households, while underscoring the need for further research to better understand the programme's long-term effects (Wang et al, 2021).

5.3 Success of the NSNP

In 2022, school meal programmes served over 407 million children globally, with approximately one in four primary- and secondary-school-aged children receiving a meal, including nine million learners in South Africa (World Food Programme, 2022; Department of Basic Education, 2023). Despite the challenges identified in the implementation of the National School Nutrition Programme (NSNP), the review indicates several noteworthy successes. Evidence shows that, in many schools, meals are prepared in alignment with DBE guidelines, reflecting compliance with national standards. The correct use of iodised salt in some rural Limpopo schools represents a significant achievement, given its role in preventing iodine deficiency disorders that can impair cognitive development and learning outcomes among children (Ramugondo, Mushaphi and Mabapa, 2021). In addition, some studies highlight effective leadership in schools where principals and nutrition coordinators demonstrate clear

role understanding and oversight, contributing to smoother programme implementation (Mawela and van den Berg, 2020; Qila and Tyilo, 2014).

Similar successes have been documented in other LMIC contexts, strengthening confidence in the observed outcomes. For example, the GSFP has reported improvements in child nutrition, school attendance, and linkages with local agricultural production, illustrating how school feeding can simultaneously support learner wellbeing and local economic development (Quaye, 2008b). Likewise, evidence from Ethiopia's Home-Grown School Feeding Programme (HG-SFP) shows positive effects on class attendance and academic performance, while also reducing household food expenditure and time burdens for parents (Desalegn, Gebremedhin and Stoecker, 2022; Niyibizi, 2024). These international experiences suggest that, when adequately supported, school feeding programmes in LMIC settings can deliver meaningful nutrition, education, and social protection benefits, comparable to those observed within the NSNP.

Another area of success within the South African context is the demonstration of food safety knowledge among some food handlers, as observed in Soweto, indicating that appropriate hygiene and food preparation practices can be achieved with sufficient training and support (Mgqibandaba *et al.*, 2020). However, these successes are unevenly distributed across provinces, with several studies reporting persistent gaps in food safety knowledge and hygiene practices among food handlers in other settings (Mafugu, 2021;Sibanyoni, Tshabalala and Tabit, 2016; Mawela and van den Berg, 2020; Zulu, 2024b). This reinforces the need for standardised national training frameworks and consistent monitoring mechanisms within the NSNP to ensure that successful practices are institutionalised rather than remaining context-specific.

Finally, the discussion reveals a clear gap in the literature. While several studies document successful practices within the NSNP, the majority of the research focuses on challenges, with limited empirical attention to long-term educational outcomes, sustained child health improvements, or broader community-level socioeconomic benefits. Similar gaps have been noted in international school feeding research, where impact evaluations remain comparatively underdeveloped relative to implementation assessments (Beesley & Ballard, 2013; Chelule & Ranwedzi, 2022; Ann & Mwangi, 2019; Bouterakos et al., 2021). Consequently, further research is required to examine the effectiveness and sustainability of training models, monitoring systems, and complementary interventions such as school food gardens, in order to

strengthen the evidence base on what contributes to long-term success in school feeding programmes.

CHAPTER 6: CONCLUSIONS, STUDY CRITIQUE, AND RECOMMENDATIONS

6.1 Introduction

This chapter summarises the key findings of the scoping review in relation to the study objectives and research questions. It also provides evidence-based recommendations aimed at strengthening NSNP implementation and addressing the challenges identified. The chapter is structured around the study objectives, followed by a critique of the included studies, and concludes with recommendations for policy implementation and future research.

6.2 Structured objectives

Objective 1: Challenges affecting NSNP implementation

Overall, implementation challenges vary across provinces and school settings. The review highlighted the following challenges: Food safety and hygiene issues were observed in several provinces. Limited infrastructure, including water, sanitation, storage, and electricity, restricts the ability to adhere to NSNP guidelines. Inadequate training and uneven capacity among implementers undermine food handling and quality. Operational issues, such as procurement delays, late deliveries, delayed payments, and workload pressures, persist, highlighting gaps in monitoring and oversight.

Objective 2: Impact of the NSNP

Although fewer studies focus on impact, the evidence indicates a positive effect on learners' nutritional status, such as maintaining acceptable weight ranges in some provinces. Evidence also suggests that school feeding improves attendance and participation, contributing to reduced short-term hunger and increased classroom engagement. While the NSNP demonstrates benefits, the impact literature remains limited, and further research on the long-term effects of school feeding is needed.

Objective 3: Successes of the NSNP

Evidence of successes includes compliance with DBE guidelines in certain settings, examples of effective leadership and clear roles, good hygiene practices and food safety knowledge, and correct use of iodised salt in specific contexts. These successes are observed across provinces and various school settings.

6.3 Study Critique

6.3.1 Strengths of the review

This scoping review presents a number of strengths. A key strength is the synthesis of literature from studies conducted across different provinces in South Africa using a variety of methodological approaches. The review enhances understanding of NSNP implementation by reporting successes and integrating data into emergent thematic insights. The inclusion of multiple stakeholder perspectives, such as those of students, food handlers, school administrators, nutrition coordinators, and parents, further strengthens the review by capturing both operational experiences and decision-making processes at school and provincial levels.

Another significant strength is the inclusion of provincial search terms to expand the identification of relevant literature that might have been excluded if this was omitted. By emphasising variations in capacity, infrastructure, and oversight among provinces, the study contributes meaningfully to policy-relevant discussions on equity, differentiated support, and context-responsive implementation within the NSNP.

Finally, the scoping review identifies implementation challenges and highlights important research gaps. While evidence on impact and success is limited, the review not only synthesises the available data but also provides a clear direction for further research and programme development initiatives.

6.3.2 Limitations of the study

This scoping review has several limitations that should be considered when interpreting the findings. First, the review relied primarily on peer-reviewed publications, which may introduce publication bias by excluding relevant unpublished studies. The literature search was limited to three electronic databases, so relevant studies in other sources may have been missed.

Many included studies focused on implementation challenges, while fewer examined programme impact or documented NSNP successes. Additionally, the predominance of cross-sectional and descriptive designs, with limited longitudinal or experimental studies, restricts insights into long-term outcomes. Variation in study methodologies, indicators, and outcome measures further limited comparability and synthesis, particularly regarding nutrition and educational outcomes.

Furthermore, this scoping review did not conduct a temporal analysis of research topics over time; future studies should consider examining how the NSNP evidence base has evolved since the programme's inception in 1994, as such an analysis could yield important insights into emerging trends and shifting research priorities within the field.

6.4 Recommendations

Several recommendations arise from the findings of the review, which have been summarised according to stakeholder group.

6.4.1 Policy recommendations

- Strengthen NSNP implementation and oversight by providing targeted support to the DBE and Provincial Education Departments.
- Institutionalise continuous, competency-based training for food handlers on hygiene, safety, nutrition, and ingredient use; principals and coordinators on supervision, monitoring, compliance, and record-keeping. Include regular refresher and induction programmes to address high turnover and uneven capacity.
- Enhance monitoring, evaluation, and accountability through clearly defined roles at provincial, district, and school levels, standardised tools and checklists, and formal reporting pathways for food safety incidents.
- Improve infrastructure and supply chain management by strengthening delivery timelines, enforcing food quality controls, reducing late payments and disruptions, and ensuring contractor accountability.
- Incorporate emergency preparedness with formal crisis feeding protocols, such as pre-arranged food parcels, to maintain nutritional support during disruptions.
- Provide differentiated provincial support by allocating resources based on local capacity and needs, promoting equity and overall programme effectiveness.

6.4.2 Implementation recommendations (school-level)

- The scoping review identifies practical actions (daily records, menu compliance) for schools to strengthen NSNP delivery, targeting principals, nutrition coordinators, School Governing Bodies (SGBs), and food handlers.
- Improve school-level governance by strengthening school nutrition committees to support shared oversight and decision-making. Clearly define day-to-day roles for food

preparation, supervision, and record-keeping, and enhance internal accountability using delivery records, preparation logs, and attendance registers.

- Address food safety risks by implementing minimum hygiene standards suitable for low-resource environments. Display hygiene procedures, maintain cleaning schedules, ensure proper food storage, and reinforce hand hygiene and prevention of cross-contamination, which are recurring challenges in NSNP implementation.
- Strengthen supervision and support systems through routine spot checks, regular feedback, and mentoring for food handlers. Supportive supervision, rather than punitive monitoring, promotes ownership, continuous learning, and sustainability of improvements.
- Enhance community and stakeholder engagement by involving parents and local community members to support oversight and resource mobilisation. Collaborate with local health and environmental services to strengthen food safety, provide technical support, and integrate school health interventions.

6.4.3 Recommendations for future research

- There is a need for long-term studies tracking how the NSNP affects learners' nutrition and educational outcomes over time to understand its sustained benefits beyond short-term results.
- Comparative provincial studies are recommended to explore how variations in capacity, infrastructure, and resources influence programme implementation and outcomes, providing context-sensitive data for policy and resource allocation.
- Intervention-based research should assess practical strategies for improving school-level implementation, including the effectiveness of different training models for food handlers and coordinators, enhanced monitoring and supervision approaches, and adapted HACCP frameworks for low-resource environments.
- Cost-effectiveness analyses are needed to evaluate NSNP delivery methods, including emergency feeding strategies such as food parcels, take-home meals, or vouchers, to guide sustainable planning and decision-making.
- Research on complementary interventions is essential, including school food gardens and local procurement initiatives, to assess broader nutritional, social, and environmental impacts. Future studies should also highlight success stories and effective practices, not only challenges, to build a solution-focused evidence base.

6.5 Conclusion

This review demonstrates that the NSNP is a vital initiative for improving learner nutrition, school attendance, and broader social support in South Africa. Evidence shows it reduces household food insecurity and promotes daily school participation. However, the programme performs unevenly across provinces, with food safety risks, inconsistent training, infrastructure gaps, and weak monitoring reflecting the influence of institutional capacity, resources, and local conditions on implementation.

To realise its full potential, the NSNP requires an implementation-focused strategy that includes minimum food safety standards, strengthened monitoring and accountability systems at all levels, tailored provincial support, and enhanced training and supervision. While short-term benefits are clear, the limited impact-focused research highlights the need for long-term data on socio-economic, health, and educational outcomes. With sustained investment and strategic implementation, the NSNP can deliver significant benefits for learners and communities.

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APPENDIX A: ETHICS EXEMPTION LETTER

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

Ms Mafanato Gladys Maluleka (223012916)
Pietermaritzburg

Dear Ms Mafanato Gladys Maluleka,

Original application number: 22201465
Project title: Mapping three decades of school feeding in the South African National School Nutrition Programme (NSNP): a scoping review of evidence

Exemption from Ethics Review

In response to your application received on 9 December 2025, your school has indicated that the protocol has been granted **EXEMPTION FROM ETHICS REVIEW.**

Any alteration/s to the exempted research protocol, e.g., Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through an amendment/modification prior to its implementation. The original exemption number must be cited.

For any changes that could result in potential risk, an ethics application including the proposed amendments must be submitted to the relevant UKZN Research Ethics Committee. The original exemption number must be cited.

In case you have further queries, please quote the above reference number.

PLEASE NOTE:
Research data should be securely stored in the discipline/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours sincerely,

[redacted]

Prof Trevor Raymond Hill
Academic Leader Research