

Adolescent Nutrition in West Africa: A rapid review of the research evidence



CORANTINE GROCCIA / SAVETHE CHILDREN

Key messages

- Although there has been a steady increase in literature over the past 20 years, research on adolescent nutrition remains limited in most West African countries.
- Most studies in the region are observational and research evidence is lacking on programs and policies addressing adolescent nutrition.
- There has been a notable shift over time in the nutritional outcomes studied, from undernutrition to overweight/obesity and diet-related noncommunicable diseases.
- Increased commitment is needed to improve the evidence-base on programs and policies that target adolescent nutrition.

Why is this review needed?

Improving adolescent health is central to achieving many global health goals as adolescents are the foundation for future population health. A key development has been the *Global Strategy for Women's, Children's and Adolescents' Health (2016–2030)*, launched by the United Nations Secretary-General in support of the 2030 Agenda for Sustainable Development¹. This new strategy identifies adolescents as central to achieving the Sustainable Development Goals. It provides momentum to prioritize areas for measuring and acting upon adolescent nutrition as reflected by the *Adolescent Nutrition Call to Action: Better Data Now to Drive Better Programs and Policies in the Future*². Even though adolescents are considered pivotal for achieving these global health agendas, they are often overlooked in terms of policy and programming.

In response, the West Africa Health Organization (WAHO) organized the Economic Community of West African States (ECOWAS) 16th Nutrition Forum in November 2019, themed: "Adolescent nutrition: Institutionalizing sustainable actions for improved outcomes in West Africa." Decisions to prioritize and act upon adolescent nutrition should be based on the best available evidence to guide in-country decisions. To identify and catalogue the available research evidence (from 1999 to 2019) on adolescent nutrition (10–19 years old) in West Africa, **Transform Nutrition West Africa** undertook a rapid review using a systematic search strategy. The review aims to inform WAHO and other decision-makers in West Africa so as to support policy and program development for adolescents in the region.

Context of Adolescent Nutrition in West Africa

Adolescence is an important period of physical and cognitive development during which optimal nutrition is crucial. It is an essential time for forming preferences and habits and a key window of opportunity for influencing adult health³. In West Africa, while undernutrition rates remains high, there has also been a steady rise in overweight and obesity, and an increasing share of mortality and morbidity due to diet-related noncommunicable diseases (DR-NCDs) among adolescents^{4,5}. Of concern is that adolescents are experiencing these diseases earlier in life than previous generations⁶. It is crucial to address adolescents' nutrition to prevent them from carrying malnutrition into adulthood and to protect their overall health later in life⁷.

Local adolescents in the village of Marabis, Zinder region, Niger, during a meeting with the village chief.

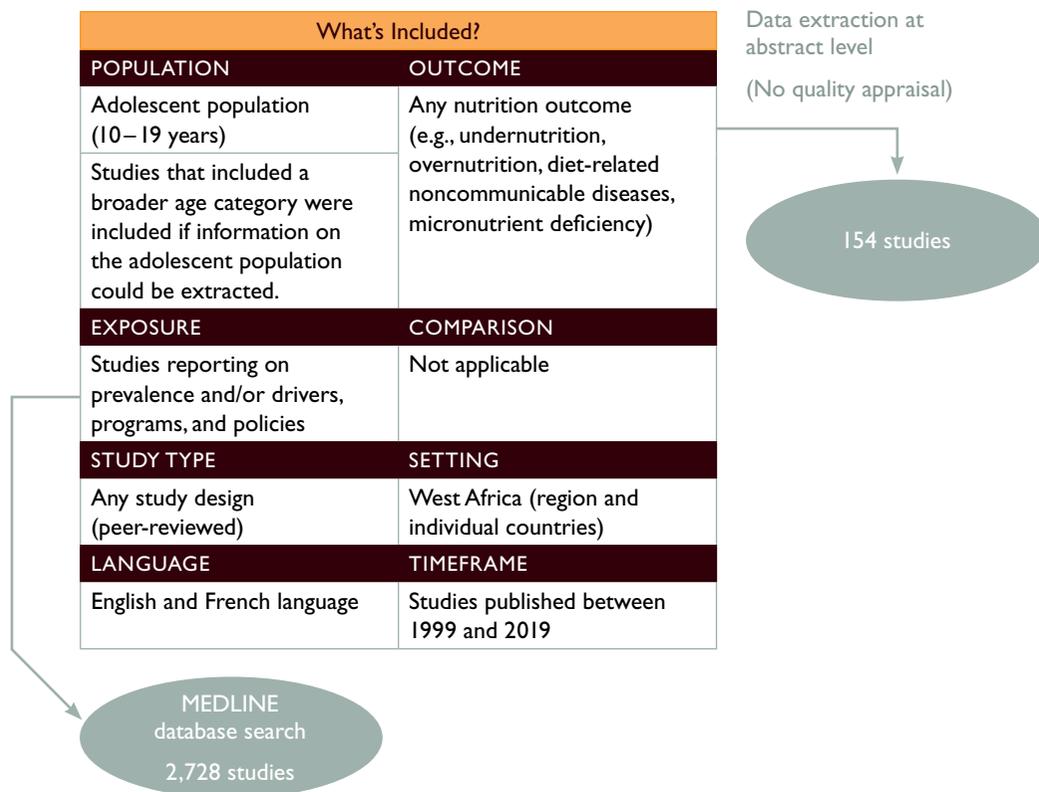


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Approach to capture evidence

A systematic literature search on adolescent nutrition spanning the past 20 years (1999–2019) was carried out in the bibliographic database MEDLINE (<https://www.ncbi.nlm.nih.gov/pubmed/>). The search was carried out in mid-2019 and retrieved 2,728 results. The titles and abstracts were screened against our predetermined eligibility criteria (Figure 1). In total, 154 studies met the criteria for inclusion, and abstract-level information was extracted and analysed. Within this rapid review we did not conduct a full quality appraisal of these studies but included only peer-reviewed studies as a quality control.

Figure 1 : Eligibility criteria based on the Population, Exposure/intervention, Control, Outcome, Setting (PECOS) framework⁸.

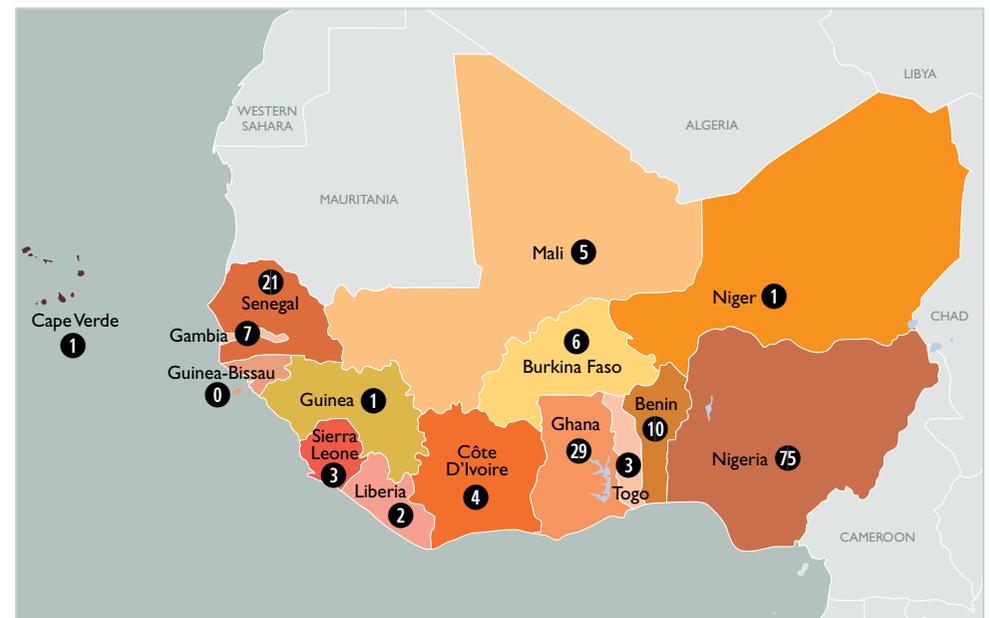


Overall characteristics of the included studies

A total of 154 studies focusing on adolescent nutrition in West Africa were published over the past 20 years. The number of studies focusing on adolescent nutrition has increased over time, with a notable peak in 2016–2018. The studies are unevenly distributed, with Nigeria, Ghana, and Senegal representing 74% of studies conducted in the region (Figure 2).

Most studies were conducted in Anglophone countries (69%), followed by Francophone (30%) and Lusophone (1%) countries. There is near equal representation of studies focusing on younger adolescent (10–14 years of age) and older adolescent (15–19 years of age) populations. The studies largely present data from observational studies with a variety of study designs, and measure prevalence of nutrition outcomes and/or their drivers (91%). Only 9% reported on programs, and none reported on policy.

Figure 2: Number of peer-reviewed studies on adolescent nutrition, 1999–2019, in West African countries. This figure includes studies that report on one specific country only, as well as studies that report on multiple countries.



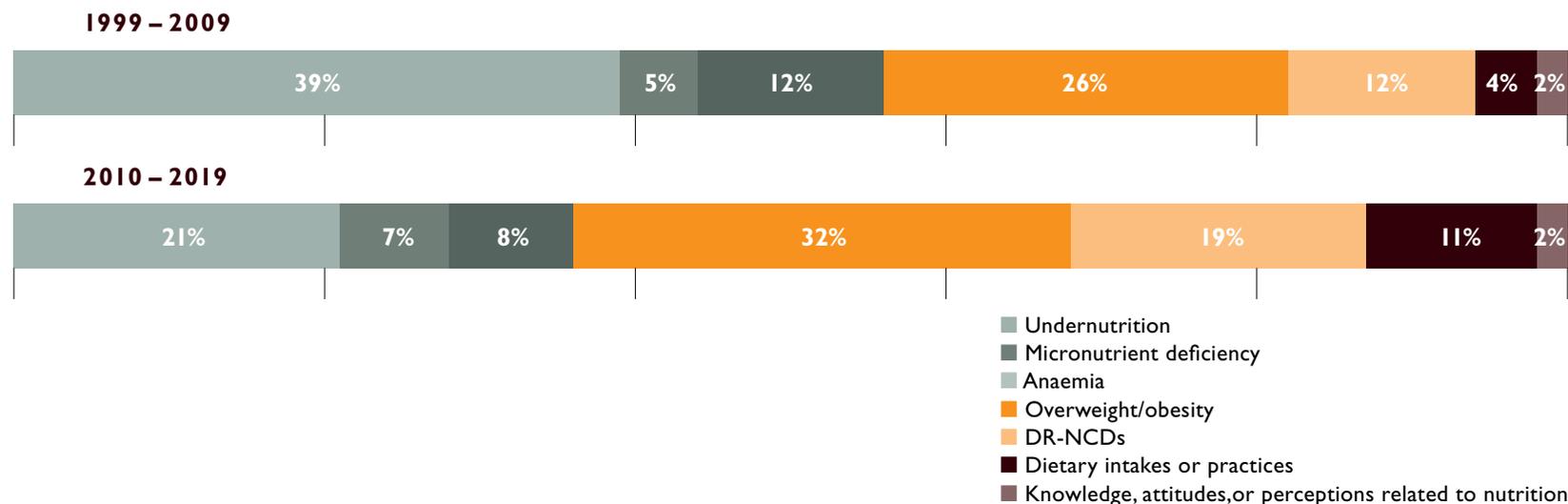
Trends in reported data on nutrition outcomes

Figure 3 shows the relative frequency of the nutrition outcomes reported by studies over the past 20 years. When grouped together, the most common ones were overweight/obesity (35%), undernutrition (28%), and DR-NCDs (14%). Anaemia or other micronutrient deficiencies (12%) and dietary intakes or practices (10%) were less reported (Figure 3). The high proportion of studies reporting on overweight/obesity and DR-NCDs is a new trend in the reported data on nutrition outcomes. Between the years 1999 and 2009, more than half of the studies (56%) focused on features of nutritional deficit such as undernutrition, anaemia, and micronutrient deficiency, while 38% focused on overweight/obesity and DR-NCDs. In contrast, between 2010 and 2019, the situation reversed, with 36% of studies reporting on nutritional deficit and 51% reporting on overweight and obesity (Figure 4). This shift in focus parallels the epidemiological and nutrition transition, referred to as the double burden of malnutrition (DBM), present in the region⁹. Yet only 23% of the included studies considered the DBM by reporting on both undernutrition (including micronutrient deficiency) and overweight/obesity (including DR-NCDs) simultaneously. From those studies that reported on the DBM, most of them (92%) were conducted in Nigeria (44%), Senegal (29%), and Ghana (19%), and the majority were observational in nature (86%).

Figure 3: Word cloud of nutrition outcomes reported by studies on adolescent nutrition in West Africa over the past 20 years. The size of words is proportional to the total number of studies reporting on a specific outcome.



Figure 4: Breakdown of nutrition outcomes reported in studies from 1999–2009 and 2010–2019.



Of the 154 studies retrieved, 14 reported on programs, 46 on prevalence, 11 on drivers, 84 on both prevalence and drivers, and none on policies. Studies reported extensively on the prevalence of nutrition outcomes and/or their drivers (mainly undernutrition, overweight/obesity, and DR-NCDs). Programs most frequently report on undernutrition, followed by anaemia and DR-NCDs (Figure 5).

Adolescent nutrition programs

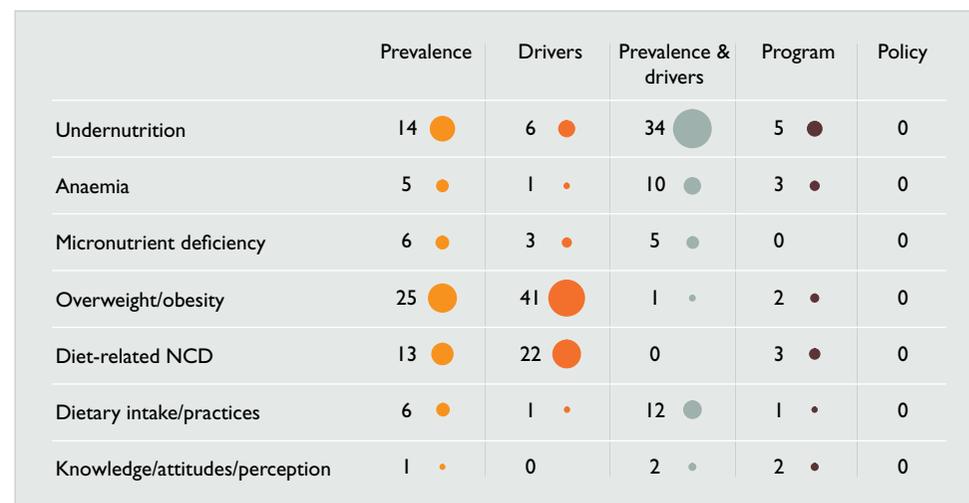
Of the 14 studies that reported on programs, 8 targeted both males and females and 6 targeted females only. The nutrition outcomes reported in the programs included undernutrition, anaemia, DR-NCDs, overweight/obesity, and nutrition knowledge. Only one program, in Gambia, considered the DBM among adolescents, and none specifically targeted adolescent micronutrient deficiencies. The programs identified provided supplementation ($n=4$), nutrition education ($n=3$), improved school feeding/gardens ($n=2$), dietary change ($n=2$), physical activity ($n=1$), or integrated agriculture and nutrition education ($n=1$). One study did not report on a specific program, but rather evaluated community factors that influence the implementation of actions on adolescents' and women's diets (Table 1).

Table 1: Type of programs targeting adolescents published 1999–2019

COUNTRY	NUMBER OF STUDIES	TYPE OF PROGRAM	OUTCOMES (ADOLESCENT AGE GROUP)
Benin	2	Nutrition education	Anaemia (12–17 years old)
Burkina Faso	1	School gardens	Undernutrition (12–14 years old)
Gambia	2	Supplementation of mothers (calcium)	Undernutrition (10–19 years old)
	2	Supplementation of mothers (protein energy)	Undernutrition, overweight/obesity, and DR-NCDs (11–17 years old)
Ghana	1	School feeding	Undernutrition (10–12 years old)
	1	Increased animal-sourced foods	Undernutrition (13–15 years old)
	1	Community insights into factors that could affect the implementation of interventions	Nutrition knowledge/ attitudes (adolescent and women)
Mali	1	Integrated agriculture, nutrition, and education	Undernutrition (10–17 years old)
Nigeria	1	Physical activity	DR-NCDs (10–19 years old)
	1	Behavior change to increase iron-rich foods and fortified bouillon cubes	Anaemia (12–18 years old)
Senegal	1	Nutrition education	Nutrition knowledge (15–17 years old)

Note: This table reports on the individual programs identified. Three studies reported on the same program.

Figure 5: Number of studies by focus of research and nutrition outcome. This graph includes studies that report on one specific nutrition outcome only, as well as studies that report on multiple outcomes.



Final thoughts

In West Africa, research on adolescent nutrition has steadily increased over the past 20 years but remains limited. Studies are largely observational, despite the global call for more adolescent nutrition programs. Increased commitment from the West Africa region is needed to improve the evidence-base on programs and policies that target adolescent nutrition.

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Roos Verstaeten¹, Leah Salm^{1,2}, Loty Diop¹, Ampa Diatta¹, Mariama Touré¹
¹International Food Policy Research Institute, ²Institute of Development Studies

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Further explanation of the methodology can be found in this technical note:

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E IFPRI-tnwa@cgiar.org **W** transformnutrition.org/westafrica

T twitter.com/TN_NutritionRPC