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Advances in Tropical Medicine

ISSN 3068-4048

*Research Article*

# Dietary Habits And Nutritional Quality Amongst University Students In The Republic Of Guinea: An Emerging Public Health Issue.

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**SHORT TITLE:** Student Health in Guinea: Double Burden

**Abstract**

The transition to university is a critical life stage during which young adults profoundly reshape their lifestyle, dietary behaviours and social environment, with longterm implications for metabolic and cardiovascular risk. In low and middleincome countries undergoing rapid nutrition transition, including the Republic of Guinea, university students are increasingly exposed to energydense, nutrientpoor diets, sedentary behaviours, sleep disruption and psychoactive substance use, in a context of economic precarity and limited campus infrastructure. At the same time, national and regional data highlight the coexistence of persistent undernutrition and a rising prevalence of overweight and obesity among schoolaged children and adolescents, signalling the emergence of a double nutritional burden in West Africa. This narrative review synthesises current evidence on lifestyle patterns, dietary habits, nutritional quality and nutritional status among university students worldwide, with a specific focus on the Guinean context. It describes the determinants of unhealthy behaviours (academic stress, urbanisation, food environment, socioeconomic constraints), examines their contribution to early cardiometabolic risk, and discusses available data on physical inactivity, poor sleep quality and psychoactive substance use among youth in Africa. On this basis, the review proposes priority avenues for action in Guinean universities, including the development of structured nutritional surveillance, health promotion and counselling services, improvement of campus catering, and the integration of nutrition and lifestyle education into university curricula. Strengthening research on student health and nutrition in Guinea is essential to guide contextappropriate public policies and prevent the longterm consequences of the ongoing nutrition transition in this vulnerable population.

**Keywords:** university students; dietary habits; nutritional quality; double burden; public health; Guinea.

## INTRODUCTION

Entry to university represents a pivotal life stage, marked by profound reconfiguration of lifestyle, dietary behaviours, and social environment (1). This period constitutes a critical window during which health habits become durably established, with major repercussions for future morbidity (1). In low- and middle-income countries, this individual transition occurs within a context of rapid nutritional transition, characterised by the rise of diets rich in lipids, simple sugars, and salt, at the expense of traditional dietary patterns (2, 3). In sub-Saharan Africa, this shift is driven by urbanisation, globalisation of food systems, and the massive spread of ultra-processed products (2, 4). In the Republic of Guinea, this dynamic is amplified by economic precarity, inadequate university catering infrastructure, rapid campus expansion, urbanisation of major cities (notably Conakry), and growing exposure to imported foodstuffs (2). These factors expose the student population particularly to a high risk of nutritional imbalance and socio-sanitary vulnerability. Globally, university students are now regarded as a population at nutritional risk (1, 5, 6). The meta-analysis by Peltzer and Pengpid, conducted across 22 low-, middle-, and transitioning-income countries, reports that 22% of university students are overweight or obese (24.7% in men and 20.3% in women), with substantial variations by sex and country (7). These data confirm the early establishment of cardio-metabolic risk factors from young adulthood (7). In the Republic of Guinea, several studies conducted in school settings demonstrate that overweight and obesity issues are already present from childhood and adolescence, particularly

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**Received:** 09-Mar-2026, Manuscript No. AITM-5479**; Editor Assigned:** 10-Mar-2026 **; Reviewed:** 23-Mar-2026, QC No. AITM-5479 **; Published:** 04-Apr-2026. **DOI:** 10.52338/aitm.2026.5479.
**Citation:** **Eric Ghigo.** Dietary Habits And Nutritional Quality Amongst University Students In The Republic Of Guinea: An Emerging Public Health Issue. Advances in Tropical Medicine. 2026 April; 16(1). doi: 10.52338/aitm.2026.5479.
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in urban areas. Research carried out in Conakry and Kamsar reports overweight/obesity prevalences among primary and secondary schoolchildren exceeding 25–30%, evidencing the emergence of a double nutritional burden within the schooled youth (8-10). Meanwhile, analysis of Demographic and Health Survey data from 2005 to 2018 shows that acute and chronic malnutrition remains common among children under 5 years in Guinea, underscoring persistent structural nutritional inequalities (8). Finally, a study among medical faculty students in Conakry already reveals the presence of metabolic risk factors and lifestyle elements associated with type 2 diabetes (11).

In this context, the objective of this narrative review is to analyse, from the literature data, the university students' dietary habits, nutritional quality, lifestyle, and nutritional status, with particular focus on public health challenges in the Republic of Guinea. The review also aims to identify practical recommendations for the Guinean university setting and highlight data needs to guide public policies.

## STUDENT LIFESTYLE

The transition from secondary school to university is accompanied by a profound organisational rupture (1, 12). Students leave a highly structured system characterised by fixed timetables, pedagogical oversight, and family supervision for an environment based on autonomy, individual responsibility, and self-management of time. This newfound freedom, often unprepared for, frequently results in disruption of biological rhythms, irregular meal patterns, late bedtimes, and sometimes difficult adaptation to academic demands (1). Data from Buková et al. (2024), gathered among Slovak students, illustrate this shift: morning fatigue rises from 52% pre-university to 64% during studies (1). Other studies reveal a high prevalence of psychological distress during this transition, with elevated rates of depressive symptoms and suicidal ideation (12). These psychological factors directly influence health behaviours, including diet, sleep, physical activity, and addictive conducts (1, 12). In the Republic of Guinea, the shift to university is also marked by separation from family, overcrowding in student halls or private rentals, and often challenging study conditions. Although no national survey on Guinean students' mental health yet exists, it is plausible that these constraints contribute to lifestyle rhythm disruption and heightened psychological vulnerability, as observed in other African countries. Regular physical activity remains a major protective factor against obesity, type 2 diabetes, arterial hypertension, and cardiovascular diseases (13). Nevertheless, multiple studies show a marked decline in physical activity upon university entry (1). Among students, sedentariness is promoted by academic workload, prolonged sitting, and intensive screen use, within contexts where accessible sports facilities are often limited (14, 15). In Africa, a meta-analysis across 23 countries reports that only 20% of adolescents (25% boys, 16% girls) meet WHO physical activity guidelines (16). This low adherence, combined with unfavourable dietary behaviours, fosters an environment conducive to overweight onset and metabolic disorders. In the Republic of Guinea, university sports infrastructure is limited and often poorly maintained. Structured physical activity is largely confined to students with financial resources or spare time. Although specific data are lacking, sedentariness and screen time are likely elevated among Guinean students, especially in large cities like Conakry. It should also be noted that sleep plays an essential role in metabolic, hormonal, immune, and cognitive regulation (17). Chronic sleep deprivation, common among students, disrupts leptin and ghrelin secretion, promotes hyperphagia and cravings for sweet and fatty foods, and contributes to weight gain (17). A recent meta-analysis of 35 African studies indicates that over 60% of university students suffer from poor sleep quality, linked to academic stress, bedtime electronic device use, and year of study (18). In the Guinean university setting, irregular work rhythms, frequent exams, nocturnal screen use, and sometimes precarious housing suggest substantial sleep quality impairment, though no specific survey has yet been conducted. Furthermore, in many African countries, psychoactive substance use (tobacco, alcohol, cannabis, diverted medications like tramadol or certain benzodiazepines) is rising among adolescents and young adults (19-21). These consumptions are often linked to risky behaviours such as violence, academic failure, and unprotected sexual relations. In the Republic of Guinea, the national UNODC–MESRI survey conducted in 2023–2024 among secondary school pupils shows non-medical tramadol use surpassing cannabis over the past 12 months, with a national prevalence of 3.05% for tramadol versus 2.86% for cannabis (22). Awareness of tramadol extends to over half of pupils, with a significant proportion reporting easy procurement (22). Among Guinean students, tobacco, alcohol, and other substance use is likely favoured by socio-economic precarity, academic stress, peer pressure, and informal access to psychoactive drugs. The current lack of university-specific data justifies targeted surveys to document the extent and determinants of these behaviours.

## DIETARY HABITS AND NUTRITIONAL ENVIRONMENT

Entry to university generally marks a break from family-acquired dietary practices (1). Students become solely responsible for their food choices, purchasing staples, and sometimes meal preparation. This autonomy frequently entails disruption of meal rhythms and a decline in overall dietary nutritional quality. Breakfast is the meal most often

skipped by students. Its omission often due to time shortages or financial constraints is associated with increased snacking, reduced concentration, and heightened medium-term overweight risk (23, 24). Lunch is predominantly eaten away from home, while dinner is often late, with high energy intake towards the end of the day. Among Guinean students, these patterns are likely amplified by distance from family home, shared housing or dormitories, and heavy reliance on street food. The true extent of meal-skipping, particularly breakfast, nonetheless requires documentation through targeted surveys. The food environment constitutes a major determinant of students' eating behaviours (25). In the Republic of Guinea, university catering provision is largely inadequate to meet the student population's needs. Existing canteens are often poorly equipped, inaccessible, or unable to supply regular balanced meals. This drives massive recourse to street food vending, highly developed around university campuses. Such fare primarily consists of fried preparations rich in vegetable oils, refined flours, and sugars, but low in vegetables, fruits, and high-quality proteins (25). Financial accessibility, service speed, and geographical proximity explain its popularity, yet this high-energy-density, low-micronutrient-density diet contributes to overweight emergence, nutritional deficiencies, and metabolic disorders (25). Frequent inter-meal snacking, excessive sugary drink consumption, regular ultra-processed food intake, and nocturnal eating episodes further characterise these patterns. Academic stress plays a central role in generating such behaviours (26, 27). Many students adopt so-called "emotional eating," using sugar- and fat-rich foods to cope with anxiety, fatigue, or exam pressure (26). Low fruit and vegetable intake, commonly observed, exposes individuals to vitamin, mineral, and fibre deficits. In Guinea, economic precarity, high costs of nutrient-dense foods (fruits, vegetables, animal products), and street food ubiquity render risky eating behaviours particularly plausible among students. This hypothesis nonetheless requires confirmation via local studies.

## NUTRITIONAL QUALITY AND STATUS

The nutritional quality of a diet hinges on the adequacy of macronutrient and micronutrient intakes relative to physiological needs. A diet may be energetically sufficient or even excessive while remaining deficient in essential micronutrients. This "hidden hunger" phenomenon is common in nutritional transition contexts, where diets are calorie-rich but low in diversity and nutrient density (28). A balanced ration should average 11 to 15% proteins, 30 to 35% lipids, and 50 to 55% carbohydrates. In African student settings, this balance is rarely achieved: excessive lipid intakes (fried preparations), inadequate high-quality protein (cost of animal products), and carbohydrates mainly from refined, fibre-poor sources (28). Among Guinean students, this pattern is highly plausible given economic constraints and food supply structure, though it requires objective quantification. African student diets are often deficient in iron, calcium, zinc, and certain vitamins (A, folates, C). Iron deficiencies may cause anaemia, leading to fatigue and impaired concentration; B-group vitamin shortfalls affect energy metabolism and neurological functions (28). In Guinea specifically, student micronutrient status data are virtually non-existent. It is thus preferable to treat these deficiencies as plausible hypotheses to be verified by targeted studies rather than established facts. "Hidden hunger" should be addressed holistically, avoiding conclusions on specific shortfalls (e.g., vitamin D) absent robust local data. Students' nutritional status is most commonly assessed via BMI. Studies in Africa and low/middle-income countries show coexistence of underweight and overweight among students, indicative of a double nutritional burden (7, 28, 29). In the Republic of Guinea, although no systematic anthropometric survey has targeted universities, school-based studies among children and adolescents support a double burden hypothesis. In Conakry primary schools, one study reports 9.0% overweight and 2.5% obesity prevalences, linked strongly to sedentariness and motorised transport (8). In urban Kamsar schools, surveys indicate 25% overweight among secondary students (9), while a recent study in 5–18-year-olds found 7.8% stunting, 31.5% overweight/obesity, and 3.4% intra-individual double burden (stunting + obesity) (10). These findings suggest Guinean students emerging from such pupil cohorts face similar nutritional tensions, pending university-specific confirmation.

## DETERMINANTS OF EATING BEHAVIOURS

Eating behaviours in university settings arise from complex interactions among individual, socio-economic, environmental, socio-cultural, and media factors, consistent with the socio-ecological health model (30). Numerous African studies indicate that students possess limited nutritional knowledge, insufficient to guide effective choices in constraining environments. Academic stress promotes emotional eating and reliance on hypercaloric foods (31-33). A recent African meta-analysis reports that nearly 66% of students experience perceived stress, strongly linked to risky eating behaviours (32). Budgetary constraints represent a primary barrier to balanced diets. A substantial proportion of students live on limited resources, steering choices towards the cheapest options: white rice, doughnuts, fries, sandwiches, sugary bread, local energy drinks (34-38). Nutrient-dense foods (fruits, vegetables, fish, dairy) are relatively expensive and thus less accessible. Notably, traditional culinary practices favour starch-heavy dishes (rice, white fonio, pasta) paired with fatty sauces, featuring

few vegetables. Student food socialisation (communal meals, shared housing, night outings, alcohol consumption) reinforces these habits. In some contexts, cultural acceptance of overweight normalises excessive intake. Food marketing and media environments play a determining role. In Africa, sugary drinks, biscuits, instant noodles, and industrial snacks are targets of intensive advertising campaigns via television and social media (3, 39-41). In Guinea, the near-absence of institutional healthy eating promotion campaigns leaves the field open to commercial messaging, thereby normalising regular ultra-processed product consumption among youth.

## KEY FINDINGS SYNTHESIS

In numerous African contexts and low/middle-income countries, university students exhibit multiple nutritional and metabolic risk factors: sedentariness, sleep disorders, psychoactive substance use, meal pattern disruption, heavy reliance on street food, high ultra-processed food consumption, and low fruit/vegetable intake (1, 7, 28). These behaviours accompany a double nutritional burden, marked by coexistence of underweight and excess weight (29). In the Republic of Guinea, university student-specific data remain highly limited. Nevertheless, the country shares with other West African states characteristics likely to foster similar profiles: rapid urbanisation, student economic precarity, absent or inadequate university restaurants, street food predominance, soaring food prices, and growing media/social network influence (2, 4). Presented results should not be interpreted as direct descriptions of Guinean students, but rather as a plausibility framework. School-based studies in Conakry and Kamsar confirm that issues described elsewhere are not theoretical: elevated overweight/obesity prevalences and double nutritional burden have already been observed among Guinean children and adolescents (8-10). National survey analyses show malnutrition remains common among under-5s (8). Finally, a medical faculty student study in Conakry reveals metabolic risk factors consistent with early transition towards non-communicable chronic diseases (11). These elements strengthen double burden plausibility and risky eating behaviours in Guinean universities, while underscoring the need for empirical data. The primary limitation lies in scarce Guinea-specific student population data. Most available information derives from other African countries or international contexts, limiting direct extrapolation to national realities. Reviewed studies are predominantly cross-sectional, relying on self-reported data vulnerable to recall and social desirability biases. Methodological tool heterogeneity and near-exclusive BMI use constitute further significant limitations (7, 29). Priority needs encompass national university nutritional surveys documenting student nutritional status and health behaviours; student cohorts tracking weight evolution, eating patterns, physical activity, and sleep disorders; university nutritional surveillance systems integrated into national non-communicable disease monitoring frameworks; and studies combining quantitative/qualitative approaches to understand student food/lifestyle representations, motivations, and constraints. Should African trends observed elsewhere materialise in Guinea, the student population could substantially contribute to future non-communicable disease morbidity burden. The university period represents a critical window for durable establishment of eating behaviours and metabolic risk factors, with long-term health implications for future national leaders. Within limited-resource contexts, university-based prevention emerges as a strategic lever to curb non-communicable disease progression.

## PUBLIC HEALTH IMPLICATIONS AND RECOMMENDATIONS

Implement regular cross-sectional university surveys (BMI, waist circumference, dietary habits, physical activity, sleep, addictions) and integrate student-specific modules into national surveys (nutrition, food security, youth health, addictions), while developing cohorts to track health behaviour evolution. Enhance food environments by establishing or refurbishing university restaurants offering affordable balanced menus based on local produce, providing free potable water points, and promoting healthy vending options (fresh fruits, minimally processed snacks) on campuses. Promote physical activity through sports infrastructure (fields, multi-purpose halls) and tailored programmes; embed health education modules (stress, sleep, exercise) in curricula; and support student initiatives. Prevent addictions (alcohol, tobacco, cannabis, tramadol) via mental health service collaboration, strengthen psychoactive medication regulation (22), and develop confidential psychological listening services. Regulate ultra-processed product and sugary drink advertising around campuses (39, 41) and launch institutional campaigns via social media and signage. Finally, design pilot interventions (subsidised restaurant, nutritional education), conduct qualitative studies on food representations, and document student health inequalities (sex, origin, field of study, economic status) to target actions effectively.version-rvise.docx

## CONCLUSION

Dietary habits and nutritional quality among students represent an emerging major public health challenge in the Republic of Guinea today. The university period constitutes a critical window for the durable establishment of eating behaviours and metabolic risk factors. The likely coexistence

of underweight and overweight—hallmark of the double nutritional burden reflects both persistent food precarity and accelerated nutritional transition. In the absence of Guinea-specific data, this review draws on work from other African countries and low/middle-income contexts, alongside select national school and medical student studies. Results warrant cautious interpretation but underscore the urgency of targeted university prevention policies. Promoting physical activity, enhancing university food offerings, nutritional education, addiction prevention, and developing Guinea-specific nutritional surveys must rank as national strategic priorities to safeguard student health and, beyond, that of future generations.

**Funding**

Mamadou Oury DIALLO, Lanan Wassy SOROMOU, Abdoulaye Oury BARRY and Eric GHIGO are employed by the Ministry of Higher Education, Scientific Research (MESRS).

**Declaration Of Conflict Of Interest**

The authors declare no conflicts of interest.

**Author Contributions**

Mamadou Oury DIALLO, Lanan Wassy SOROMOU, Abdoulaye Oury BARRY and Eric GHIGO conducted the bibliographic research, analysed the bibliographic data, and wrote and edited the manuscript.

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