RESEARCH ARTICLE

Diet Quality in Albania: Evidence from the Diet quality questionnaire

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Abstract

Albania is undergoing a nutrition transition; simultaneously rise in obesity and retained undernutrition, marking a public health challenge. Modern eating habits are gradually replacing traditional dietary patterns, especially among urban living young adults, where eating out is becoming more prevalent, while nutritional diversity remains uneven across demographic groups. These patterns highlight the need for systematic diet monitoring and practical, low-cost survey tools and provide guidance for policies that support more sustainable and healthy eating behaviors. This study assesses diet quality in Albania using the Diet Quality Questionnaire (DQQ). The Global Dietary Recommendations (GDR) score averaged 10.68/12, indicating generally high compliance, particularly among females (11.20) and urban residents (10.77), while males (9.53) and rural populations (9.67) fell significantly behind. On the opposite, the Non Communicable Disease (NCD) risk score of 3.11/5 indicates moderate intake of foods associated with the risk of NCD-s, with males (4.22) and rural respondents (3.73) showing higher exposure, whereas females (2.61) had a healthier profile. Overall diet quality, as measured by the all-5 indicator, showed that 59% of respondents reported consumption of key healthy food groups: vegetables (93%), fruits (88%), and animal-source foods (98%, including dairy and eggs), alongside a substantial proportion consuming pulses, nuts, or seeds (72%). These findings indicate that this diet is generally in line with healthy standards. However, clear gender and geographic disparities remain, especially among males and rural communities. Therefore, it is essential to develop public health strategies specifically designed to promote the consumption of protective foods and reduce risk-prone foods.

Keywords: Diet quality, GDR score, NCD-risk, nutrition policy, eating behaviors.

1. Introduction

Albania has undergone profound social and economic transitions over the past three decades. These changes have improved food availability and dietary diversity but have also accelerated a double burden of malnutrition, where undernutrition and micronutrient deficiencies coexist with rising overweight, obesity and diet-related noncommunicable diseases (NCDs) [1]. According to the Global Nutrition Report, Albania has achieved notable progress in child health, with reductions in stunting, wasting and low birth weight approaching global nutrition targets. Yet important challenges remain: stunting affects 11.3% of children under five, more than double the regional average of 4.5%; only 36.5% of infants under five months are exclusively breastfed; 16.4% of children under five are already overweight, placing the country at high risk for future diet-related health complications. Micronutrient deficiencies persist alongside these trends. Anemia affects 24.8% of women of reproductive age, reflecting inadequate iron intake, low dietary diversity and limited access to nutrient-rich foods. While undernutrition is gradually declining, overweight and obesity are rising sharply among adults, with approximately 24.5% of women and 24.9% of men aged ≥18 years living with obesity. This trend is reflected in the rising burden of non-communicable diseases (NCDs), which now account

for nearly two-thirds of all deaths in Albania [2]. Mortality from cardiovascular disease (CVD) remains high at 345 deaths per 100,000 population, while approximately 42% of adults suffer from hypertension, with control rates remaining critically low [3]. Despite Albania's Mediterranean heritage, where traditional diets rich in fruits, vegetables, legumes, whole grains, and olive oil historically protected against NCDs, current dietary intake data reveal striking deficiencies in protective foods. National estimates show that consumption of fruits, vegetables, legumes, nuts, and whole grains falls far below recommended levels, while red meat intake is excessive and fish intake only modestly meets targets. Evidence suggests that the greatest health burden stems less from the overconsumption of unhealthy foods than from insufficient intake of protective foods, highlighting the urgent need to improve overall diet quality[4] Challenge such as the lack of national dietary guidelines, limited individual-level dietary data and inadequate context-specific monitoring systems, intensifies these nutritional risks further more[5] [6] .

The purpose of this study is to address these gaps with evidence-based, inform targeted nutrition interventions and support public health strategies aimed at reducing the dual burden of malnutrition and improving diet quality across the Albanian population.

2. Material and Methods

2.1. Study Design and Population

This study evaluated diet quality among Albanian adults using the Diet Quality Questionnaire (DQQ), a standardized dietary assessment tool developed by the Global Diet Quality Project for population-level monitoring of diet quality and dietary diversity [7,8]. The study population included adults aged 18 years and older. Participants were recruited without restrictions related to gender, education level, occupation, or socioeconomic status to ensure a heterogeneous and inclusive sample reflective of the Albanian adult population. This approach aimed to capture a wide range of dietary behaviors across different demographic and geographic groups. Participation in the study was voluntary and respondents were informed about the objectives of the research prior to completing the questionnaire. Only fully completed questionnaires were included in the final dataset used for analysis.

2.2. Diet Quality Assessment Tool

Diet quality was assessed using the Diet Quality Questionnaire (DQQ), a standardized ready to use instrument designed to collect information on food group consumption rather than portion sizes or nutrient intake [8]. The DQQ enables the calculation of multiple internationally recognized diet quality indicators, including dietary diversity scores and indicators related to the risk and protection of non-communicable diseases (NCDs). Its simplified structure and reliance on food group based indicators make it particularly suitable for large-scale surveys and settings where comprehensive dietary assessment methods may not be feasible [8,13]. The Albanian version of the Diet Quality Questionnaire (DQQ), provided by the Global Diet Quality Project, was used in this study. This version had been previously adapted to the Albanian dietary context in accordance with the Project's official guidelines, ensuring consistency with the global methodology while maintaining cultural relevance [8]. The questionnaire retained the standardized structure, clarity and simplicity of the original instrument. Content validation was conducted to verify that the food groups and example foods included in the questionnaire accurately represented commonly consumed foods within the Albanian dietary context. The final adapted version of the DQQ included 22 food groups, in accordance with the standard DQQ food group classification [8].

2.3. Dietary Data Collection

Dietary intake was assessed using a 24-hour recall reference period, during which participants reported whether they had consumed at least one item from each specified food group on the previous day. Responses were recorded using a binary "yes/no" format. This approach has been shown to provide reliable and valid estimates of population-level dietary diversity and diet quality indicators, while minimizing respondent burden and recall bias [13]. In addition to dietary information, the questionnaire collected key socio-demographic data, including age, gender and area of residence (urban or rural). These variables were included to enable subgroup analyses and to explore potential associations between demographic characteristics and diet quality indicators.

Data were collected using a hybrid approach to maximize participation and enhance representativeness. The primary mode of data

collection was an online survey administered through Google Forms, which provided a convenient, accessible and secure platform for questionnaire distribution, completion and data storage. To ensure inclusion of individuals with limited internet access, a paper-based version of the questionnaire was also distributed in selected community settings. Both the online and paper-based questionnaires contained identical content and formatting to ensure methodological consistency across data collection. Responses collected through paper questionnaires were subsequently entered into the digital dataset using standardized procedures to minimize transcription errors.

All completed questionnaires were exported into Microsoft Excel using the standardized data format provided by the Global Diet Quality Project platform [7]. This standardized export format ensured full compatibility with the project's automated data-processing tools and minimized the risk of manual data entry errors. Diet quality indicators were automatically calculated using the Global Diet Quality Project's online software, which applies predefined algorithms to generate dietary diversity scores, Global Dietary Recommendation (GDR) scores, and NCD-related diet quality indicators [8,9]. The use of automated indicator calculation ensured reliability, reproducibility and international comparability of the results, allowing findings from this study to be directly compared with data from other populations using the same methodology.

3. Results and Discussion

In this study, 177 adults aged 18–37 years completed the diet quality questionnaire, with a majority being females (68.4%) and urban residents (92.1%), while males (31.6%) and rural participants (7.9%) represented smaller proportions. The collected data were exported in a predefined format for analysis [8]. Based on self-reported dietary intake by respondents nutrition and diet quality indicators were calculated using the Diet Quality Questionnaire framework. Dietary diversity emerged as a key indicator of diet quality in the studied population, reflecting both the availability and utilization of a wide range of food groups.

The Minimum Dietary Diversity for Women (MDD-W) was very high (94.8%) (Figure 1, a), indicating that nearly all women consumed at least five of the ten

recommended food groups daily. This suggests a wide inclusion of protective foods such as fruits, vegetables, legumes, whole grains and animal-source products, contributing to adequate micronutrient intake and lower risk of deficiencies or chronic diseases [9]. The high MDD-W observed in this study exceeds values reported in many low and middle-income countries, suggesting relatively favorable dietary diversity among Albanian women despite ongoing nutrition transition [7,9] .

Similarly, the mean Dietary Diversity Score (DDS) was 7.26 (Figure 1, b), reflecting good overall diversity. However, urban residents (7.31) had higher scores than rural residents (6.73), highlighting differences in food access, affordability, and variety, with rural populations likely facing structural barriers such as limited market integration, seasonal food availability and economic constraints, which can restrict dietary variety despite proximity to food production.

The All-5 indicator, which reflects daily consumption of five protective food groups, reached 59% (Figure 1, a). While this indicates that most participants maintain a healthy dietary foundation, over 40% did not consistently consume all protective food groups on a daily basis. Women (0.60) and urban residents (0.59) showed slightly higher compliance compared to men (0.56) and rural residents (0.53), reflecting greater awareness and food accessibility [6] [10]. These findings underline the importance of interventions promoting dietary diversity, particularly among rural populations and men.

Alignment with international dietary guidelines was observed through the Global Dietary Recommendations (GDR) score, which averaged 10.68/12 (Figure 1, b). Women (11.20) and urban residents (10.77) scored significantly higher than men (9.53) and rural residents (9.67), suggesting more cautious food choices among women and better access to diverse foods in urban settings same as the global trend [11]. This pattern is consistent with global evidence indicating that women generally adopt healthier dietary behaviors and that urban environments provide greater food diversity, often accompanied by increased exposure to ultra-processed foods [14].

Protective food consumption was strong across the population: vegetables (93%), fruits (88%) and animal-source foods (98%) showed very high prevalence, while legumes, nuts and seeds were consumed by 72%.

This pattern was reflected in the NCD-Protect score (4.79/5) (Figure 2), which was consistently high across subgroups, though slightly lower in rural areas (4.40). Interestingly, despite being producers of many protective foods, rural populations reported lower consumption, suggesting possible barriers related to dietary preferences or food distribution [11]. On the other hand, the intake of risk foods was moderate, with an NCD-Risk Indicator of 3.11/5 (Figure 1, b). Sweets (59%), sugar-sweetened beverages (29%), salty/fried snacks (43%), fast foods (34%) and processed meats (37%) were regularly consumed. Gender differences were marked, as men (4.22) had substantially higher intake of risk foods compared to women (2.61), pointing to more unfavorable dietary patterns and greater vulnerability to diet-related non-communicable diseases (NCDs).
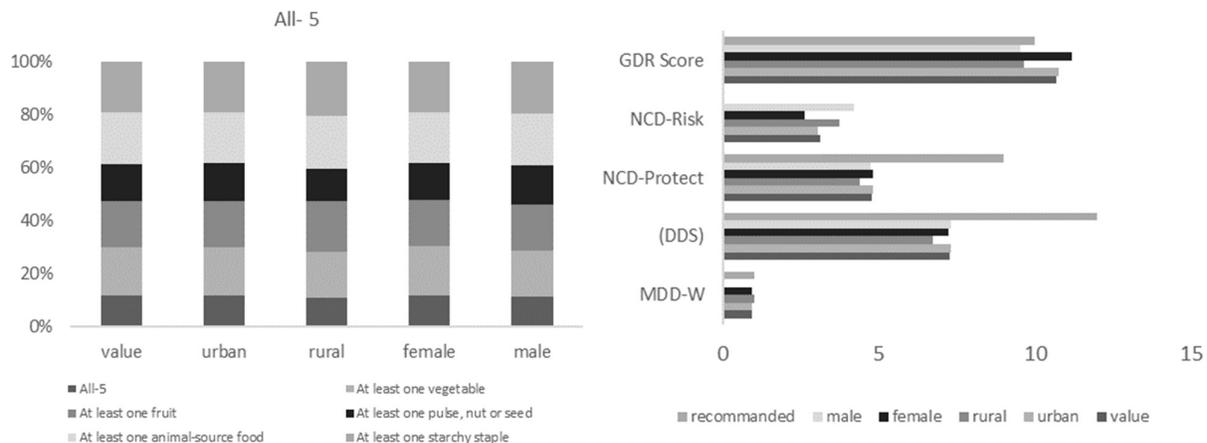

Figure 1: Indicators calculated from Diet Quality Questionnaire Tools: a) The All-5 indicator showing proportion of participants who consume at least one item from each of these five groups daily, comparison by gender and residence; b) Comparison of dietary and nutrition indicators by gender and residence.

Taken together, the results reveal a mixed dietary profile characterized by strong consumption of protective foods alongside emerging risks associated with processed and energy-dense foods. This dual pattern reflects Albania's ongoing nutrition transition and highlights the importance of early preventive strategies.

4. Conclusions

This study provides timely evidence on diet quality among Albanian adults in the context of an ongoing nutrition transition. The findings indicate that diet quality in Albania is generally aligned with international dietary recommendations, with high consumption of protective food groups such as fruits, vegetables and animal-source foods, reflected in strong GDR and NCD-Protect scores. These results suggest that traditional dietary patterns still play an important role in supporting nutritional adequacy within the population.

However, the coexistence of moderate consumption of NCD-risk foods highlights emerging challenges. The intake of sweets, sugar-sweetened beverages, fast foods and processed meats, particularly among men and rural residents, signals a gradual shift toward less healthy eating behaviors that may increase the future burden of diet-related noncommunicable diseases. Significant gender differences and geographic disparities further indicate unequal access to nutrition knowledge, food availability and healthy food choices. The use of the Diet Quality Questionnaire proved to be a practical, low cost, and scalable tool for monitoring diet quality at population level, offering valuable insights for public health surveillance in settings where comprehensive dietary assessments are limited.

The study included a relatively small and unevenly distributed sample, with particularly low representation of the rural population, highlighting the need to scale up the study to better capture population diversity. Nevertheless, these findings serve as an initial indicator of dietary patterns and provide a foundation for future, larger-scale investigations. They also highlight the need for targeted nutrition policies and public health strategies to reinforce protective dietary practices while reducing the consumption of harmful foods and actively discouraging risk prone dietary behaviors.

Strengthening nutrition education, improving access to diverse foods in rural areas and developing national dietary guidelines are critical steps toward supporting long term population health.

5. Acknowledgements

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