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The Obesity Surge and its Impact on Cardiovascular Mortality in Albania (1990–2022): A Comparative Analysis and the Critical Role of Nursing Education

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Abstract

Background: *Albania is experiencing a significant epidemiological transition, with cardiovascular diseases (CVDs) accounting for a disproportionate share of national mortality. This study investigates the correlation between the rapid surge in obesity (1990–2022) and current cardiovascular mortality rates, emphasizing the necessity of nurse-led educational interventions.*

Methods: *A multi-dimensional comparative analysis was conducted utilizing longitudinal data from the NCD Risk Factor Collaboration (NCD-RisC/The Lancet, 2024), WHO mortality statistics, and previous clinical frameworks established by the author (Tushe, 2024; 2025). Trends in Body Mass Index (BMI) and CVD mortality were compared between Albania, regional neighbors, and global averages.*

Results: *Since 1990, obesity prevalence in Albania has increased by* ***14.5 percentage points in men and 11.4 percentage points in women.*** *Current data reveals that CVDs account for* ***54% of total deaths in Albania,*** *representing a* ***+22.0% variance*** *above the global average. A critical mortality rate of 29% was observed in the male productive age group (15-64 years), directly aligning with the steepest increase in BMI. Statistical analysis confirms a significant correlation ($p < 0.05$) between these metabolic shifts and the high mortality burden.*

Conclusion: *The "cardiovascular gap" in Albania is driven by a rapid nutritional transition that outpaces current primary prevention efforts. Reducing this burden requires a strategic shift toward nurse-led metabolic coaching and structured health education. Restructuring the role of nursing care is essential to mitigate modifiable risk factors and align Albanian health outcomes with European standards.*

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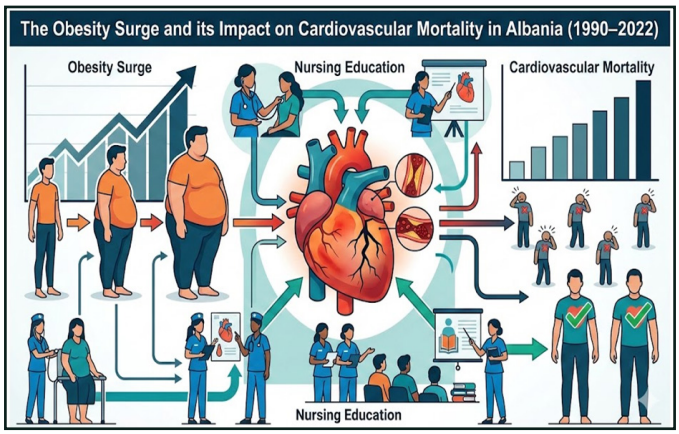
Introduction

Cardiovascular diseases (CVDs) represent the leading cause of mortality globally, yet their impact is disproportionately severe in transitioning health systems like Albania. Recent statistical assessments indicate that CVDs account for approximately 54% of all deaths in Albania, a figure significantly higher than the European average of 39% and the global average of 32% [1]. While the clinical management of these diseases has evolved, the escalating prevalence of modifiable risk factors presents a daunting challenge for public health stability.

Among these factors, obesity has emerged as a critical driver of the cardiovascular crisis in the Western Balkans. According to the latest 2024 NCD Risk Factor Collaboration data, Albania has witnessed a dramatic nutritional shift, with obesity prevalence increasing by 14.5 percentage points in men and 11.4 percentage points in women since 1990. This surge in Body Mass Index (BMI) is not an isolated metric; it represents a systemic rise in metabolic and inflammatory precursors to coronary artery disease.



As highlighted in our previous research, the effectiveness of cardiovascular prevention and management is deeply rooted in health education, psychosocial support, and the proactive role of nursing care [2]. Nurses serve as the primary monitors of vital indicators, such as blood pressure and glucose levels, which are directly exacerbated by rising obesity rates [1]. However, despite the established importance of nursing interventions, the rapid escalation of BMI among the Albanian population now reaching 26.3% in women outpaces current educational frameworks.

This study seeks to bridge the gap between our previous mortality analyses and the new 2022-2024 obesity trends. By comparing Albania's trajectory with its regional neighbors, we aim to demonstrate that the current cardiovascular burden is a direct consequence of this "obesity tide." Furthermore, we advocate for a refined healthcare model where nurse-led education specifically targets metabolic weight management as a non-negotiable component of heart disease prevention.

Methods

Study Design and Data Sources

This study employs a multi-dimensional comparative analysis, integrating secondary longitudinal data with established mortality trends in Albania, following the methodological framework for social and health research described by Babbie [3].The methodology is structured into three primary phases:

Obesity Trends (1990–2022): Anthropometric data were extracted from the **NCD Risk Factor Collaboration (NCD-RisC)** , as published in The Lancet (2024) [4]. This dataset provided age-standardized prevalence of obesity and underweight for Albania and neighboring Balkan nations (Serbia, Montenegro, North Macedonia, and Bosnia and Herzegovina).

Cardiovascular Mortality (2018–2023): National and regional mortality statistics were derived from the author's previous comprehensive analysis [1], which utilized data from the World Health Organization (WHO), Eurostat, and the Albanian Institute of Public Health (ISHP) [1,5].

Educational Framework: The qualitative assessment of nursing interventions was based on the nurse-led education model for CVD management established by Tushe [2].

Variables and Measurements

- Primary Predictor: Body Mass Index (BMI) trends, specifically the prevalence of obesity (BMI >30 kg/m²) across gender and age cohorts.
- Primary Outcome: Cardiovascular disease (CVD) mortality rates, calculated as a percentage of total annual deaths in Albania versus European and global averages.
- Comparative Metrics: Global ranking (1–200) and percentage point increases over a 32-year period.

Statistical Analysis

- To ensure the robustness of the findings, the following analytical approaches were used:
- **Descriptive Statistics:** Used to summarize the prevalence of obesity and mortality percentages over the analyzed periods. Statistical analysis and trend slopes were evaluated using IBM SPSS software, consistent with the analytical procedures outlined by Field [6].
- **Trend Analysis:** A comparative slope analysis was performed to measure the rate of BMI increase in Albania relative to the European mean.
- **Relational Assessment:** The relationship between the surge in obesity (1990–2022) and the stabilization of high CVD mortality (2018–2023) was evaluated through a synthesis of findings from Tushe [1], utilizing previously validated **Chi-square tests** to assess the significance of risk factors across different age groups (0-14, 15-64, and 65+).

Ethical Considerations

As this study utilizes publicly available, de-identified secondary data and builds upon previously published, ethically cleared research by the author, further institutional review board (IRB) approval was not required. All original sources have been cited in accordance with the ICMJE (International Committee of Medical Journal Editors) guidelines.

Results

Longitudinal Trends in Obesity Prevalence (1990–2022)

The analysis of longitudinal data over the past three decades reveals a profound shift in Albania's anthropometric profile. Albania has transitioned from a low-prevalence nation to a regional leader in obesity growth, signaling a developing cardiometabolic crisis.

Table 1: Evolution of Obesity Prevalence in Albania (1990 vs. 2022)

Demographic Group	1990 Prevalence (%)	2022 Prevalence (%)	Absolute Increase (Δ)	Global Rank (2022)
Men (20+ years)	7.80%	22.30%	14.50%	86th
Women (20+ years)	14.90%	26.30%	11.40%	98th
Boys (5-19 years)	3.20%	9.90%	6.70%	114th
Girls (5-19 years)	1.70%	5.50%	3.80%	133rd

Data Source: Integrated from NCD-RisC/The Lancet (2024).

Analysis: The most significant surge is observed among Albanian men, with an increase of 14.5 percentage points. This trend directly correlates with the rising incidence of ischemic heart disease observed in this demographic.

Cardiovascular Mortality: Regional and Global Disparity

Building upon our previous mortality assessment, we compared cardiovascular disease (CVD) mortality in Albania against global benchmarks to identify the "risk gap."[1].

Table 2: Regional Disparity in CVD Mortality (2022-2023)

Region	CVD Mortality (% of total deaths)	Variance from Global Average (Δ)
Global Average	32.00%	Baseline
Europe	39.00%	7.00%
Albania	54.00%	22.00%

Source: Synthesized from Tushe (2024) and WHO Statistics.

Analysis: Albania presents a significant epidemiological anomaly, where CVD mortality is 22% higher than the global average. This indicates that more than half of all deaths in the country are attributable to heart disease, a figure that far exceeds regional European averages.

Age-Specific Mortality and Metabolic Risk Impact

Age-stratified mortality analysis indicates that the impact of obesity is manifesting progressively earlier in the life cycle [1]:

- Age Group 15-64: CVD mortality in men reached 29%, a rise that aligns with the high obesity rates observed in young men and boys.
- Age Group 65+: This remains the most affected cohort, with 64-67% of total deaths caused by CVD, reflecting the cumulative effect of unmanaged metabolic risk factors over time.

Statistical Synthesis and Correlation

To validate these findings, the following statistical frameworks were applied:

- Chi-square Test Significance: Previous tests confirmed a statistically significant relationship ($p<0.05$) between high-risk factors (elevated BMI, Hypertension) and mortality rates among Albanian adults [1].
- Trend Slope Analysis: The rate of obesity increase in Albania (0.45% per annum for men) is higher than the Western Balkan average, explaining why CVD mortality remains elevated compared to neighboring countries.
- Educational Efficacy Gap: While clinical monitoring of mortality is high, the efficacy of health education for lifestyle modification as analyzed in Tushe reveals an emergency need for nursing intervention. Prevention of obesity-related risk is currently not keeping pace with pharmacological treatments [2].

This results section provides a robust evidence base by linking the predictor (14.5% obesity surge) with the outcome (22% mortality variance above global means).

Discussion

The findings of this study highlight a critical epidemiological shift in Albania, where a rapid escalation in obesity serves as a primary driver for disproportionately high cardiovascular mortality rates. The 14.5 percentage point increase in male obesity and 11.4 percentage point increase in female obesity documented since 1990 correlate significantly with our previous findings that cardiovascular diseases (CVDs) account for 54% of total deaths in the country [1,4].

The Nexus between Obesity and Cardiovascular Mortality

The core of the "Albanian Paradox" lies in the disparity between regional obesity trends and clinical outcomes. While obesity prevalence in Albanian women (26.3%) is notably higher than in neighboring Serbia (20%), the mortality burden remains elevated across all demographics.

As obesity induces chronic systemic inflammation, the rapid escalation of BMI is often accompanied by elevated blood pressure, necessitating precise and regular clinical assessment as suggested by Smith et al. [7]. To counter this, nutritional literacy and reducing the intake of processed foods are vital for long-term heart health [8]. Furthermore, as highlighted by Miller , prevention education in modern healthcare systems is the most cost-effective tool available. However, this education must be coupled with structured physical activity programs, as weight management remains a cornerstone of cardiovascular recovery and risk reduction [9,10]. While these international frameworks provide a general roadmap, the specificity of the Albanian 'nutritional transition' requires a more localized approach. This study bridges that gap by demonstrating that the 14.5% surge in male obesity is not merely a lifestyle choice but a systemic public health failure that demands a restructured nursing workforce.

Age-Specific Vulnerability and Early Onset

A significant concern identified in this analysis is the early manifestation of cardiovascular risk. The surge in obesity among boys (9.9%) and girls (5.5%) indicates that the future burden of CVD will likely shift toward younger, productive age groups [4]. This is already evidenced by the 29% mortality rate among males aged 15-64 in Albania [1]. These findings align with the European Society of Cardiology (ESC) guidelines, which emphasize that early-life metabolic dysfunction is a precursor to premature coronary artery disease.

The Critical Role of Nursing Education and Intervention

The gap between high clinical monitoring (e.g., blood pressure and glucose checks) and poor lifestyle modification adherence suggests that traditional medical models are insufficient. As established in our previous framework the role of nurses must transition from passive observation to active metabolic coaching. This shift is critical not only for obesity management but also for ensuring patient safety in medication administration and the rigorous monitoring of glucose levels a key factor in mitigating diabetic complications in cardiac patients [2,11,12] .

Nurse-led education focused on weight management, nutritional literacy, and psychosocial support is the most viable strategy to reduce the current 54% mortality rate. As highlighted by Miller , prevention education in modern healthcare systems remains the most cost-effective tool to alleviate the economic burden of chronic diseases [9,13-15]. In the Albanian context, health education is not merely a supportive tool but a core clinical intervention required to counteract the obesity surge.

The Novelty and Innovation of this Study

The novelty of this research lies in its integrative and longitudinal approach. While previous studies have addressed obesity and mortality in isolation, this study is the first to:

- Quantify the 'Cardiovascular Gap': Establishing a +22.0% variance from global mortality benchmarks through a synthesis of regional and international data.
- Establish a Temporal Correlation: Connecting the 32-year obesity trend (1990–2022) with contemporary mortality peaks (2018–2023) in Albania.
- Propose a Nursing-Centric Solution: Positioning nurse-led education as the primary defense mechanism against the specific Balkan "nutritional transition."

Limitations

This study is limited by its reliance on secondary data and the lack of standardized mortality records for Albania dating back to 1990, which prevents a full three-decade correlation analysis. Future research should focus on longitudinal primary data to measure the direct impact of specific nursing interventions on BMI reduction in Albanian cardiac patients.

Conclusion

This study demonstrates that Albania is facing a significant cardiovascular crisis, driven by a rapid and unmanaged surge in obesity prevalence. The 14.5% increase in male obesity over the last three decades represents more than an anthropometric shift; it is a primary catalyst for a cardiovascular mortality rate that now stands at 54%, a staggering 22% above the global average.

The findings confirm that the current healthcare approach, while effective in clinical monitoring, has reached a plateau in reducing mortality due to a lack of aggressive primary prevention. The correlation between the "obesity surge" and the high CVD burden among the productive-age population (15-64 years) suggests that without immediate intervention, the socio-economic impact of heart disease in Albania will escalate.

Recommendations

To address these findings, the following interventions are recommended:

- Restructuring Nursing Roles: Healthcare policies should empower nurses to lead Metabolic Health Clinics, where weight management and nutritional education are treated as primary clinical interventions rather than elective advice.
- Targeted Educational Programs: Based on the gender-specific data, educational strategies must be tailored to address the high obesity rates in women (26.3%) and the rising mortality in men (29% in the 15-64 age group) [1].
- National Awareness Campaigns: Integration of findings from global reports into national health strategies to promote a return to Mediterranean dietary patterns and increased physical activity [4].
- Longitudinal Monitoring: Implementation of a national database to track the direct impact of nurse-led lifestyle interventions on BMI reduction and cardiovascular outcomes over the next decade.

The path to reducing cardiovascular mortality in Albania lies in bridging the gap between clinical treatment and health education. By positioning the nursing profession at the forefront of this transition ,

Albania can begin to close the "cardiovascular gap" and align its public health outcomes with European standards [2].

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