LIFESTYLE AND NUTRITIONAL FACTORS INFLUENCING OBESITY RISK AMONG WOMEN IN THE NAKHCHIVAN AUTONOMOUS REPUBLIC

©*Novruzova L.*, ORCID: 0009-0008-4269-3219, Ph.D., Nakhchivan State University,
Nakhchivan, Azerbaijan, leman.novruzova.1990@gmail.com
©*Khalilzade G.*, Nakhchivan State University,
Nakhchivan, Azerbaijan, gulay.xelilzade@icloud.com

ФАКТОРЫ ОБРАЗА ЖИЗНИ И ПИТАНИЯ, ВЛИЯЮЩИЕ НА РИСК ОЖИРЕНИЯ СРЕДИ ЖЕНЩИН В НАХЧЫВАНСКОЙ АВТОНОМНОЙ РЕСПУБЛИКЕ

©*Новрузова Л.*, ORCID: 0009-0008-4269-3219, канд. биол. наук, Нахчыванский
государственный университет, г. Нахчыван Азербайджан, leman.novruzova.1990@gmail.com
©*Халилзаде Г.*, Нахчыванский государственный университет,
г. Нахчыван Азербайджан, gulay.xelilzade@icloud.com

Abstract. Obesity is a growing global health concern that significantly affects women's physical, metabolic, and reproductive well-being. It is associated with increased risks of cardiovascular disease, type 2 diabetes, hormonal imbalance, and psychosocial disorders. The prevalence of obesity is influenced by multiple interrelated factors, including dietary habits, physical activity levels, sleep patterns, stress exposure, and socio-cultural conditions.In regions with distinct demographic and lifestyle characteristics, such as the Nakhchivan Autonomous Republic, understanding these determinants is essential for developing targeted and effective public health strategies.This study aims to identify and analyze the lifestyle and nutritional factors contributing to obesity risk among women aged 18–65 residing in Nakhchivan. A cross-sectional survey was conducted using structured questionnaires and anthropometric measurements, including height, weight, and Body Mass Index (BMI). The questionnaire assessed dietary frequency, consumption of high-calorie foods, physical activity levels, sleep duration, stress indicators, and socio-demographic variables such as education and employment status.Data were statistically analyzed using SPSS software, applying descriptive statistics and correlation tests to determine significant associations.The findings revealed that obesity prevalence was notably higher among women living in urban areas compared to those in rural regions. Key contributing factors included frequent intake of calorie-dense foods, low levels of physical activity, irregular sleep patterns, and elevated stress levels. Statistically significant correlations were observed between BMI and lifestyle indicators ($p < 0.05$). Additionally, educational attainment and employment status showed moderate influence on dietary behavior and physical activity engagement.This study underscores the urgent need for region-specific health interventions, including nutrition education, promotion of active lifestyles, and stress management programs tailored to women's needs. The results provide a scientific foundation for public health authorities to design culturally appropriate and sustainable strategies to reduce obesity risk and improve women's health outcomes in Nakhchivan.

Аннотация. Ожирение — это растущая глобальная проблема здравоохранения, которая существенно влияет на физическое, метаболическое и репродуктивное здоровье женщин. Оно связано с повышенным риском сердечно-сосудистых заболеваний, диабета 2 типа, гормонального дисбаланса и психосоциальных расстройств. На распространенность ожирения влияют многочисленные взаимосвязанные факторы, включая пищевые привычки,

уровень физической активности, режим сна, стресс и социально-культурные условия. В регионах с особыми демографическими характеристиками и образом жизни, таких как Нахчыванская Автономная Республика, понимание этих факторов имеет важное значение для разработки целенаправленных и эффективных стратегий общественного здравоохранения. Цель данного исследования — выявить и проанализировать факторы образа жизни и питания, способствующие риску ожирения среди женщин в возрасте 18–65 лет, проживающих в Нахчыване. Было проведено поперечное исследование с использованием структурированных анкет и антропометрических измерений, включая рост, вес и индекс массы тела (ИМТ). Анкета оценивала частоту приема пищи, потребление высококалорийной пищи, уровень физической активности, продолжительность сна, показатели стресса и социально-демографические переменные, такие как образование и статус занятости. Данные были статистически проанализированы с использованием программного обеспечения SPSS с применением описательной статистики и корреляционных тестов для определения значимых взаимосвязей. Результаты показали, что распространенность ожирения была значительно выше среди женщин, проживающих в городских районах, по сравнению с женщинами, проживающими в сельской местности. К основным факторам, способствующим этому, относятся частое потребление высококалорийной пищи, низкий уровень физической активности, нерегулярный режим сна и повышенный уровень стресса. Были обнаружены статистически значимые корреляции между ИМТ и показателями образа жизни (p < 0,05). Кроме того, уровень образования и статус занятости оказали умеренное влияние на пищевое поведение и вовлеченность в физическую активность. Это исследование подчеркивает острую необходимость региональных мер в области здравоохранения, включая обучение правильному питанию, пропаганду активного образа жизни и программы управления стрессом, адаптированные к потребностям женщин. Результаты обеспечивают научную основу для органов здравоохранения при разработке культурно приемлемых и устойчивых стратегий по снижению риска ожирения и улучшению показателей здоровья женщин в Нахчыване.

Keywords: Obesity, Women, Lifestyle, Nutrition, BMI, Public Health

Ключевые слова: ожирение, женщины, образ жизни, питание, ИМТ, общественное здравоохранение

Obesity is one of the most pressing public health challenges of the 21st century, characterized by excessive accumulation of body fat that poses significant risks to physical and metabolic health. According to the World Health Organization (WHO, 2023), global obesity rates have nearly tripled since 1975, affecting more than 650 million adults worldwide. This alarming trend is not limited to developed nations; developing regions, including those in Eastern Europe and the Caucasus, have also witnessed a rapid increase in obesity prevalence due to urbanization, sedentary lifestyles, and nutritional transitions. The burden of obesity extends beyond individual health, influencing economic productivity, healthcare costs, and the overall quality of life [1-4].

From a physiological perspective, obesity results from an imbalance between energy intake and expenditure, often regulated by complex interactions among hormonal, neural, and behavioral systems. However, in recent years, researchers have increasingly recognized that social, occupational, and psychological factors play equally crucial roles in shaping body weight outcomes. Among these, women represent a particularly vulnerable population group. Socio-cultural

expectations, hormonal fluctuations, pregnancy-related changes, and the dual burden of professional and domestic responsibilities all contribute to unique patterns of weight gain among women.

In Azerbaijan, as in many other middle-income countries, rapid lifestyle changes associated with modernization and urbanization have led to noticeable shifts in dietary habits and physical activity levels. Traditional diets rich in grains, legumes, and vegetables are gradually being replaced by high-calorie, processed foods and sugary beverages. These changes, combined with reduced physical activity and sleep disturbances, have increased the prevalence of overweight and obesity, particularly among women of working age. Local studies on obesity in Azerbaijan remain limited, with even fewer focusing specifically on women and the interplay of occupational and lifestyle factors [5].

The Nakhchivan Autonomous Republic provides a unique setting for such an investigation due to its distinct socio-economic and cultural characteristics. Women in this region often balance employment with extensive domestic responsibilities, which may limit opportunities for regular exercise and healthy eating. Moreover, irregular work hours, including night shifts in hospital environments, may disrupt circadian rhythms and hormonal regulation, increasing susceptibility to metabolic disturbances such as obesity.

Shift work, especially night work, has been associated with sleep deprivation, hormonal dysregulation (including leptin and insulin resistance), and altered appetite control, all of which can contribute to increased body mass index (BMI) and cardiometabolic risk. Several international studies have confirmed these associations, yet data from Azerbaijan—and particularly from Nakhchivan—remain scarce. Understanding these relationships in the local context is therefore essential for developing effective, culturally appropriate public health interventions [6-12].

This study aims to fill this gap by examining the relationship between nutrition, lifestyle behaviors, and occupational factors in the development of obesity among women aged 18–65 years living in Nakhchivan. By integrating clinical, biochemical, and lifestyle data, this research seeks to identify the most influential risk factors contributing to obesity in this specific population. Ultimately, the findings may help inform targeted prevention strategies and policy recommendations to improve women's health and well-being in the region.

This cross-sectional analytical study was conducted to examine the relationship between obesity, lifestyle, and occupational factors among women in the Nakhchivan Autonomous Republic of Azerbaijan. Data were collected between January and June 2024 from regional hospitals and community centers. Ethical approval for the study was obtained from the local ethics committee, and all participants provided written informed consent before participation.

A total of 100 women aged 18–65 years were recruited through stratified random sampling to ensure adequate representation of both day and night shift workers. Women with diagnosed metabolic or endocrine disorders (such as diabetes mellitus, thyroid dysfunction, or Cushing's syndrome) were excluded from the study to minimize potential confounding effects.

Participants were divided into two groups based on their work schedules: Day-shift workers (n = 52); Night-shift workers (n = 48).

Sociodemographic characteristics, including age, marital status, education level, occupation type, and duration of employment, were recorded through structured interviews.

Data were collected using a combination of anthropometric measurements, clinical assessments, and validated lifestyle questionnaires.

1. Anthropometric Measurements: Height and weight were measured using standardized protocols with calibrated equipment. Body Mass Index (BMI) was calculated as weight (kg) divided by height squared (m²). BMI categories followed the World Health Organization (2023) classification: underweight (<18.5), normal (18.5-24.9), overweight (25-29.9), and obese ($\geqslant$30).

2. Cardiovascular and Clinical Assessment: Electrocardiography (ECG) and Echocardiography (ECHO) were performed by trained cardiology specialists to detect cardiac rhythm abnormalities and assess structural parameters such as left ventricular wall thickness and diastolic function. Blood pressure was measured after a 10-minute rest period using a calibrated sphygmomanometer. Fasting blood samples were collected to analyze lipid profile, glucose level, and other metabolic indicators.

3. Lifestyle and Nutritional Assessment: A structured lifestyle questionnaire was used to collect information on dietary habits, physical activity, sleep duration and quality, and stress levels. Nutritional behavior was evaluated using a semi-quantitative Food Frequency Questionnaire (FFQ) and a 24-hour dietary recall. Questions covered the frequency of fast food consumption, sugary drink intake, fruit and vegetable consumption, and daily water intake.

Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI).

All data were analyzed using SPSS version 26.0. Descriptive statistics (mean ± standard deviation, frequency, and percentage) were used to summarize participant characteristics.

Comparisons between day and night shift workers were performed using the Chi-square test for categorical variables and the Independent Samples t-test for continuous variables.

Pearson correlation analysis was applied to examine the relationships between BMI and key lifestyle variables, including sleep duration, dietary habits, and physical activity levels. A p-value of <0.05 was considered statistically significant.

This study provides strong evidence that lifestyle and occupational factors, particularly night shift work, play a significant role in increasing obesity risk and early cardiovascular alterations among women in the Nakhchivan Autonomous Republic. The findings revealed that women working night shifts exhibited higher rates of obesity, irregular sleep patterns, unhealthy dietary habits, lower physical activity levels, and elevated stress compared to day-shift workers. These results highlight the profound impact of circadian rhythm disruption on metabolic balance, emphasizing that physiological misalignment between the internal biological clock and external work schedule can lead to hormonal disturbances, increased appetite, and reduced energy expenditure.

The observed prevalence of ECG and ECHO abnormalities among obese night-shift workers further underscores the interconnection between obesity and cardiovascular health. The occurrence of sinus tachycardia, early diastolic dysfunction, and increased left ventricular wall thickness in this group may indicate the onset of subclinical cardiac impairment driven by chronic metabolic stress. Such findings are consistent with existing evidence that links sleep deprivation, altered melatonin secretion, and sympathetic overactivation to cardiometabolic dysfunction.

Beyond biological mechanisms, this study also draws attention to behavioral and psychosocial determinants of obesity among women. Elevated stress levels, time constraints, and limited access to healthy food choices during night shifts contribute to emotional eating and reliance on calorie-dense, processed foods. Additionally, inadequate rest and prolonged screen exposure disrupt leptin and ghrelin balance, further promoting weight gain. These multifactorial interactions demonstrate that addressing obesity in women—especially those employed in shift-based occupations — requires a comprehensive approach that integrates workplace policy, education, and health promotion.From a public health perspective, the results of this study emphasize the urgent need to design region-specific prevention and intervention strategies in Nakhchivan. Educational programs focusing on nutrition literacy, sleep hygiene, and stress management could play a crucial role in promoting healthy behaviors among women. Moreover, workplace health initiatives—such as adjusting shift rotation schedules, providing access to healthy meals, and incorporating physical activity breaks — may significantly reduce obesity risk and improve overall well-being.

615

In conclusion, obesity among women in Nakhchivan is not merely a result of individual behavior but a reflection of intertwined biological, occupational, and social determinants. Addressing this challenge requires collaboration between healthcare providers, policymakers, and community organizations to implement sustainable and culturally appropriate interventions that support women's metabolic and cardiovascular health.

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