Review
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The problem of obesity and overweight in Vietnam. Part 3. (Literature review of research in Vietnam)

Valerii O. Erkudov, Viktoria V. Gaivoronskaya, Nina V. Screbtsova, Sergei S. Rogozin

Saint Petersburg State Pediatric Medical University, 2 Litovskaya str., Saint Petersburg, 194100, Russian Federation

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Corresponding author:
Valerii O. Erkudov
E-mail:
verkudov@gmail.com

Abstract. The third and final review of the double burden of malnutrition in Vietnam systematizes the concepts of the prevalence, causes and methods of correction of overweight and obesity in light of its negative consequences for public health. The analysis of literary sources clearly demonstrates an increase in the prevalence of overweight and obesity in school-age children and adolescents from 2–5% in 2007–2013 to 20–30% in 2002–2013 and 40–60% in 2024. In younger children and adults, this indicator did not differ throughout the observation period and corresponded to an average of 18% (from 6 to 35%) for children and 27% (from 11 to 70%) for adults. Women in Vietnam are at higher risk of developing overweight, the prevalence of which is 2–10% higher in them than in men. The prevalence of obesity in urban children and adults was 2.5–2.7 times higher than that in rural areas. The reasons for the increase in the prevalence of excess body weight and obesity are the traditional preferences of the Vietnamese for carbohydrate foods, incorrect ideas about obesity as a sign of health in men, the spread of fast food, freeze-dried products and sweets, especially among urban residents, combined with the refusal to exercise. Thus, it is obvious that the double burden of malnutrition, despite the measures taken by the Vietnamese government to protect public health, is still relevant for the country's residents. This requires the development of priority programs to simultaneously combat malnutrition and obesity.

Keywords: Vietnam, obesity, overweight, double burden of malnutrition

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Обзор

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Проблема ожирения и избытка массы тела во Вьетнаме. Часть 3. (Литературный обзор исследований во Вьетнаме)

Валерий Олегович Еркудов, Виктория Витальевна Гайворонская,
Нина Валентиновна Скребцова, Сергей Степанович Рогозин

Санкт-Петербургский государственный педиатрический медицинский университет, 194100, г. Санкт-Петербург, ул. Литовская, д. 2, Российская Федерация

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Автор для корреспонденции:
Валерий Олегович Еркудов
E-mail: verkudov@gmail.com

Резюме. В третьем, заключительном, обзоре, посвященном двойному бремени неполноценного питания во Вьетнаме, систематизированы представления о распространенности, причинах и методах коррекции избытка массы тела и ожирения в свете его негативных последствий для здоровья населения. Анализ литературных источников наглядно демонстрирует увеличение распространенности избытка массы тела и ожирения у детей школьного возраста и подростков с 2–5% в 2007–2013 гг. до 20–30% в 2002–2013 гг. и 40–60% в 2024 г. У младших детей и взрослых этот показатель не различался весь период наблюдений и соответствовал в среднем 18% (от 6 до 35%) для детского и 27% (от 11 до 70%) для взрослого контингентов. Женщины Вьетнама подвержены большему риску развития избытка массы тела, частота встречаемости которого у них на 2–10% выше, чем у мужчин. У городских детей и взрослых распространенность ожирения превосходила в 2,5–2,7 раза этот показатель у жителей сельских регионов. Причинами роста распространенности избытка массы тела и ожирения являются традиционные пристрастия вьетнамцев к углеводистой пище, неверные представления о полноте как признаке здоровья у мужчин, увеличение потребления фастфуда, сублимированных продуктов и сладостей, особенно у городских жителей в сочетании с отказом от занятий спортом. Таким образом, двойное бремя неполноценного питания, несмотря на принимаемые правительством Вьетнама меры по защите общественного здоровья, все еще актуально для жителей страны. Это требует разработки приоритетных программ одновременной борьбы с недоеданием и ожирением.

Ключевые слова: Вьетнам, ожирение, избыток массы тела, двойное бремя неполноценного питания

Источник финансирования. Авторы заявляют об отсутствии внешнего финансирования при проведении исследования.

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INTRODUCTION

The double burden of malnutrition in Vietnam is characterized by the coexistence of undernutrition and underweight in one part of the population and obesity in another [1]. An analysis of Vietnamese studies published between 2003 and 2024, presented in previous reviews[1], demonstrated an approximately threefold decline in the prevalence of underweight [2–4]. Nevertheless, the country remains far from fully eliminating undernutrition — as of 2024, up to 25% of children were still underweight [5, 6]. Concurrently, iron deficiency and anemia currently affect 20–25% of school-age children and women, along with 30–35% of newborns [6, 7]. Up to 20% of the Vietnamese population have deficiencies of vitamins A and B_{12}, and up to 50% have deficiencies of vitamin D and micronutrients (zinc, selenium, magnesium, calcium) [4–6]. This third review presents the findings of studies that shed light on the prevalence and causes of overweight and obesity among the Vietnamese population — the "other side of the coin" of the double burden of malnutrition. The present review represents an attempt to systematize the data accumulated over a nearly thirty-year period on the prevalence, causes, and management strategies for overweight and obesity in Vietnam in light of their adverse impact on public health.

PREVALENCE AND CAUSES OF OVERWEIGHT AND OBESITY IN VIETNAM: AN ANALYSIS

The data summarized in Table 1 clearly illustrate a rising prevalence of overweight and obesity among school-age children and adolescents, from 2–5% in 2002–2013 to 20–30% in 2007–2013 and further to 40–60% in 2024. These figures are in partial agreement with the published literature. T.K. Hong et al. (2007) and N.H. Trang et al. (2012) reported that between 2002 and 2004 and between 2004 and 2009, the increase in adolescent overweight and obesity reached +8.1% and +7.6%, respectively [8, 9]. According to the National Survey of Non-Communicable Disease Risk Factors (2015–2016) and the Vietnam National Nutrition Survey (2019–2020), the prevalence of overweight rose by 16% among children and by 8% among adults from 2002 to 2020.

For younger children and adults, this indicator remained stable throughout the observation period covered in Table 1, averaging 18% (range, 6–35%) in the pediatric population and 27% (range, 11–70%) in adults. These findings are likely attributable to the wide time span of the metabolic disorder prevalence data included in Table 1, as they stand in contrast to results discussed in the literature. For example, H.T. Dieu et al. (2009) reported a 52.9% increase in the incidence of overweight and obesity among children aged 4–5 years between 2002 and 2005 [10]. This observation is inconsistent with the findings of B. Norov et al. (2023) and L.M. Do et al. (2017), who documented a 6–8% rise in the prevalence of these conditions among older and younger children, respectively, over the period 2000–2016 [11, 12].

A number of authors have noted that the prevalence of obesity in adults also exhibits an upward trend. M.D. Nguyen et al. (2007) published findings from the 1992–1993 Vietnam Living Standards Survey, reporting a twofold increase in the prevalence of overweight during that period, from 3% to 6% [13]. P.H. Nguyen et al. (2018) documented a change in this indicator from 2% to 15% between 1993 and 2015 [14]. According to data from a stepwise cross-sectional survey conducted between 2009 and 2015, the prevalence of obesity increased by 5% among adult men and by 7% among adult women [15]. Vietnamese women are at greater risk of developing overweight, with prevalence rates among them being 2–10% higher than among men (see Table 1).

Several studies have reported on the prevalence of abdominal obesity as a component of the metabolic syndrome in Vietnam, which ranged from 8.7% to 30.2% between 2004 and 2019 [16–18]. Drawing on an analysis of medical records of 652 adult outpatients with diabetes mellitus at Ho Chi Minh City General Hospital, H. Yokokawa et al. (2010) identified a markedly higher prevalence of metabolic syndrome in women than in men (70.5% vs. 39.4%) [19]. N.T. Ho et al. (2024), in a comparison of 30- and 60-year-old Vietnamese residents, found that although the overall prevalence of the metabolic syndrome increased with age, its manifestations were more pronounced in women than in men [20].

Several studies do not support the notion that women are at elevated risk of metabolic disorders [1, 21–24]. Traditional beauty ideals in Vietnam hold that girls should have a petite physique, whereas men should have a larger body build [1]. This fuels greater weight-related concern among women [25] and leads to excessive parental control aimed at preventing obesity in girls, but not in boys [26]. In Vietnam, families typically prioritize the needs of boys over those of girls [26], which, in turn, contributes to longer periods of physical

[1] This article is the final part of the series of publications "The Double Burden of Malnutrition in Developing Countries as a Global Problem. Part 1. (Literature Review of Research in Vietnam)" (Russian Biomedical Research. 2025;10(3):44–54. https://doi.org/10.56871/RBR.2025.80.56.005) and "Growth Retardation, Nutritional Deficiency, and Micronutrient Insufficiency in Vietnam. Part 2. (Literature Review of Research in Vietnam)" (Russian Biomedical Research. 2025;10(4):18–48. https://doi.org/10.56871/RBR.2025.22.44.002).

inactivity among the latter. Research conducted in Hai Phong showed that boys consumed a wider variety of energy-dense foods than girls [21]. Boys also consume fast food more often than girls [27], spend more time watching television, and use smartphones more frequently [28]. Programs aimed at reducing overweight and obesity among schoolchildren in Vietnam should therefore take into account sex-specific differences in the risk of developing these conditions [29].

Notably, across the entire more than 30-year period of monitoring the prevalence of overweight and obesity, a consistent trend has been observed: these indicators have been 2.5–2.7 times higher among both children and adults residing in urban settings than among their rural counterparts (see Table 1). T.T. Nguyen et al. (2018) and N.K. Pham et al. (2020) reported that, between 2010 and 2015, the prevalence of this condition rose by 6% among urban children and by only 4% among rural children [30, 31]. The mean prevalence of being at risk of overweight and obesity increased nearly 9-fold (from 0.7% in 1992 to 6.2% in 2000) in urban areas and 3-fold (from 0.4% in 1992 to 1.2% in 2000) in rural areas [32]. In general, affluence — which has traditionally been higher in urban regions — correlates positively with the risk of overweight [6, 31, 33–37]. A contrasting view, however, also exists. For instance, X. Tan et al. (2024) found no significant association between overweight and wealth index, ethnicity, geographic region, or area of residence [5]. The relationships between excess body weight and socioeconomic status are complex, depending on sex and the intensity of economic development [38]. A recent study conducted in Ho Chi Minh City highlighted that children living in low-income households in urban areas face a higher likelihood of obesity than their peers living in high-income households [1]. This may be attributable to various barriers to healthy eating and lifestyle that are characteristic of urban settings: the increased availability of inexpensive, energy-dense foods; a shortage of grocery stores offering fresh produce; a lack of opportunities for physical activity; and insufficient nutrition knowledge [39].

The causes underlying the high prevalence of overweight and obesity are widely discussed in the literature. The rising consumption of foods with added sugar (such as highly processed breads, cakes, sweetened dairy products, fruit drinks, and carbonated beverages) now represents a serious public health concern in Vietnam [30]. Rapid urbanization and economic development have driven a nutrition transition in Vietnam, away from traditional diets rich in fresh fruits, vegetables, and rice and toward diets high in processed foods, refined grains, meat, dairy products, saturated fats, and sugar, and low in fiber [23]. Food prices in Vietnam, particularly those of sugar-rich and highly processed items, declined during the country's economic expansion, making them more affordable [23]. Such products are increasingly marketed to children in supermarkets, convenience stores located near residential areas, school canteens [1, 40], and shopping malls [12]. The per capita availability of sugar and sweets in Vietnam rose by 176% from 1961 to 2013 [41]. In 2018, total sugar consumption in Vietnam was estimated at 46.5 g per capita per day, nearly double the maximum level of 25 g per capita per day recommended by the World Health Organization [30]. These products are readily accessible in urban areas, where a greater density of supermarkets caters to higher-income populations [42, 43]. Children from urban areas also eat out more often, and a greater share of the energy consumed in these settings comes from fat, sugar, fast food [44], hard candies, and chocolate [45]. A study involving children aged 11–15 years revealed that 36% of participants consumed at least one sugar-sweetened beverage every day [46]. Among schoolchildren, the mean daily energy contribution from sweetened beverages was 256.4 kcal, corresponding to approximately 10% of total daily energy intake (~2,484 kcal/day) [46]. In a study by T.T.P. Pham et al. (2019), the proportion of children who consumed confectionery more than five times per week in Thanh Hoa province reached 13.81% [47]. Overweight and obesity in adolescents were considerably less prevalent among those who frequently ate vegetables and fruits; the likelihood of overweight and obesity was lower when fruits were available at home [33].

In addition, Vietnamese households have been shown to be receptive to the marketing of energy-dense, nutrient-poor foods [48]. Food advertising has been found to influence dietary preferences, purchasing behavior, consumption patterns [49], and children's food choices [24]. The marketing of energy-dense, nutrient-poor foods may therefore contribute to childhood obesity [50]. The low political priority assigned to tackling childhood obesity has allowed commercial interests — particularly those of companies producing sugar-sweetened beverages and processed foods — to lobby successfully for the inclusion of their products in the school food system [11]. A study by H.T.D. Ngan et al. (2018) in Hai Phong established that women who attained higher levels of education were able to secure better jobs with long working hours, which, in turn, reduced the time available for preparing meals for their children and increased children's reliance on fast food [21].

The traditional lifestyle of Vietnamese people living in rural villages is characterized by high energy

Table 1

Prevalence of overweight and obesity in Vietnam according to various authors

Таблица 1

Распространенность избытка массы тела и ожирения во Вьетнаме по данным различных авторов

Автор Author	Контингент Contingent	Возраст Age	Избыток массы тела Overweight	Ожирение Obesity
Son le N.T. et al., 2005 [70]	Смешанная выборка взрослых[1] Mixed sample of adults[1]	≥20 лет ≥20 years	12%	
Cuong T.Q. et al., 2006 [71]	Смешанная выборка 1488 взрослых из г. Хошимина Mixed sample of 1,488 adults from Ho Chi Minh City	20–60 лет 20–60 years	♂ — 31,6% ♀ — 33,6%	
Tang H.K. et al., 2007 [72]	Смешанная выборка 1504 подростков из г. Хошимина, равное количество мальчиков и девочек Mixed sample of 1,504 adolescents from Ho Chi Minh City, equal numbers of boys and girls	Средний возраст 13,1 года Average age 13,1 years	4,9%	0,6%
Dieu H.T. et al., 2007 [73]	Смешанная выборка 670 детей из г. Хошимина Mixed sample of 670 children from Ho Chi Minh City	3–6 лет 3–6 years	20,5%	16,3%
Khan N.C. et al., 2008 [74]	Смешанная выборка взрослых[2] Mixed sample of adults[2]	45–54 года 45–54 years	Городские — 43% City — 43% Сельские — 17% Rural — 17%	
van Lierop A. et al., 2008 [75]	Смешанная выборка 2613 детей из провинции Биньтхуан A mixed sample of 2,613 children from Binh Thuan Province	6–10 лет 6–10 years	Городские — 4,6% City — 4.6% Сельские — 1,6% Rural — 1.6% Общая — 2,7% Total — 2.7%	
Walls H.L. et al., 2009 [76]	Смешанная выборка 4846 взрослых из г. Ханоя Mixed sample of 4,846 adults from Hanoi	25–74 лет 25–74 years	Общее Total — 28.6% ♂ — 29,7% ♀ — 31,5%.	2,1%
Dieu H.T. et al., 2009 [10]	Повторное поперечное исследование 1162 детей в 2002–2005 гг. A repeat cross-sectional study of 1,162 children in 2002–2005.	4–5 лет 4–5 years	21,4%	36,8%
Ha do T.P. et al., 2011 [77]	Смешанная выборка взрослых[3] Mixed sample of adults[3]	25–64 года 25–64 years	В 2000 году — 11,7% In 2000 — 11.7%	
			В 2005 году — 16,3% In 2005 — 16.3%	
Hong T.K. et al., 2012 [9]	Смешанная выборка взрослых[4] Mixed sample of adults[4]	13–16 лет 13–16 years	4,6%	
Nguyen P.H. et al., 2013 [78]	4983 небеременных женщин г. Тхай Нгуен 4,983 non-pregnant women in Thai Nguyen City	–	–	5%
Nguyen P.V. et al., 2013 [79]	Смешанная выборка 1989 детей из г. Хошимина Mixed sample of 1,989 children from Ho Chi Minh City	11–14 лет 11–14 years	♂ — 22% ♀ — 13,3% Общее — 17,8% Total — 17.8%	♂ — 5,4% ♀ — 1,3% Общее —3,2% Total —3.2%
Ly K.A. et al., 2013 [80]	Смешанная выборка взрослых[5] Mixed sample of adults[5]	≥35 лет ≥35 years	33,7%	–
Binh T.Q. et al., 2014 [16]	Смешанная выборка взрослых[6] Mixed sample of adults[6]	Средний возраст Middle age	16,3%	–

Continuation of the Table 1 / Продолжение табл. 1

Автор Author	Контингент Contingent	Возраст Age	Избыток массы тела Overweight	Ожирение Obesity
Do L.M. et al., 2015 [49]	2677 городских и сельских детей из г. Ханоя 2,677 urban and rural children from Hanoi	Средний возраст 4,3 года Average age 4.3 years	Городской — 21,1% City — 21.1% Сельский — 7,6% Rural — 7.6%	
Carrillo-Larco R.M. et al. 2016 [34]	Данные продольного исследования Young Lives 6000 детей Data from the Young Lives longitudinal study of 6,000 children	4–8 лет 4–8 years	1,5%	
		11–15 лет 11–15 years	0,3%	
Nguyen P.V. et al., 2016 [35]	Смешанная выборка 2024 из г. Хошимина Mixed sample 2024 from Ho Chi Minh City	11–14 лет 11–14 years	21,1%	
Nguyen N.M. et al., 2017 [37]	Смешанная выборка 2943 детей Mixed sample of 2,943 children	Средний возраст 5,3 года Average age 5.3 years	2,4%	0,4%
		Средний возраст 8 лет Average age 8 years	5,8%	4,7%
Nguyen C.L. et al., 2017 [81]	2030 беременных на 24–28-й неделе беременности 2,030 pregnant women at 24–28 weeks of pregnancy	–	12,8%	
Dat T.Q. et al., 2018 [82]	Смешанная выборка 6514 из провинции Биньдинь Mixed sample 6,514 from Binh Dinh province	6–10 лет 6–10 years	30,1%	
Hoang N.T.D. et al., 2018 [24]	Смешанная выборка 2334 детей из г. Хайфона Mixed sample of 2,334 children from Hai Phong City	6–9 лет 6–9 years	22,1%	31,0%
Ngan H.T.D. et al., 2018 [21]	Смешанная выборка 276 детей из г. Хайфона A mixed sample of 276 children in Hai Phong City,	6–10 лет 6–10 years	11,2%	10,1%
Chuc D.V. et al., 2019 [83]	Смешанная выборка 327 детей из г. Хынъена в 2017 г. Mixed sample of 327 children in Heungyeong City, 2017	1–3 года 1–3 years	1,2%	
Giao H. et al., 2019 [84]	Смешанная выборка 768 детей из г. Хошимина Mixed sample of 768 children from Ho Chi Minh City	1–2 года 1–2 years	10,7%	
Pham T.T.P. et al., 2019 [47]	Смешанная выборка 821 детей из г. Ханоя Mixed sample of 821 children from Hanoi	11–12 лет 11–12 years	17,1%	19,1%
Le T.T. et al., 2019 [85]	16 177 детей из горных районов, разные этнические группы 16,177 children from mountainous areas, different ethnic groups	2–5 лет 2–5 years	От 0 до 2,3% у разных этнических групп From 0 to 2.3% in different ethnic groups	
Phan H.D. et al., 2020 [86]	Смешанная выборка 2788 детей Mixed sample of 2,788 children	11–14 лет 11–14 years	17,4%	8,6%
Mai T.M.T. et al., 2020 [1]	Смешанная выборка 10 949 детей из г. Хошимина Mixed sample of 10,949 children from Ho Chi Minh City	6–18 лет 6–18 years	20–30%	20–30%
Pham N.K. et al., 2020 [31]	Смешанная выборка 1806 детей из г. Хошимина Mixed sample of 1,806 children from Ho Chi Minh City	7–9 лет 7–9 years	♂ — 24,7% ♀ — 12,3%	
Nguyen T.T. et al., 2020 [51]	Поперечное исследование 367 взрослых из г. Ханоя A cross-sectional study of 367 adults from Hanoi	18–25 лет 18–25 years	16,6%	

Ending of the Table 1 / Окончание табл. 1

Автор Author	Контингент Contingent	Возраст Age	Избыток массы тела Overweight	Ожирение Obesity
Ha et al., 2021 [69]	280 взрослых пациентов с сахарным диабетом 2-го типа 280 adult patients with type 2 diabetes mellitus	–	35,4%	
Kim T.V. et al., 2022 [65]	Смешанная выборка 103 детей Mixed sample of 103 children	3–4 года 3–4 years	22,3%	
Le G.B., Dinh D.X., 2022 [28]	Смешанная выборка 782 детей из г.Тханьхоа Mixed sample of 782 children from Thanh Hoa city	6–11 лет 6–11 years	21,61%	14,32%
Truong D.T.T. et al., 2022 [87]	Смешанная выборка 1556 детей Mixed sample of 1,556 children	Средний возраст 12 лет Average age 12 years	9,4%	
Dang A.K. et al., 2022 [18]	Смешанная выборка взрослых[6] Mixed sample of adults[6]	–	16,1%	
Thuyen T.Q. et al., 2022 [88]	Данные распространенности метаболического синдрома у 1150 взрослых Prevalence data of metabolic syndrome in 1,150 adults	40–64 лет 40–64 years	23,4%	
Vu K. et al., 2022 [89]	Смешанная выборка взрослых Mixed sample of adults	25–64 года 25–64 years	20,57%	
Tan P.Y., Chan C.L. et al., 2024 [6]	Смешанная выборка детей[8] Mixed sample of children[8]	<5 лет <5 years	9,7%	
		5–18 лет 5–18 years	41,3%	
Pham T.T.P. et al., 2024 [90]	Смешанная выборка 733 детей г. Ханоя Mixed sample of 733 children from Hanoi	11–12 лет 11–12 years	25%	11%
Tan P.Y. et al., 2024 [5]	Смешанная выборка 2039 детей Mixed sample of 2,039 children	6 месяцев — 2 года 6 months — 2 years	♂ — 2,3% ♀ — 2,6% Общее — 2,5% Total — 2.5%	♂ — 0,7% ♀ — 0,5% Общее — 0,6% Total — 0.6%
Mai T.M.T. et al. 2024 [91]	Смешанная выборка 221 ребенка в возрасте 18 лет из г. Хошимина Mixed sample of 221 children aged 18 years in Ho Chi Minh City	9–11 лет 9–11 years	59,3%	
Ho N.T. et al. 2024 [92]	Смешанная выборка взрослых[9] Mixed sample of adults[9]	<40 лет <40 years	16%	

Notes. [1] — Study on the prevalence of metabolic syndrome in adults in Ho Chi Minh City; [2] — National Overweight and Obesity Survey Summary Statistics; [3] — data from a study of 31,665 adults in 2000 and 2005 from the 2000 National Nutrition Examination Survey (14,452 subjects) and the 2005 National Adult Obesity Survey (17,213 subjects); [4] — prevalence of Metabolic Syndrome in Children in Ho Chi Minh City; [5] — 1,713 adult residents from Da Nang City from 900 households in 6 of 56 urban, rural and mixed urban-rural communities in Da Nang; [6] — prevalence of metabolic syndrome in 2,443 adults; [7] — meta-analysis of the prevalence of metabolic syndrome in 35,421 adult subjects; [8] — data on overall prevalence and prevalence stratified by sex and region were obtained from WHO/UNICEF/World Bank Group databases and national nutrition surveys (2018–2020); [9] — prevalence of metabolic syndrome in 57,997 adults examined from 300 Vietnamese companies from Vinmec Healthcare System.

Примечания. [1] — Исследование распространенности метаболического синдрома у взрослых жителей г. Хошимина; [2] — сборная статистика Национального исследования избыточного веса и ожирения; [3] — данные исследования 31 665 взрослых в 2000 и 2005 гг. Национального опроса по питанию 2000 г. (14 452 субъекта) и Национального опроса по ожирению у взрослых 2005 г. (17 213 субъектов); [4] — распространенность метаболического синдрома у детей в г. Хошимине; [5] — 1713 взрослых жителей из г. Дананг из 900 домохозяйств в 6 из 56 городских, сельских и смешанных городских и сельских общин в Дананге; [6] — распространенность метаболического синдрома у 2443 взрослых; [7] — метаанализ распространенности метаболического синдрома у 35 421 взрослых испытуемых; [8] — данные об общей распространенности и распространенности, стратифицированной по полу и региону, были получены из баз данных ВОЗ/ЮНИСЕФ/Группы Всемирного банка и национальных обследований питания (2018–2020); [9] — распространенность метаболического синдрома у 57 997 взрослых на основе осмотра сотрудников 300 вьетнамских компаний из Vinmec Healthcare System.

Table by the authors of this article
Таблица авторов данной статьи

expenditure[1] arising from the physical demands of agricultural labor [51]. Urban Vietnamese, by contrast, need to focus on increasing their physical activity during leisure time. Survey data from the Ministry of Health indicate that 70% of Vietnamese adults do not engage in physically active pursuits. Office workers, in particular, lead an almost entirely sedentary lifestyle, averaging only 600 steps per day instead of the recommended 10,000. Moreover, only 18% of fifth-grade students in Ho Chi Minh City adhere to physical activity guidelines [52]. A recent international study ranked Vietnam among the countries with the lowest average daily step counts in the world [51]. Low levels of physical activity have been reported for both urban and rural populations [53]. Participation in recreational physical activities remains rare among the Vietnamese population [54]. Common barriers to physical activity in South and Southeast Asia include ambivalent attitudes toward exercise; limited time due to long working hours and cultural obligations to family; a lack of adequate facilities and infrastructure; a limited number of safe public spaces; unfavorable climate; and environmental pollution [53]. Women may face additional cultural barriers stemming from norms of modesty or the avoidance of mixed-gender activities [53].

The risk of overweight or obesity was 1.39 times higher among physically inactive children and 2.5 times higher among those residing in urban areas [55]. Additional determinants of overweight include living in an affluent household [8]; not being required to walk to school [1, 22, 28]; reduced physical activity during school breaks owing to a scarcity of open spaces and playgrounds [9, 28]; having overweight parents [23]; and household food insecurity [23]. Study findings indicate a marked decline in the prevalence of walking to school among adolescents, from 27.8% in 2004 to 19.6% in 2009 [9]. A number of additional factors have been associated with elevated odds of overeating and obesity. These include being born to overweight or obese mothers, together with their sedentary lifestyle and unhealthy dietary habits [6, 56]; early discontinuation of breastfeeding [36]; prolonged screen time on smartphones; low levels of physical activity in the child; and excessive intake of energy, sugar, oils, and salt, as well as fast food [1, 6, 21, 28, 30, 31, 36, 49]. Further determinants comprise high birth weight; delivery by cesarean section [57, 58]; nighttime sleep duration of less than 8 hours per day [57]; daytime napping [16]; high levels of maternal and paternal education [21, 47, 58]; parental underestimation of the risks posed by childhood obesity [1]; neuroticism in the population [59]; and infrequent breakfast consumption [31]. Finally, polymorphisms in the brain-derived neurotrophic factor gene [57] and the β_3-adrenergic receptor gene [60], as well as an increased abundance of *Firmicutes* coupled with a reduced abundance of *Bacteroidetes* in the gut microbiota [61], have also been linked to higher odds of overeating and obesity. A survey conducted by L.M. Do et al. (2016) revealed that some Vietnamese mothers find the appearance of a "chubby" child appealing and regard excess weight in a child as a sign of good health [12]. At the same time, the women surveyed expressed concern about overeating, the reduced physical activity of their overweight children, and the high likelihood of developing diabetes mellitus and cardiovascular complications in the future [12]. When asked about the causes of obesity, the women pointed to hereditary factors, economic living conditions, and the presence of unsafe hormones in meat [12]. The mothers admitted that they find it difficult to control their children's diet, limit fast-food consumption, and restrict television viewing and the use of electronic gadgets; they also reported challenges in persuading older-generation relatives (grandparents) of the need to regulate the children's nutrition and physical activity [12]. Y.T.H. Nguyen et al. (2022) reported broadly similar findings when describing the results of interviews with elderly Vietnamese residents [62].

Accelerometer-based measurements of physical activity among schoolchildren, conducted by T.H. Nguyen et al. (2010), demonstrated that the risk of metabolic disturbances rises when time spent in moderate or light physical activity falls below 43 minutes per day [63]. N.T. Nguyen et al. (2024) found that more than 70% of secondary school students devoted less than 60 minutes per day to physical activity. These same students spent more than 120 minutes per day on sedentary pursuits [64].

In a sociodemographic study, Q.G. To et al. (2020) established that high levels of affluence were significant predictors of overweight and obesity among Vietnamese schoolchildren. Such affluence enabled children to own two or more electronic devices (smartphones, tablets) and to attend private tutoring [46]. These children displayed the lowest levels of physical activity, as they were either engaged in academic study or spent their time using smartphones or tablets [46]. Secondary school students aged 11–14 years in Ho Chi Minh City spent more than 2 hours per day watching television [35]. The number of hours of television viewing was positively associated with obesity, and a clear dose–response relationship was observed [33]. T.V. Kim et al. (2022) established that more than 50% of preschool children in Ho Chi Minh City failed to meet the recommendations regarding physical activity duration, sleep length, and screen time [65].

[1] World Health Organization. Guideline: Sugars Intake for Adults and Children. Geneva: WHO; 2015. Available at: https://www.who.int/publications/i/item/9789241549028. Accessed January 14, 2026.

A fast eating speed was significantly associated with higher alcohol and sugar consumption and a greater prevalence of abdominal obesity [34]. Furthermore, a significant association was detected between adults who participated in sports with their children and the weight status of adolescents. The likelihood of being overweight was twice as high among those children whose parents never engaged in sports with them [33].

Children living with their father only were at an elevated risk of overweight and obesity compared with their peers living in two-parent families [66]. This may be attributable to the fact that fathers are less likely to restrict access to food and to monitor their children's dietary intake [67]. Parental divorce has been associated with excess body weight and obesity [68].

Family support and counseling delivered by health care professionals play a decisive role in establishing and sustaining healthy dietary habits and appropriate physical exercise among both patients with diabetes mellitus and healthy individuals, thereby helping to reduce the risk of overweight and obesity [1, 69]. Patients who received no support from their families or who were not counseled by health care professionals on matters of nutrition and physical activity proved more vulnerable to overweight and obesity [69].

Taken together, the analysis of the published literature points to a steady rise in the prevalence of overweight and obesity among children of various ages as well as among adults. The factors regarded as the most important contributors to the development of metabolic disorders in the Vietnamese population include male sex, urban residence, a shift away from a healthy diet toward fast food and foods rich in fat and sugar, low levels of physical activity, and excessive reliance on television and smartphones.

MAIN APPROACHES TO THE PREVENTION AND MANAGEMENT OF OVERWEIGHT AND OBESITY IN VIETNAM

With the aim of preventing and managing overweight and obesity, the Government of Vietnam developed the National Strategy for the Prevention and Control of Non-Communicable Diseases for the period 2015–2025, setting the target of keeping the prevalence of these metabolic disorders below 10% among children and below 15% among adults [30]. A central pillar of this strategy is a comprehensive lifestyle modification program that encompasses dietary changes, behavioral modification, and increased physical activity, the last of which plays a fundamental role in combating obesity. For initial weight reduction and subsequent weight maintenance in adults, individualized dietary correction is recommended; this intervention should reduce total energy intake by at least 500 kcal per day while providing adequate amounts of protein, vitamins, and minerals. When selecting a dietary intervention, health care professionals should take into account the individual's motivation, personal and cultural preferences, and any associated comorbidities. Health care providers should recommend that adults with overweight or obesity engage in 30–60 minutes of moderate-intensity aerobic exercise per day on at least five days per week (≥150 minutes in total). The maintenance of a reduced body weight may necessitate longer-duration or higher-intensity exercise (200–300 minutes of moderate-intensity activity per week or ≥150 minutes of vigorous-intensity activity per week). To increase muscle strength and improve physical function, resistance exercise performed 2–3 times per week should be recommended. Activity interventions should be advanced gradually over time in order to reach the target level and should be tailored to the individual's age, current level of functioning and physical fitness, as well as to any existing complications and risk factors.

For the prevention and management of childhood obesity, physicians should counsel parents or guardians on the importance of establishing healthy dietary and physical activity habits in the child. These habits include consuming regular meals; limiting the intake of energy-dense snacks, unhealthy foods, and sugar-sweetened beverages; and ensuring daily opportunities for active play or other forms of physical activity. The National Plan of Action for Nutrition further recommended improving maternal nutrition to support prolonged breastfeeding, limiting salt intake to less than 300 g per person per month, restricting the consumption of sugar and fats, and increasing protein intake [93]. In the absence of weight loss within three months, intensive lifestyle therapy, pharmacotherapy, or referral for surgical intervention may be considered. The published literature attests to the effectiveness of such intervention programs in adults [94] and in children aged 11–12 years [90].

Vietnam currently has no regulations governing the sale and marketing of ultra-processed foods [91], a situation that makes their advertising highly pervasive [48]. Consequently, in order to curb the rising consumption of unhealthy foods, public health efforts should focus not only on modifying the behavior of children and their parents but also on the pressing need to develop government policies aimed at regulating the food environment. This can be accomplished through the introduction of higher taxes on selected ultra-processed foods and sugar-sweetened beverages, the regulation of the marketing of unhealthy products high in fat, sugar, and salt, and the implementation of front-of-pack nutrition labeling [91, 95, 96]. A recent study by L.T.T. Nguyen et al. (2023) demonstrated that

raising the price of "unhealthy" foods by up to 20% led to a 12.7% and 12.4% reduction in the prevalence of overweight and obesity, respectively, while saving an estimated 27 million US dollars in direct medical costs [97].

CONCLUSION

Studies consistently report a marked increase in the prevalence of obesity and overweight, which, according to some estimates, has ranged from 6% to 15% over the period 1990–2024. This rise has been driven by a combination of factors: the traditional Vietnamese predilection for carbohydrate-rich foods; deeply ingrained misconceptions equating plumpness, particularly in men, with good health; the growing consumption of fast food, ultra-processed products, and sweets, especially among urban residents; and a widespread shift away from physical exercise. It is therefore evident that the double burden of malnutrition remains a pressing public health challenge for the Vietnamese population, notwithstanding the measures implemented by the Government of Vietnam to safeguard public health. Addressing this challenge will require the development of priority programs designed to simultaneously tackle both undernutrition and obesity.

ADDITIONAL INFORMATION

Authors' contribution. V.O. Erkudov — conceptualization, literature search, writing the draft, final approval; V.V. Gaivoronskaya — literature search, editing, final approval; N.V. — Screbcova — editing, final approval; S.S. Rogozin — literature search, final approval.

All authors read and approved the final version before publication.

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Authors' info

* **Valerii O. Erkudov** — Cand. Sci. (Med.), Associate Professor, Department of Normal Physiology. E-mail: verkudov@gmail.com; https://orcid.org/0000-0001-7351-0405; SPIN: 5155-2173
Viktoria V. Gaivoronskaya — Cand. Sci. (Med.), Associate Professor, Department of Normal Physiology. E-mail: gaivorv1909@gmail.com; https://orcid.org/0000-0001-6462-462X; SPIN:1204-1411
Nina V. Screbtsova — Dr. Sci. (Med.), Associate Professor, Department of Normal Physiology. E-mail: niskrebcova@mail.ru; https://orcid.org/0009-0006-5641-8571; SPIN: 8472-6915
Sergey S. Rogozin — Assistant, Department of Normal Physiology. E-mail: box.rogozin@yandex.ru; https://orcid.org/0000-0001-9263-0111; SPIN: 2187-2806

* Corresponding author.
Автор, ответственный за переписку.

Об авторах

* **Валерий Олегович Еркудов** — к.м.н., доцент, кафедра нормальной физиологии. E-mail: verkudov@gmail.com; https://orcid.org/0000-0001-7351-0405; SPIN: 5155-2173
Виктория Витальевна Гайворонская — к.м.н., доцент, кафедра нормальной физиологии. E-mail: gaivorv1909@gmail.com; https://orcid.org/0000-0001-6462-462X; SPIN: 1204-1411
Нина Валентиновна Скребцова — д.м.н., доцент, кафедра нормальной физиологии. E-mail: niskrebcova@mail.ru; https://orcid.org/0009-0006-5641-8571, SPIN: 8472-6915
Сергей Степанович Рогозин — ассистент, кафедра нормальной физиологии. E-mail: box.rogozin@yandex.ru; https://orcid.org/0000-0001-9263-0111; SPIN: 2187-2806