

LIFESTYLE AS A RISK AND PROTECTIVE FACTOR IN CHRONIC DISEASES

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INTRODUCTION

Chronic diseases, also known as non-communicable diseases, are defined as “conditions lasting one year or longer that require ongoing medical care or limit daily activities, or both”, according to the Centre for Disease Control and Prevention [1]. The risk factors involved in the development of chronic diseases are classified as modifiable and non-modifiable. Modifiable risk factors include high blood pressure, obesity, a sedentary lifestyle, smoking and high cholesterol, whilst age, sex, race, ethnicity and genetic factors are non-modifiable [2]. In recent decades, the incidence and prevalence of chronic diseases have increased significantly; this phenomenon is the result of changes in dietary habits and lifestyle over time, changes which have led to a shift in patterns of morbidity within the population [2]. Cardiovascular diseases, cancer, chronic respiratory diseases and diabetes mellitus account for the majority of deaths, with an estimated 70% of all global deaths each year being attributable to non-communicable diseases [3]. The category of non-communicable diseases associated with high rates of morbidity and mortality includes, in addition to cardiovascular and metabolic conditions, neurological and mental health disorders, diseases of the digestive system, musculoskeletal disorders, chronic kidney disease and autoimmune diseases [4]. Behavioural risk factors (smoking, unhealthy diets, physical inactivity, alcohol consumption), metabolic risk factors (high blood pressure, obesity, hyperglycaemia, hypercholesterolaemia) and environmental risk factors (air pollution) play a major role in the development of chronic diseases [5]. Tobacco use is one of the most serious public health problems globally, being associated with over 7 million deaths annually, whilst second-hand smoke contributes to the development of severe cardiovascular and respiratory diseases and is a cause of premature death [6]. Furthermore, physical inactivity is associated with obesity, type 2 diabetes, increased cardiovascular risk, various types of cancer, and increased all cause mortality [7]. The World Health Organisation has stated that 43% of adults aged over 18 are overweight and 16% are obese [8].

Numerous studies have shown that adopting a healthy lifestyle reduces the risk of cancer-related morbidity and mortality; consequently, physical activity, avoiding tobacco and alcohol, a balanced diet and maintaining a normal body weight are major behavioural changes [9].

INTRODUCTION: Lifestyle plays a key role in the onset and progression of chronic diseases, as well as in their prevention, with these diseases becoming a major public health issue. Consequently, this study was conducted to investigate the association between lifestyle and its impact on chronic diseases.

METHODS: This was a cross-sectional study involving 204 participants, who voluntarily completed an online questionnaire. The questionnaire comprised questions on age, gender, diet, physical activity, sleep patterns, stress levels, smoking and awareness of their own behaviours. The data were analysed using descriptive and inferential statistics, and results were considered statistically significant at a p-value of < 0.05.

RESULTS: Analysis of the results revealed a statistically significant association between age and stress levels, gender and levels of physical activity, breakfast and the perceived importance of lifestyle, and sleep and eating behaviour. Most individuals in the sample adopt moderately healthy behaviours, with the majority of young people being influenced by the stress they experience on a daily basis.

CONCLUSIONS: The study confirms the idea that lifestyle can significantly influence the quality of life of the population, with behavioural factors being a key component in the development or worsening of numerous conditions.

Keywords: lifestyle; chronic diseases; prevention; behaviour.

Another factor that is often overlooked in modern society is sleep; a lack of sleep is associated with increased feelings of hunger and higher food intake [10]. Sleep disorders influence eating behaviour, causing an increase in ghrelin levels and a decrease in leptin, which results in a heightened appetite and a preference for foods that are high in calories and rich in carbohydrates [11]. Furthermore, time spent in front of screens is a significant factor with numerous adverse effects on health: sleep disorders, obesity, vision problems, depression and anxiety [12]. Sedentary activities, such as using a computer or watching television for long periods, have been linked to an increased risk of dementia, depression and Parkinson's disease; replacing such behaviour with physical exercise reduces the risk of developing these neurodegenerative diseases [13]. On the other hand, chronic stress, defined as a negative emotional experience, facilitates the onset or progression of a wide range of conditions: obesity, cardiovascular disease, cancer and depression [14]. Consequently, lifestyle interventions are key elements in the prevention and management of chronic diseases, aiming to improve the general health of the population, defined by the World Health Organisation as “a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity [15]”.

The aim of the study was to analyse the association between lifestyle and its influence on the prevalence of chronic diseases in a sample of the general population.

MATERIALS AND METHODS

This was a cross-sectional study, conducted between 1 August 2025 and 1 February 2026. A total of 204 people were included in the study. Data were collected using a questionnaire created on the Google Forms platform and distributed online through social media to the general population. Participants met the following inclusion criteria: the ability to understand and complete

the questionnaire in Romanian, access to social media and the Google Forms platform, and the provision of informed consent to participate in the research. The exclusion criterion was refusal to give consent and, consequently, to answer the questions. The questionnaire consisted of 20 multiple-choice and linear scale questions (rated from 1 to 5). The parameters analysed in the present study were: demographic data (age, gender) and lifestyle factors (dietary habits, physical activity, sleep, screen time, stress, smoking, and awareness of the impact of lifestyle on health).

With regard to the methods used for statistical analysis, the collected data were collated and processed using descriptive statistics (frequency analysis, valid and cumulative percentages) and inferential statistics (contingency tables, the chi-square test – the method used to determine whether there is a statistically significant association between the independent and dependent variables; the significance threshold – results were considered statistically significant for a value of $p < 0.05$).

At the beginning of the questionnaire, participants were informed about the purpose of the study, its voluntary nature, and the fact that the data collected would be anonymous and used exclusively for academic purposes. Completing the questionnaire constituted the implicit consent of the participants to be included in the study sample.

RESULTS

As regards the demographic characteristics of the participant cohort, the majority were aged between 30 and 50, namely 98 participants (48%), and were female, namely 157 participants (77%).

The questionnaire assessed the main components of lifestyle, namely diet, physical activity, sleep quality, stress levels and harmful behaviours. In terms of diet, most participants reported that they start their day with just a coffee (40.2%), have two main meals and occasional snacks (49.5%), eat fruit and vegetables daily (39.2%), eat *fast food* rarely or not at all (57.8%), and prepare their meals at home (79.9%). Most consume fizzy and energy drinks rarely or not at all (61.3%) and drink between 1,5 and 2 litres of water a day (48%). Another key factor in their lifestyle is physical activity. Of all participants, 38.2% exercise rarely or never, spend between 2 and 4 hours a day in front of screens (32.4%) and take active breaks every 2 hours whilst working or studying (35.8%). As regards sleep, 45.1% of participants reported having a regular sleep pattern of between 7 and 9 hours per night, whilst 40.2% sta-

Table 1. Distribution of participants by age group and level of daily stress

		Q16					p=0.024
		1	2	3	4	5	Total
Q1	under 18	0 (0.0%)	2 (3.3%)	2 (2.4%)	0 (0.0%)	0 (0.0%)	4 (2.0%)
	18–30	2 (8.7%)	18 (29.5%)	29 (34.5%)	10 (33.3%)	3 (50.0%)	62 (30.4%)
	30–50	9 (39.1%)	28 (45.9%)	41 (48.8%)	17 (56.7%)	3 (50.0%)	98 (48.0%)
	over 50	12 (52.2%)	13 (21.3%)	12 (14.3%)	3 (10.0%)	0 (0.0%)	40 (19.6%)
Total		23 (100%)	61 (100%)	84 (100%)	30 (100%)	6 (100%)	204 (100%)

Note: Q1 = age group; Q16 = level of daily stress on a scale of 1 to 5.

Table 2. Distribution of participants by gender and satisfaction with physical activity

		Q18					p=0.002
		1	2	3	4	5	Total
Q2	female	42 (93.3%)	38 (77.6)	53 (76.8%)	17 (65.4%)	7 (46.7%)	157 (77.0)
	male	3 (6.7%)	11 (22.4%)	16 (23.2%)	9 (34.6%)	8 (53.3%)	47 (23.0%)
Total		45 (100%)	49 (100%)	69 (100%)	26 (100%)	15 (100%)	204 (100%)

Note: Q2 = gender; Q18 = satisfaction with level of physical activity on a scale of 1 to 5.

ted that they had a restless sleep of 6–7 hours per night. The most significant risk behaviour analysed was smoking. The analysis revealed that only 24.5% of the total are smokers. The level of daily stress on a scale of 1 to 5 (1 = not at all stressed, 5 = very stressed) was moderate for the majority, at 3 (41.2%), with the main methods of stress management being various activities: reading, music and cooking (35.3%). Awareness of the importance of lifestyle was another topic addressed in the study. The results showed that 42.2% reported being moderately satisfied (3 on a scale of 1 to 5, where 1 = not at all satisfied, 5 = completely satisfied) with their eating habits, 33.8% were moderately satisfied with their level of physical activity, and 42.2% considered themselves moderately to very organised in carrying out their daily activities (4 on a scale of 1 to 5, where 1 = not at all organised, 5 = very organised). Furthermore, 75.5% of participants believe that lifestyle influences a person's state of health (5 on a scale of 1 to 5, where 1 = very little, 5 = very much).

The chi-squared test was the method used to examine the relationship between different variables. The analysis revealed a statistically significant association between age (Q1) and stress levels (Q16), with a p-value of 0.024 ($p < 0.05$), table 1.

For the analysis of the relationship between gender (Q2) and satisfaction with the level of physical activity (Q18), a p-value of 0.002 ($p < 0.05$) was obtained, indicating a statistically significant association between the two variables, table 2.

Furthermore, the association between how participants usually start their day (Q3) and how important they consider lifestyle to be (Q20) was significant, with a p-value of 0.012 ($p \leq 0.05$), table 3.

Table 3. The relationship between how participants usually start their day and how much they consider lifestyle to influence their state of health

		Q20					p=0.012
		1	2	3	4	5	Total
Q3	with a quick snack (e.g. pastries, biscuits, etc.)	0 (0.0%)	0 (0.0%)	1 (8.3%)	3 (9.7%)	21 (13.6%)	25 (12.3%)
	with a balanced breakfast	0 (0.0%)	0 (0.0%)	1 (8.3%)	12 (38.7%)	61 (39.6%)	74 (36.3%)
	just a coffee, no food	5 (83.3%)	0 (0.0%)	10 (83.3%)	11 (35.5%)	56 (36.4%)	82 (40.2%)
	skipping breakfast	1 (16.7%)	1 (100.0%)	0 (0.0%)	5 (16.1%)	16 (10.4%)	23 (11.3%)
Total		6 (100%)	1 (100%)	12 (100%)	31 (100%)	154 (100%)	204 (100%)

Note: Q3 = how participants usually start their day; Q20 = how much they consider lifestyle to influence their health on a scale of 1 to 5.

Table 4. The relationship between sleep patterns and satisfaction with eating behaviour

		Q17					p=0.005
		1	2	3	4	5	Total
Q13	5–6 hours of insufficient sleep	4 (44.4%)	5 (10.6%)	9 (10.5%)	3 (5.9%)	1 (9.1%)	22 (10.8%)
	6–7 hours of sleep, sometimes restless	3 (33.3%)	23 (48.9%)	39 (45.3%)	15 (29.4%)	2 (18.2)	82 (40.2%)
	irregular sleep pattern, less than 5 hours of sleep	0 (0.0%)	4 (8.5%)	4 (4.7%)	0 (0.0%)	0 (0.0%)	8 (3.9%)
	regular sleep pattern, get enough sleep (7–9 hours)	2 (22.2%)	15 (31.9%)	34 (39.5%)	33 (64.7%)	8 (72.7%)	92 (45.1%)
Total		9 (100%)	47 (100%)	86 (100%)	51 (100%)	11 (100%)	204 (100%)

Note: Q13 = sleep pattern; Q17 = satisfaction with eating behaviour on a scale of 1 to 5.

Another statistically significant result was observed between sleep quality (Q13) and satisfaction with eating behaviour (Q17), with a p-value of 0.005 ($p < 0.05$), table 4.

DISCUSSION

The working hypothesis of the study sought to verify whether lifestyle has an impact on the prevalence of chronic diseases and whether it can be considered a major factor in the development of these conditions at any given time. Following an analysis of the results obtained in the study, the most significant associations were observed in the relationship between age, gender, daily stress levels, levels of physical activity, eating habits and sleep quality. The results showed that young people aged between 18 and 50 experience a considerably higher level of daily stress compared with older people. Most of the respondents engage in physical activity rarely or never. Furthermore, those who are sedentary reported feeling more stressed than those who exercise regularly. According to the Centre for Disease Control and Prevention, chronic stress has various effects on individuals, such as feelings of sadness or frustration, changes in eating behaviour, and sleep and concentration difficulties, and can exacerbate

existing conditions [16]. Numerous studies have found that physical activity has a multidimensional impact on health, improving cognitive function, memory, sleep quality and immune function, whilst reducing the risk of type 2 diabetes and cardiovascular disease by increasing insulin sensitivity and lowering blood pressure [17]. A sedentary lifestyle is associated with a global rise in mental health disorders, while regular physical activity has preventive effects on depression, anxiety and sleep disorders [18, 19]. Moreover, it has been shown that inactivity and sedentary work increase the risk of developing colon, rectal or breast cancer [20, 21]. As such, guidelines recommend at least 150 minutes of moderate-intensity aerobic exercise or at least 75 minutes of high-intensity aerobic exercise per week, with adherence to a well-established plan being necessary for long-term benefits [22, 23]. As regards eating habits, most participants skip breakfast and have two main meals a day, considering lifestyle less important. According to studies, breakfast has beneficial effects on health, improving mental performance, memory and motivation to achieve daily goals, whilst people who do not eat this meal have a higher body mass index and a greater risk of obesity [24, 25]. Some studies

have highlighted that people who follow a regular meal schedule and eat several meals a day have a lower risk of developing metabolic syndrome compared with those who eat fewer than three meals a day, with the latter group showing altered fasting blood glucose levels [26]. In our study, the relationship between sleep and eating behaviour showed that a poor quality sleep pattern can negatively influence perceptions of diet, with people in this category reporting dissatisfaction with their eating habits, compared with those who have good sleep hygiene. Moreover, those with good sleep quality manage to be more organised in carrying out their daily activities. Sleep is considered a major behavioural factor, with evidence suggesting that people who sleep less than 7 hours a night are prone to obesity, type 2 diabetes, cardiovascular disease and depression [27]. Studies have also shown that there is a link between sleep, stress and diet; therefore, high levels of stress lead to insufficient sleep, which in turn can exacerbate stress, resulting in unhealthy, emotional and uncontrolled eating behaviour [28].

The results obtained in this study are consistent with those reported in the specialist literature, with lifestyle being one of the most important determinants of health, thereby confirming the working hypothesis. Identifying the association between lifestyle and its influence on chronic diseases underscores the importance of prevention-oriented measures. Lifestyle medicine represents a preventative, holistic approach based on promoting healthy behaviour and seeking to educate individuals to improve their quality of life. As the prevalence of chronic diseases continues to rise, the integration of lifestyle medicine into medical practice by healthcare providers has become essential. A range of strategies can be implemented to reduce costs and interventions for the management of chronic diseases: training specialists in lifestyle medicine, devising personalised lifestyle plans and incorporating them into treatment plans, monitoring progress and actively involving patients in managing their own health, and health education programmes to inform the public about the importance of healthy eating, physical activity, sleep hygiene, stress management and avoiding harmful behaviours [29, 30].

The study has certain limitations that may affect the generalisability of the conclusions. Firstly, the study was conducted on a skewed sample, with a predominance of female participants, which may affect the representativeness of the results for the general population. As the data were collected via an online questionnaire, the variables may have been influenced by respondents' desire to provide socially acceptable answers. Secondly, as this is a cross-sectional study, it analyses the target population at a specific point in time; it cannot assess the temporal relationship, and there is a risk of bias. Following the presentation of the results and the limitations of the study, further research is required, through observational studies involving a larger number of participants, to analyse the effects of lifestyle on health in greater depth and over a longer period.

CONCLUSIONS

The findings of the study support the idea that adopting a healthy lifestyle has a significant impact on the prevalence of chronic diseases, with the choices made by each

individual regarding diet, exercise, sleep, smoking, stress and many other factors influencing quality of life either positively or negatively. The study highlights the fact that healthy behaviour based on a balanced diet, regular physical activity, restful sleep and effective stress management techniques can improve the quality of life. In the current study, the majority of people are sedentary; younger people are more stressed, have irregular mealtimes and poor sleep quality, with all these lifestyle factors influencing one another and creating a vicious circle. The research achieved its stated objective of investigating whether lifestyle has an impact on the prevalence of chronic diseases in the general population. In conclusion, the study emphasises the role of prevention and education in raising awareness of the risks and benefits of different behaviours.

Conflicts of interest

There are no conflicts of interest.

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References continues on the next page

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