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Review Article

Risk factors that lead medical students to develop bad lifestyle habits

Fatores de risco que levam estudantes de medicina a desenvolver maus hábitos de vida

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ABSTRACT: Medical students are subjected to a stressful routine, associated with unhealthy habits such as skipping meals, restricting food intake or binge eating, and even drug addiction. These are some of the risk factors that have aggravated the appearance of non-communicable chronic diseases (NCCDs). Therefore, this study evaluated the risk factors that lead medical students to develop bad lifestyle habits that will be incorporated into their daily lives. This is an integrative review based on original studies obtained from PubMed and the Virtual Health Library. The analyzed studies corroborate the implementation of actions in medical schools capable of offering specific training in stress management, healthy nutrition, and physical activities for the prevention of NCCDs. The need to create prevention strategies is considered, which aim to reduce exposure to the main risk factors related to lifestyle that develop at the beginning of university life and can be perpetuated over the years. These university students will be the future health professionals and are more likely to understand the relationship between healthy lifestyles and NCCDs, improving their skills to act in the doctor-patient relationship, and having confidence in their ability to advise patients on positive behavioral changes.

KEY WORDS: Non-communicable chronic diseases; Healthy lifestyle; Graduation in Medicine.

RESUMO: Os estudantes de medicina são submetidos a uma rotina estressante, associada a hábitos não saudáveis como pular refeições, restringir a ingestão ou compulsão alimentar, e até o vício em entorpecentes. Esses são alguns dos fatores de risco que têm agravado o aparecimento de doenças crônicas não transmissíveis (DCNT). Portanto, este estudo avaliou os fatores de risco que levam os estudantes de medicina a desenvolverem maus hábitos de vida que serão incorporados ao dia a dia. Trata-se de uma revisão integrativa realizada a partir de estudos originais obtidos no PubMed e Biblioteca Virtual de Saúde. Os estudos analisados corroboram com a implementação de ações nas escolas médicas capazes de oferecer um treinamento específico em gerenciamento de estresse, nutrição saudável e atividades físicas para a prevenção de DCNT. Considera-se a necessidade de criar estratégias de prevenção, às quais tenham objetivo na diminuição da exposição aos principais fatores de risco relacionados ao estilo de vida que se desenvolvem no início da vida universitária e podem ser perpetuados ao longo dos anos. Esses universitários serão os futuros profissionais de saúde e estão mais propensos a compreender a relação entre os estilos de vida saudável e DCNT, aprimorando suas habilidades para atuar na relação médico-paciente, e ter confiança em sua capacidade de aconselhar pacientes sobre mudanças comportamentais positivas.

PALAVRAS-CHAVE: Doenças crônicas não transmissíveis; Estilo de vida saudável; Graduação em Medicina.

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INTRODUCTION

Chronic non-communicable diseases (CNCDs), such as hypertension, diabetes, circulatory and respiratory disorders, and neoplasms, are among the most prevalent causes of death worldwide, accounting for up to 70% of mortality observed in the global population. According to the World Health Organization (WHO), more than 40% of these deaths are premature, occurring before the age of 70, and the vast majority of them (82%) occur in developing countries[1].

Every year, the influence of certain risk factors such as smoking, alcohol consumption, sedentary lifestyle, unhealthy diet, and obesity is increasingly evident, contributing to the maintenance of the afore mentioned rate and the development of metabolic syndrome[2]. In addition to these factors, there are others that exacerbate these unhealthy habits, even indirectly, such as lack of discipline, social media use, lack of social support, anxiety, depression, among others[3].

Diseases that were once more prevalent in elderly individuals are now rising in incidence among young people due to lifestyle habits, especially in university students, who are in a critical period of life[2]. The transition to higher education involves significant changes in life, including unfavorable alterations in health-related behaviors and weight gain. Developing countries have already observed high obesity prevalence within this population and age group[4].

This scenario occurs because university students represent a population whose lifestyle and situations specific to the academic environment result in skipped meals, sleepless nights, and high stress[5]. Moreover, sitting for hours during classes, spending time using computers or electronics, and the heavy workload related to university activities negatively impact physical activity, facilitating weight gain, the onset of musculoskeletal pains, and other cardiovascular risk factors[6,7].

Among the risk behaviors for CNCDs in Brazilian university students in health courses in the Midwest region, studies found that 66.8% of participants consumed alcohol, 25.6% smoked, 44.2% did not engage in more than 150 minutes of physical activity per week, and 33.9% were overweight[8]. The consumption of processed foods by students is high, while that of fruits, vegetables, whole grains, and legumes is very low. This unhealthy dietary pattern, along with alcohol consumption, was associated with abdominal obesity, which is one of the main risk factors for the development of CNCDs[4].

Regarding lifestyle habits, the consumption of stimulant beverages, such as energy drinks to enhance performance and improve alertness and attention within the daily lives of these young students, has caused immediate adverse effects such as irritability, nervousness, anxiety, dizziness, dehydration, gastrointestinal disorders, sleep disturbances, and insomnia. Therefore, maintaining this reality affects the cardiovascular and neurological systems, thus contributing to the development of chronic non-communicable diseases[9,10].

In regard to the arguments presented, the present study evaluated the risk factors that lead students, especially those in medicine, to develop unhealthy lifestyle habits that are carried into their daily lives. One of the strengths of the present study is the fact that it works with a population-based sample composed of young adults and university students in the search for evidence on the increase in morbidity and mortality in the older ages of this population, with focus on what this issue relates to the curriculum of the medicine bachelor course.

METHODS

This is an integrative literature review, descriptive in nature, which aims to be a unique tool for scientific study as it gathers various articles on a specific subject, guiding practical conduct based on scientific foundations[11]. For its construction, the subsequent steps were followed: identification of the theme and definition of terms; selection of the research main question and data collection through literature searches using electronic databases, according to inclusion and exclusion criteria to select the sample; evaluation of the studies included in the integrative review; interpretation of the results and presentation of the results addressing the study's proposed objective.

The theme of the study was the analysis of risk factors that lead students to develop unhealthy lifestyle habits. This was referenced in different studies, which associate smoking, physical inactivity, excessive sedentary behavior, and poor sleep quality as the main factors leading to the onset and complications of non-communicable chronic diseases in young or non-young individuals[12]. This scenario clarifies how these unhealthy habits crystallize in a stressful environment, such as the medical course, and interfere with quality of life. As a consequence, academic routine can be analyzed from the perspective of students' quality of life. To achieve the aim of evaluating the risk factors that lead students, especially those in medicine, to develop unhealthy lifestyle habits that are carried into their daily lives, the guiding question of the study was created: "What are the main risk factors that lead university students to develop unhealthy habits even after knowing their harmful effects?"

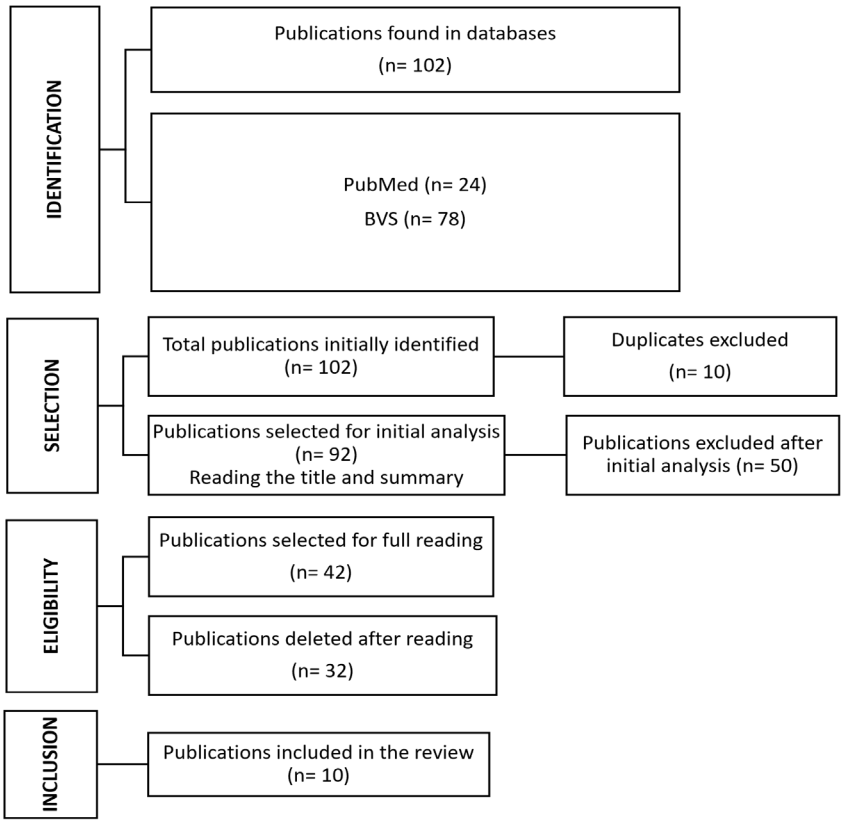
In order to answer this question, the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) were used: "Healthy Lifestyle"; "Students"; "Medicine"; "Lifestyle Medicine" with the Boolean operator (AND). The strategy used was: ("healthy lifestyle"[MeSH Terms] OR ("healthy"[All Fields] AND "lifestyle"[All Fields]) OR "healthy lifestyle"[All Fields]) AND ("student s"[All Fields] OR "students"[MeSH Terms] OR "students"[All Fields] OR "student"[All Fields] OR "students s"[All Fields]) AND ("medicin"[All Fields] OR "medicinal"[All Fields] OR "medicinally"[All Fields] OR "medicinals"[All Fields] OR "medicine"[MeSH Terms] OR "medicine"[All Fields] OR "medicine s"[All Fields] OR "medicines"[All Fields]) AND ("lifestyle med hoboken"[Journal] OR ("lifestyle"[All Fields] AND "medicine"[All Fields]) OR "lifestyle medicine"[All Fields]). The searches were conducted in the following databases: National Library of Medicine and National Institutes of Health (PubMed), Virtual Health Library (BVS) which includes the contents of the MEDLINE, LILACS, Ministry of Health of Brazil, and SUS Collects (Brazil) databases. The publication period was defined as from 2018 to 2023, in Portuguese, English, or Spanish languages. The searches were conducted between January and May 2023.

The selection of articles was initially based on the title and abstract, followed by the full reading of the pre-selected article. The inclusion criteria for the studies were: original studies conducted with medical or health students, articles available free of charge with full text; original articles and reviews that addressed the specific theme. After reading the article in full, an attempt was made to create a list of the most frequently addressed topics: Risk factors, non-communicable chronic diseases, and the lack of debate in medical schools, and a classification was made among these studies. Therefore, all selected articles were classified into one or more of the listed subjects and briefly summarized regarding methodology, objective, and results obtained.

Regarding the analysis of the studies based on extensive reading on the topic, an attempt was made to identify a possible sequence between risk factors, the onset of different chronic diseases early in these young university students, and ways to combat these habits, aiming to avoid this unhealthy routine with the support of the university and the implementation of a subject/course on "Lifestyle Medicine" in the curriculum, which aims to emphasize the relevance of the topic, considering that this area within medicine is still little explored because doctors are trained to care for others, not themselves.

Excluded during the selection of studies were monographs, dissertations, theses, case reports, comments, letters to the editor, duplicates, and topics outside the proposed objective. A total of 102 publications were obtained, of which 92 articles were excluded, and 10 articles were selected that met the demands proposed in the selection and analysis protocol of the studies. The exclusion and selection process can be observed in Figure 1.

Figure 1 - Flowchart of the stages of article selection according to the databases



Source: Autors, 2024.

RESULTS AND DISCUSSION

10 articles were selected for this study (Table 1). Those evaluated the risk factors and the propensity for the development of non-communicable chronic diseases through the solidification of unhealthy habits in the academic environment, as well as corroborating the lack and necessity of discussing this issue during undergraduate studies. There is evidence of a positive association between the attitudes and behaviors of physicians, the effectiveness of preventive health, and interventions with their patients after this contact with Lifestyle Medicine, that is, professionals develop sufficient skills to promote the well-being of their patients, as well as their own well-being[13].

Table 1 - List of the analyzed studies based on the author and main results

AUTORS	OBSERVED OUTCOME
Barros *et al*.[14]	College students are more prone to overweight/obesity due to behavioral risk factors such as inadequate diets, low levels of physical activity, income, sociocultural aspects, and screen time.
Cantisano *et al*.[15]	Long working hours coupled with unhealthy food consumption and chronic unhealthy lifestyle impair the mental and physical health of college students.
Cena *et al*.[16]	There is an association between psychological stress caused by the routine of college students and the emergence of substance addiction, adiposity, and unhealthy eating patterns, which results in low quality of life.
Greco *et al*.[17]	Medical school imposes considerable stressors that can alter habits, such as alcohol consumption, inadequate diet, low physical activity rates, leading to burnout, which means, there are negative effects.
Hoying *et al*.[18]	Undiagnosed and unaddressed depression and anxiety within health-related courses exacerbate unhealthy lifestyle habits and the onset of CNCDs in this age group.
Lee *et al*.[19]	A lifestyle change, including reduced smoking, a plant-based diet, an ideal body weight, and the addition of this conflict to the medical student's curriculum, will allow students to make healthier choices for themselves and to advise their patients.
Malatskey *et al*.[20]	Worsening in quality of life and a greater development of unhealthy habits as the medical course progresses was observed, with an increase in overweight, reduced sleep quality, and the emergence or maintenance of smoking and alcohol consumption.
Malatskey *et al*.[21]	Smoking, lack of physical activity, an unhealthy diet, and alcohol lead to metabolic and physiological changes that lead to chronic non-communicable diseases. Therefore, one should focus on reducing these risk factors as early as the beginning of college.
Pop *et al.*[22]	The relationship between low physical activity and an unhealthy lifestyle as the main triggering factors for a worsening of individual health and quality of life was observed, considering that young people who are dissatisfied with their bodies may also have worse health habits.
Miranda *et al*.[23]	Stress, the extensive workload, the difficulty of reconciling academic and personal life and coping with situations of pain and suffering, is a set that has been the main factor for the drop in the quality of life of these future professionals.

Source: Autors, 2024.

When comparing the routine of university students from other courses, even in the health area, with medical students, it is possible to perceive an aggravating factor in the risk factors that lead to bad habits and, consequently, to the early emergence of CNCDs in this population. This is because there is a historical tradition of the profession, a constant climate of competitiveness and stress, as a result of the high workload, difficulty in reconciling academic and personal life, and exposure to situations of suffering that underlie this [17, 23, 24].

Students, even before entering university life, already experience realities that lead to a deprivation of leisure activities and a decrease in quality of life, considering that the selection systems for medical graduation in Brazil are very competitive and require good intellectual preparation from their participants [25]. This situation has aggravated the emotional and physical instability of these students, who start to change their habits in order to ensure greater efficiency and achieve the objectives expected by the curriculum, even if this reflects a weakness in their health and a reduction in their learning [26].

Poor diet and poor sleep quality due to excessive use of screens have led to an increase in physical and psychological disorders in medical students, despite receiving information about nutrition and adequate lifestyle habits during their undergraduate studies [10]. This poor diet is reflected in the consumption of processed foods by reducing the need for time that would be spent on preparation, and this unhealthy process that students have faced to achieve the desired diploma favors weight-related psychological diseases, such as anorexia [10,16].

Thus, it is essential to analyze the interference of the psychological domain in the quality of life of medical students due to the increased prevalence of anxiety disorders and depression in this sample. It is observed that both depression and anxiety without diagnosis and intervention aggravate poor lifestyle habits and, consequently, favor the institution of chronic non-communicable diseases in this age group[18,27].

Regarding sleep, students are known to have a poor quality of rest, sleeping less than necessary to recover, and suffering from excessive sleepiness during the day. A cross-sectional study showed that the high level of dedication and selflessness required by medical school leads to harmful changes in lifestyle, such as sleep deprivation and poor hygiene habits, which compromise the quality of rest [10]. Although medical students are aware of the harms of these bad habits, they maintain them due to the need to absorb the enormous amount of content taught on a daily basis.

In this perspective, it can be seen that poor sleep quality is one of the main causes of headache in students, in addition to the fact that sleep disorders, diet disorders and inadequate physical activity are related to overweight, which favors the onset of hypertension, diabetes, respiratory diseases, psychological diseases and leads to the onset of cancer[19, 28]. Studies report that irregular sleep is a contributor to increased levels of C-reactive protein (CRP), which is an important inflammatory agent that is a marker of cardiovascular diseases (CVD) and the close link between short sleep duration and increased incidence of dyslipidemias, car accidents, coronary artery diseases and psychological diseases[10, 27, 29].

Regarding overweight/obesity problems, which are a multifactorial disorder associated with behavioral and hereditary factors, it is known that it is an important factor for the development of CVD, an aggravating factor for graduate

students who, with their stressful routine, are unable to maintain a healthy lifestyle[14, 30]. Additionally, they are precursors of other metabolic diseases, which are associated with CNCDs This situation originates from a high prevalence rate of sedentary lifestyle and an increase in body mass index, due to the course workload altering the flow of physical activities, which implies these health conditions[20, 30]

Therefore, after evaluating the primary prevention guidelines for CVD, lifestyle changes should be encouraged, based mainly on smoking cessation, reduction of saturated fats and sedentary lifestyle[31]. This incentive to change lifestyle is already considered the main factor for prevention and health promotion by the WHO, considering that 60% of the factors related to individual health and quality of life are correlated with lifestyle, and as changes are easier to occur at a young age, Universities should encourage and support the students[22].

Among licit and illicit drugs, tobacco and alcohol are the most consumed in the university environment and this deserves special attention, since these narcotics are consumed and analyzed as escape valves for a stressful routine, by relieving negative emotional states[17, 27]. Although students are aware of the harmful effects, such as metabolic and physiological changes that lead to hypertension, hyperglycemia and cholesterol, the consumption of these drugs is observed on a daily basis[21, 24, 32]. In order to reduce this, these drugs must be resignified, so that they cease to be an escape for students. This will happen from the moment that the faculty and the institution increase psychological support with service centers, as is already the case at the Universidade Evangélica de Goiás – UniEVANGÉLICA, in which there is a center for psychopedagogical support and teaching experience (NAPED) with the presence of psychologists, speech therapists and psychiatrists available weekly.

Some studies have observed that students who experienced support in the curriculum, such as lifestyle medicine, had more ownership and confidence in the management of their patients. There is a perception of the relevance of studies that analyze the limitations present in medical universities, both private and public. Suggestions for actions aimed at the well-being of students, as well as strategies to prevent stress in this group, such as the availability of psychosocial care professionals and, in some cases, the adoption of an ePSICONUT application (a psychological nutrition program fully supported by *eHealth* tools), are beneficial attitudes since a significant improvement in the students' lifestyle has been evidenced[15].

This is imperative for the involvement of future physicians, an essential component of any multisectoral response, to prevent and manage CNCDs in their patients. Therefore, if these students are well trained and confident in living a healthy lifestyle, they will be successful in passing on this information to their patients and increasing adherence[13, 15, 17, 23]. As a way of evaluating implementation, the institution can monitor the rates of risk factors, which helps in the implementation of actions that promote health in the university environment, considering that different studies portray the need for physicians to maintain healthy behaviors in order to better provide guidance[20, 33, 34]. Even so, new studies should be conducted with scientific methodological rigor to verify the rates of medical students, especially all students in the health area, since it is evident that these students neglect their own lifestyle habits and present a series of behaviors considered at risk for the development of CNCDs[35].

CONCLUSION

The analyzed studies indicate that it is essential to address this problem in the curriculum of the medical course, considering that, although it is an area of study focused on health, the academic environment is marked by a hostile and highly competitive atmosphere. Nevertheless, it is crucial to recognize that, before being academics, these individuals are human beings and need to preserve their own health in order to avoid the early onset of diseases that could be prevented. Unfortunately, the adoption of bad habits resulting from risk factors, such as smoking, drug use, sleep deprivation and inadequate diet, leads to the development of pathological conditions. Nonetheless, it is important to note that, upon becoming physicians, these individuals assume the responsibility of advising their patients on the prevention of these chronic non-communicable diseases, through the adoption of healthy lifestyle behaviors. This orientation plays a key role in promoting personal satisfaction and maintaining physical and mental well-being throughout adulthood.

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