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PRACA POGLĄDOWA
REVIEW

Interventions aimed at improving the eating habits of medical students

Interwencje ukierunkowane na poprawę nawyków żywieniowych studentów medycyny

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ABSTRACT

Eating habits refer to the amount, type, and composition of the food that is consumed. They are shaped on many levels, by cultural, demographic, and social aspects. Education and profession also contribute to the formation of specific eating habits. Numerous studies have shown that healthcare workers have better knowledge of nutrition than the population at large. Given this context, medical graduates, including doctors, who will work to promote health in their future careers, should strive to develop and encourage healthy eating behavior among their peers, particularly students. The aim of this paper is to gather and analyze the available literature on eating habits and their potential effects on the health of medical students, as well as to document interventions to change eating behavior.

KEYWORDS

eating habits, medical students, dietary change, educational interventions

STRESZCZENIE

Termin „nawyki żywieniowe” odnosi się do ilości, rodzaju oraz składu spożywanych pokarmów. Kształtują się one na wielu płaszczyznach, w sferze kulturowej, demograficznej, a także społecznej. Wykształcenie oraz wykonywany zawód również przyczyniają się do kształtowania określonych nawyków żywieniowych. Liczne badania wykazały, iż pracownicy opieki zdrowotnej mają większą wiedzę na temat żywienia niż reszta społeczeństwa. W tym kontekście absolwenci kierunków medycznych, w tym lekarze, którzy w przyszłości będą wspomagać działania promujące zdrowie, powinni rozwijać i promować prawidłowe zachowania żywieniowe wśród swoich rówieśników, a zwłaszcza studentów. Celem pracy jest zebranie i analiza dostępnej literatury przedmiotu na temat nawyków żywieniowych i ich potencjalnego wpływu na zdrowie studentów medycyny, a także udokumentowanie stosowanych interwencji, mających na celu zmianę zachowań żywieniowych.

SŁOWA KLUCZOWE

nawyki żywieniowe, studenci medycyny, zmiana sposobu żywienia, interwencje edukacyjne

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Introduction

Eating habits refer mainly to the amount, type, and composition of food consumed. They are considered to be non-specific, repetitive behaviors that serve the need to provide nutrients and achieve social and emotional goals [1]. Our habits are shaped by cultural, demographic, and social factors [2]. Education and profession may also contribute to specific eating habits, as in the case of medical doctors and dietitians [3]. Some studies have shown that healthcare workers (doctors and dietitians) have better nutrition knowledge than the general public. Taking this fact into account, graduates of medical studies – including medical doctors – who will promote health in their future work, should engage in proper eating behavior themselves, especially because the medical profession enjoys a high level of trust regarding lifestyle advice, including a healthy diet [4].

The review of the literature on the subject also indicates regional differences in dietary habits depending on gender and ethnicity, which in turn impact the incidence of obesity or overweight in the given populations. Studies of the American population have shown, among other things, that men, blacks, and Latinos have a higher risk of being overweight and obese than whites. The lowest risk of overweight and obesity was observed in Asians [5].

It has also been shown that medical students rarely begin their studies with good dietary habits [6]. Therefore, it is essential to take corrective action to improve this. There are many well-known and documented nutritional interventions for medical students, for example, adding content that deals with nutrition to the curricula for clinical and preclinical subjects [7]. Research is essential to evaluate the dietary habits of medical students and to explore ways to improve these habits through education and other activities. This highlights the importance of preventing potential complications arising from poor nutrition [8].

The well-known report on public health by the Canadian Minister of Health, Marc Lalonde (1974), pointed out how crucial "lifestyle" is for the population's health [9]. He proposed that promoting a healthy lifestyle can improve the population's health, reducing the demand for medical care. The concept of New Public Health involves comprehensive scientific procedures aimed at maintaining and improving the population's health by shaping healthy lifestyle habits, including proper nutrition. The medical community, including medical doctors, nurses, and dietitians, actively participates in these tasks [10].

The paper collects and analyzes the available published data on eating habits and their potential impact on the health of medical students, and it documents the interventions used to change eating behavior.

Methods

The literature review used publications in Polish and English from the PubMed database and the search engine Google Scholar. The following keywords were used: "eating behaviors," "medical students," "educational interventions," "dietary habits," "dietary changes," "eating habits influences," "health professionals," and their various combinations. Most of the studies included in this review were in English, and only a few Polish-language articles on eating habits or nutritional interventions among medical students were identified. It should be noted that this is not a systematic literature review, and that only publications from 1990 to 2024 were included in the analysis. It presents a review of 22 full-text papers and 16 abstracts.

Diet and health

Proper nutrition is crucial for human health, alongside regular physical activity. It has been proven that improper nutrition can lead to the development of many diseases, including obesity, lipid and carbohydrate metabolism disorders, rickets, atherosclerosis, diabetes, and tooth decay [11]. Programs that promote healthy lifestyles emphasize the principles of proper nutrition, which provide the necessary nutrients for optimal functioning. A review of the available published data highlights the effectiveness of different diets and beliefs surrounding healthy nutrition. One common belief is that individuals should consume five balanced meals each day, aligned with the recommendations of the current food pyramid [12]. According to experts, a balanced diet is essential for optimal health, growth, and development, so medical doctors are expected to help promote proper nutritional behavior. For decades, the dominant dietary pattern has been a balanced, mixed diet, including plant and animal foods, but this is now widely debated [13].

New dietary patterns are evolving rapidly [14], so correct nutritional advice from physicians can be more challenging to provide in the face of numerous media discussions and aggressive advertising. These circumstances directly affect nutritional knowledge, preferences, purchasing behavior, consumption patterns, and diet-related health [15]. For example, nutraceuticals, defined as foods or food substances that provide medical or health benefits, have a global market and are promoted through various channels in which advertisers refer to the results of clinical trials [16]. Proper nutrition includes proper eating habits, appropriate composition of meals that provide all the

body's energy requirements, and all basic and essential nutrients needed for optimal development and health [17]. The most critical issues are considered to be the need to increase the fiber content and reduce fat intake in one's daily diet, a fluid intake that is appropriate for one's age, health condition, and physical activity, and limited consumption of alcoholic beverages, which according to the International Agency for Research on Cancer (IARC) are considered a human carcinogen [18]. The relationship between alcohol abuse and the presence of depression or suicidal thoughts in medical students and young doctors has been well documented [19], which is why one of the essential recommendations for this group is to stop drinking alcohol frequently and regularly [20].

In a study conducted by Sanne and Bjørke-Monsen [21], most Norwegian medical students declared consuming various food products daily, but at the same time had a healthy negative attitude to meat, preferring fish to meat. It is worth adding that more than half of the respondents never ate lean fish, but usually fatty fish. Among the students who eliminated meat from their daily meals, women were more prevalent than men, and they were more interested in modifying their diet. The most commonly used supplement was cod liver oil or omega-3 fatty acids. In turn, a British study showed that most students believed that white meat was healthier than red meat, which increased the consumption of white meat in everyday diets [22]. It is worth adding that in recent years, in many countries around the world, we have observed excessive consumption of meat, especially red and processed meat, which has a noticeable impact on the health of the population and is also harmful to the environment [23]. In a questionnaire study conducted on a group of 250 medical students and 148 resident physicians employed in primary health care, an electronic, shortened version of the REAP-S questionnaire was used to assess nutritional status. The questionnaire consisted of 13 questions and the answers were rated on a scale of 1 to 3. The results suggest that the respondents maintained a proper diet. In summary, the authors stated that early detection of nutritional irregularities and nutrition improvement are crucial in preventing potential adverse health effects in future primary healthcare employees [24].

The impact of nutritional interventions on health

As mentioned above, there is a consensus that an unhealthy diet is a significant factor in the global burden of disease, and the obesity epidemic remains a major public health problem in many regions of the world [25]. The public's continuing interest in the issue of healthy nutrition, along with the intensive advertising of food products and dietary supplements, makes it necessary to involve medical personnel (including physicians) more in communicating reliable knowledge about healthy nutrition. Without appropriate tools to facilitate the transfer of current evidence-based knowledge, it is impossible to have an informed discussion with patients who need help changing their eating habits. Most patients still treat physicians' recommendations regarding a healthy lifestyle with respect, strengthening their real impact on improving or maintaining patients' health [26].

Despite comprehensive medical school curricula that address the significance of diet for human health, there is no material that empowers potential patients to modify their eating habits [27]. In a study by Berz et al. [28], the impact of interactive monthly meetings on improving dietary patterns for weight loss and hypertension was assessed among senior medical students (90–120 minutes of educational sessions). The eight-month study involved 66 students, of whom only 42 (63.6%) completed a questionnaire summarizing the class. According to them, the interactive sessions were beneficial. The content provided during the classes significantly improved the participants' knowledge and improved their confidence in their competencies. The study's authors also emphasized the importance of repeating the content multiple times to consolidate knowledge and develop counseling skills during medical studies. Similar conclusions were reached by Christensen et al. [29], who tried to assess the impact of knowledge about nutritional therapies among medical students. Including elements of nutrition education in an optional mode turned out to be an effective, efficient method of teaching medicine. In addition, students' attitudes and trust in nutritional counseling, among other things, improved significantly because they were involved in discussions and practical exercises. Therefore, evaluating the effectiveness of nutritional education interventions is essential for their widespread implementation [30].

Patel and Kassam [31] reviewed the literature published between 2015 and 2020 on nutritional education interventions for medical students. Fifteen interventions met the criteria for inclusion in the review, twelve of which were from the USA. The interventions consisted of several methods, such as cooking sessions, lectures, and classes led by dietitians. The publication highlighted the benefits of interprofessional communication, emphasizing individual students' health behavior. The results of a German study are interesting, showing that the main barriers to healthy eating among students are a lack of time due to studying, a lack of nutritious meals in the university canteen, and high prices of nutritious food [32]. Furthermore, the authors demonstrated that these issues primarily affect first-year students, and they emphasized the need for qualitative research to

understand why university students alter their eating behavior during their studies. Similarly, the results of a study on medical students in Australia indicate the need for interventions in people who reported the worst eating habits, including younger students and men [33]. Research on the eating habits of students in Great Britain highlighted the need for universities to encourage students to cook their own food, as well as to improve the availability of affordable, healthier food options [34]. In the above-cited Norwegian study, the authors indicated the need to modify the curricula in medical universities so as to enable future doctors to use reliable knowledge about nutrition consciously (eliminating the influence of social media or food industry marketing) [21]. The results of a cross-sectional study on medical students in Riyadh indicate a need for intervention to mitigate the effects of negative emotions, such as stress, aggression, and boredom, on students' overeating [35]. It was shown that students eat irregularly and consume too much fast food. The authors suggest initiating health promotion programs as early as possible. As mentioned above, there are a few works by Polish authors on nutritional interventions in medical students. Experts suggest that we need more effective programs and methods for improving nutritional education and raising motivation to change health--related behavior in students of Health Sciences, especially in overweight or obese individuals, or those with lower activity levels [36]. This becomes particularly important during exam sessions, when a significant deterioration in daily eating habits was observed [37]. The authors of that work confirmed that the body composition and metabolic rates of medical students in Wrocław changed, deteriorating their health status. Another study revealed that medical students and doctors scored the highest values on the Non-Healthy Diet Index among health professions [38]. In the discussion, the authors stated that physicians recalled having limited or inadequate nutrition education in medical school. The experts concluded that high-quality continuing nutrition education should be provided to all healthcare providers, including medical students and doctors.

Conclusions

The review of existing publications reveals regional differences in the nutritional habits of medical students, highlighting the need for tailored intervention programs to improve these behaviors. Despite these differences, there is a consensus on the individual, socioeconomic, and environmental factors that influence these habits. Key factors include students' place of residence, their year of study, the stress they experience during exam periods, and their participation in student organizations. Among the recommended nutritional interventions, the most successful approaches involve actively engaging students in the practical preparation of meals and menus and encouraging university authorities to enhance the nutritional offerings in student cafeterias.

Authors' contribution

Study design – M. Kowalska
Data collection – A. Jarosińska
Manuscript preparation – A. Jarosińska, M. Kowalska
Literature research – A. Jarosińska
Final approval of the version to be published – M. Kowalska

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