Nutrition And Mental Health: A Review of Current Knowledge About the Impact of Diet on Mental Health

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Abstract

Applied psychopharmacotherapy and psychotherapy do not always bring the expected results in the treatment of mental disorders. As a result, other interventions are receiving increasing attention. In recent years, there has been a surge in research on the effects of nutrition on mental status, which may be an important aspect of the prevention of many mental disorders and, at the same time, may lead to a reduction in the proportion of people with mental disorders. This review aims to answer whether and to what extent lifestyle and related nutrition affect mental health and whether there is scientific evidence supporting a link between diet and mental health. A review of the scientific evidence was conducted based on the available literature by typing in phrases related to nutrition and mental health using the methodological tool of the PubMed database. The literature search yielded 3,473 records, from which 356 sources directly related to the topic of the study were selected, and then those with the highest scientific value were selected according to bibliometric impact factors. In the context of current changes, urbanization, globalization, including the food industry, and changes in people's lifestyles and eating habits, the correlations between these phenomena and their impact on mental state become important. Knowledge of these correlations creates potential opportunities to implement new effective dietary, pharmacological, therapeutic, and above all preventive interventions. The highest therapeutic potential is seen in the rational diet, physical activity, use of psychobiotics, and consumption of antioxidants. Research also shows that there are nutritional interventions that have psychoprotective potential.

Keywords: Nutrition, Mental health, Diet, Psychology of food, Eating Behaviour.

Introduction

Inherent in urbanization and the accompanying technological and cultural development, the rush of life, the pursuit of self-actualization, and the resulting overstimulation and lack of time, affect the change in eating habits and the consumption of high-calorie and processed foods. We can consider them as factors influencing the development of civilization diseases, important from the point of view of public health. Among them, we cannot forget about depressive and anxiety disorders that are becoming a global epidemic. The number of people requiring assistance from a mental health professional is steadily increasing in Poland and worldwide. According to the International Health Metrics Evaluation (IHME), at the end of 2017, 13% of the world population suffered from mental disorders. The Wittchen et al. study shows that mental disorders affect 38% of the European population. By the end of 2019, about 1.6 million people in Poland had received psychiatric treatment. The situation was not improved by the COVID-19 pandemic and related sanitary restrictions, which led to the isolation of many people, with feelings of insecurity, sadness, anxiety, and misinformation. All this has made psychological and psychiatric help the most sought-after form of health support today. There are only about 4,300 practicing psychiatrists in Poland. Even fewer, only 455, are practicing child psychiatry specialists. Statistics are believed to be better in the psychological and psychotherapeutic support sector, although public opinion is still divided about this form of support. Moreover, registers of psychologists and psychotherapists are not common. The described phenomena lead to a transformation of the psychiatric care model and mental health support. The number of people receiving psychiatric treatment is expected to increase over the next decades. The applied psychopharmacotherapy and psychotherapy do not always bring the expected treatment result. As a result, other interventions are receiving increasing attention. In recent years, there has been a dramatic increase in research on the effects of nutrition on mental status, which may be an important aspect of the prevention of many mental disorders, and at the same time may lead to a reduction in the proportion of people with mental disorders.

Thus, this review aims to answer the question of whether and to what extent lifestyle and related nutrition affect mental health and whether there is scientific evidence supporting the diet and mental health relationship.

The question posed in the objective can be divided into specific questions according to which this review was divided.

- Q1:Are there correlations between nutrition and mental health?
- Q2:Are there psychoprotective food ingredients?
- Q3:Are there nutritional interventions with proven preventive potential for mental disorders ?

Methodology background

The main aspect that guided the review works conducted was to look for nutritional recommendations in the cited works regarding nutrition as psychoprophylaxis and dietary management of psychiatric disorders. Unfortunately, the current state of knowledge on this topic, despite many studies, is still poor, so the authors decided to conduct a broad review of the most current knowledge in this area to identify those sources that address the described topic and gather in one place the available knowledge.

Review procedure

The review was conducted following good practices associated with conducting similar reviews. Literature items were searched by a team of researchers (authors) along with a library staff member trained in literature searching and EBM (evidence-based medicine) and HTA (health technology assessment). A preliminary search for items consistent with the topic and purpose of the review was conducted to identify the research field. After reviewing existing data, a keyword package was selected that seemed most relevant and consistent with the review topic.

Eligibility Criteria

The primary eligibility criteria were the language of publication, years of research or review, publication status, and whether the authors were specialists in their field (or had other publications in a similar field). Regarding language, English-language articles were selected because this language seems to be universal in the scientific community. In addition, articles that were published after 2005 were included to make sure that the topic addressed was not a completely new field of research, but also to avoid very old data, because as is known from common practice, dietetics, as well as mental health expertise, are two of the most rapidly developing scientific fields. Additionally, articles were selected that were available in full-text on an open-access basis and had impact factor values.

Search Strategy

A review of the scientific evidence was conducted based on the available literature by entering sample phrases (consistent with the MeSh dictionary) with Boole operators, logical operators (and, or, not), and special characters,: “psychodietetics,” “nutripsychiatry,” “diet,” “mental health,” “lifestyle,” “body weight,” “obesity,” “depression,” “mental disorders” (and various combinations thereof) using the methodological tool of the PubMed database. The PubMed database in this regard seems most appropriate because it is a methodological tool that allows searching for articles available in multiple scientific databases (such as Medline or Embase). Its use provides the opportunity to meet all expectations from the review (transparency, clarity, comprehensiveness, focus, uniformity, accessibility, coverage of the entire topic).

Sources selection

The literature search yielded 3,473 records, from which 356 sources directly related to the topic of the study were selected, and then those with the highest scientific value were selected according to eligibility criteria.

The accuracy, objectivity, validity, and relevance of the evidence were tested using questions consistent with the GRADE scale: Is the information reliable? Is the information free of mistakes? Has the information been properly substantiated? Is it possible to verify the information against other reliable sources? Who are the authors? Are they qualified to present

information on the topic? Are they affiliated with reputable institutions working on the issue? Is the data source peer-reviewed? For what purpose was the information? Is the information an evidenced-based fact or constitutes an opinion? Is the information subject to risk? Can this risk be estimated? When was the information published? Is the information current or outdated? Is the timeliness relevant to the issue at hand? Does the information cover the entire issue? Does the information contain background data or does it explore the issue in depth? The final literature review was based on 110 sources, representing mainly scientific output after 2005 and important multicenter studies performed after 2015. The data obtained from the review are presented in descriptive and tabular form. In addition, 11 additional sources were used in preparing the background of the research problem and the theoretical introduction.

Critical appraisal

In critically evaluating the sources, attention was paid to whether the articles appeared in peer-reviewed journals (by at least two reviewers) and whether they had an impact factor. As described above, 110 sources were eligible for final review. A limitation of the method adopted was primarily the exclusion of sources written in a language other than English. In addition, IF has many well-documented drawbacks as a research assessment tool and therefore is not the best way to evaluate the quality of individual research articles. Nevertheless, it was chosen because it is a synthetic indicator of a source's impact on the field of science, and a journal that has it can more likely claim to be publishing credible scientific evidence. The review did not include so-called "grey literature", i.e., literature that has not gone through the review process or that is internal to the university (theses, conference reports, government leaflets, newsletters, etc.). Despite their multiple values, these sources are characterized by a high risk of containing outdated knowledge.

Strengths and Limitations

There is still little work in the scientific space that summarizes the major findings related to the impact of nutrition on mental health, especially, as this review does, highlighting the importance of nutrition in psychoprevention and pointing to the psychoprotective effects of nutrients. The primary limitation of the presented review of research on the relationship between diet and mental health is the plethora of studies on the topic. The plethora of studies here does not mean that they all address the issue presented in this manuscript. Much of the work that was searched and queried assumes a relationship between nutrition and the psyche, but these tend to be very superficial opinions that are not scientifically grounded. The authors are aware that in the face of such a large body of research, important reports may have been overlooked, but it should be noted that every effort was made to ensure that this review was conducted fairly, taking into account large, multi-center research projects and highlighting the major research streams in psychodietetics and nutripsychiatry.

Additionally, it was observed that in the current state of scientific knowledge, few large meta-analyses are treating the effects of food and diet on mental health. Therefore, it is difficult to discuss the effectiveness of introducing nutritional interventions among people with mental disorders or treating nutrition as the only means of prevention. Furthermore, the primary threat to interventions of this type is the difficulty in monitoring dietary patterns or intake of specific components. In addition, their absorption and metabolism are also dependent on many factors that rarely have a consistent course. Therefore, it is postulated that further research should be directed toward the creation of unambiguous dietary recommendations for mental health problems.

Conclusion

In recent decades, the relationship between nutrition and patients' mental status has been underappreciated, as evidenced by the lack of research conducted before the 21st century in this area of knowledge – cited in this review. In recent years, this trend has been reversed, with research in psychodietetics and nutripsychiatry gaining popularity. In the context of current changes, urbanization, globalization, including the food industry, and changes in people's lifestyles and eating habits, correlations between these phenomena and their impact on

psychological status are becoming important. Exploring these correlations creates potential opportunities to implement new effective dietary, pharmacological, therapeutic, and above all preventive interventions.

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