

TRUCHTA, Monika, MAŃKOWSKA, Aleksandra, JABŁOŃSKA, Wiktoria, WARDEŚZKIEWCZ, Marta, KASPRZAK, Amelia, MARKOWIAK, Szymon, ŚWIERCZ, Maciej, KOLANO, Agata and PEJAS, Anna. Anxiety disorders pharmacological and non-pharmacological methods of therapy. *Journal of Education, Health and Sport*. 2023;50(1):11-22. eISSN 2391-8306.
<https://dx.doi.org/10.12775/JEHS.2023.50.01.001>
<https://apcz.umk.pl/JEHS/article/view/47550>
<https://zenodo.org/records/10441618>

The journal has had 40 points in Ministry of Education and Science of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of 03.11.2023 No. 32318. Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Health Sciences (Field of medical and health sciences); Medical sciences (Field of medical and health sciences); Cultural and religious studies (Field of humanities); Physical culture sciences (Field of medical and health sciences); Socio-economic geography and spatial management (Field of social sciences); Pedagogy (Field of social sciences); Earth and Environmental Sciences (Field of exact and natural sciences).

Punkty Ministerialne z 2019 - aktualny rok 40 punktów. Załącznik do komunikatu Ministra Edukacji i Nauki z dnia 03.11.2023 Lp. 32318. Posiada Unikatowy Identyfikator Czasopisma: 201159. Przypisane dyscypliny naukowe: Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki medyczne (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o kulturze i religii (Dziedzina nauk humanistycznych); Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Geografia społeczno-ekonomiczna i gospodarka przestrzenna (Dziedzina nauk społecznych); Pedagogika (Dziedzina nauk społecznych); Nauki o Ziemi i środowisku (Dziedzina nauk ścisłych i przyrodniczych).

© The Authors 2023;

This article is published with open access at Licensee Open Journal Systems of Nicolaus Copernicus University in Torun, Poland

Open Access. This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author (s) and source are credited. This is an open access article licensed under the terms of the Creative Commons Attribution Non commercial license Share alike. (<http://creativecommons.org/licenses/by-nc-sa/4.0/>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited.

The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 18.12.2023. Revised: 26.12.2023. Accepted: 27.12.2023. Published: 30.12.2023.

Anxiety disorders pharmacological and non-pharmacological methods of therapy

Monika Truchta

Central Teaching Hospital of the Medical University of Lodz located at ul. Pomorska 251, 92-213 Lodz

ORCID 0009-0000-8177-9164

<https://orcid.org/0009-0000-8177-9164>

E-mail: monikatruchta@gmail.com

Aleksandra Mańkowska

Central Teaching Hospital of the Medical University of Lodz located at ul. Pomorska 251, 92-213 Lodz

ORCID 0009-0009-3926-4920

<https://orcid.org/0009-0009-3926-4920>

E-mail: mankowskaa96@gmail.com

Wiktoria Jabłońska

Military Medical Academy Memorial Teaching Hospital of the Medical University of Lodz – Central Veteran Hospital located at 113 Żeromskiego St., 90-549 Lodz

ORCID 0009-0006-2659-5649

<https://orcid.org/0009-0006-2659-5649>

E-mail: wijablonska@gmail.com

Marta Wardęszkiewicz

Military Medical Academy Memorial Teaching Hospital of the Medical University of Lodz –
Central Veteran Hospital located at 113 Żeromskiego St., 90-549 Lodz

ORCID 0009-0001-6415-5963

<https://orcid.org/0009-0001-6415-5963>

E-mail: marta.wardeszkiwicz@gmail.com

Amelia Kasprzak

Military Medical Academy Memorial Teaching Hospital of the Medical University of Lodz –
Central Veteran Hospital located at 113 Żeromskiego St., 90-549 Lodz

ORCID 0009-0008-2123-1314

<https://orcid.org/0009-0008-2123-1314>

E-mail: amelia.k.kasprzak@gmail.com

Szymon Markowiak

Norbert Barlicki Memorial Teaching Hospital No. 1 of the Medical University of Lodz
located at 22 Kopcińskiego St., 90-153 Lodz

ORCID 0009-0006-7677-6739

<https://orcid.org/0009-0006-7677-6739>

E-mail: markowiakszymon@gmail.com

Maciej Świercz

Karol Jonscher Municipal Medical Center located at 14 Milionowa St., 93-113 Lodz

ORCID 0009-0008-6676-6988

<https://orcid.org/0009-0008-6676-6988>

E-mail: maciej.swiercz7@gmail.com

Agata Kolano

Military Medical Academy Memorial Teaching Hospital of the Medical University of Lodz –
Central Veteran Hospital located at 113 Żeromskiego St., 90-549 Lodz

ORCID 0009-0003-6418-2130

<https://orcid.org/0009-0003-6418-2130>

E-mail: agathe.kolano@gmail.com

Anna Pejas

Independent Public Healthcare Center in Mława located at 1 A. Dobrskiej St., 06-500 Mława.

ORCID 0009-0008-1469-4994

<https://orcid.org/0009-0008-1469-4994>

E-mail: annapejas@gmail.com

ABSTRAKT

Introduction and purpose: Anxiety disorders are a heterogeneous cluster of common mental health disorders typically characterized by hyperarousal, excessive fear and worry. Unfortunately, a large portion of the world's population does not have access to traditional mental health care, this is influenced by the paucity of available psychiatric services, particularly in many low- and middle-income countries. This article will discuss how patients suffering from depression or anxiety disorders turn to non-pharmacological and unconventional interventions such as exercise, yoga, meditation, aromatherapy or music therapy.

The aim of study: The purpose of this literature review was to assemble and analyse the available data about anxiety disorders.

Material and method: Standard criteria were used to review the literature data. The search of articles in Pubmed database was carried out using following keywords: Anxiety disorders; depression; mental illness; alternative treatment methods.

Description of the State of Knowledge: Pathologically increased anxiety is found not only in anxiety disorders per se, but also in most other types of mental illness. The first-line methods are pharmacotherapy and cognitive-behavioral therapy. Of particular interest is the use of physical activity and exercise in the treatment of anxiety disorders. This treatment is inexpensive and has few undesired effects. Exercises such as yoga, meditation, tai chi or qi gong are becoming more and more popular.

Summary: Anxiety disorders can now be treated effectively. Current research focuses on individualized forms. We hope that even more effective methods of therapy will be developed than those currently available.

Keywords: Anxiety disorders; depression; mental illness; alternative treatment methods.

INTRODUCTION

Anxiety disorders are a heterogeneous cluster of common mental health disorders typically characterized by hyperarousal, excessive fear and worry [1]. The most common type of mental illness in Europe is anxiety disorders, with a 12-month prevalence of 14% among people aged 14 to 65 [2]. These widespread disorders have a debilitating impact on people's daily functioning, quality of life and wellbeing [3]. Especially since their beginning is usually in adolescence or early adulthood. Patients affected by this disease often develop somatic disorders and further mental illnesses. Panic disorders are highly comorbid with other mental disorders, including depression and substance use disorders. Unfortunately a big part of the global population do not have access to traditional mental health care, due to the scarcity of psychiatric services available, particularly in many low- and middle-income countries [4]. Which is why any people with depression or anxiety turn to nonpharmacologic and nonconventional interventions, including exercise, yoga, meditation, tai chi or qi gong [5].

DEFINITION

The survival of an individual would be impossible if it were not for Fear, which is a normal and necessary basic human emotion. Pathologically increased anxiety is found not only in anxiety disorders per se, but also in most other types of mental illness [2]. In the case of each patient presenting with pathologically increased anxiety, a thorough psychiatric and somatic assessment is necessary to exclude a somatic basis, for example a cardiovascular, neurological, pulmonary or endocrine disease. If a somatic basis is detected, this naturally requires a completely different therapeutic approach. However, anxiety is considered a disease requiring treatment when it arises in the absence of any threat, or in disproportionate relation to a threat, and keeps the affected individual from leading a normal life [2]. In the classification of anxiety disorders, we distinguish: the phobic disorders, including agoraphobia with or without panic disorder, social phobia, and the specific phobias, as well as other anxiety disorders, including panic disorder, generalized anxiety disorder, and mixed anxiety and depression.

This disease entity has symptoms such as: excessive anxiety and worry about various events have occurred more days than not for at least 6 months. The patient has trouble controlling worries. Difficulty concentrating, irritability, muscle tension [6]. Additionally, the majority of individuals with anxiety disorders report poor sleep. Those with a diagnosis of generalized anxiety disorder (GAD) compared on other anxiety disorders, are 140% more likely to also have sleep disturbance [7].

EPIDEMIOLOGY

Large Global Mental Health Surveys conducted in 27 countries found that the incidence of anxiety disorders was highest in high-income countries. Importantly, anxiety disorders are 1.3–2.4 times more prevalent in women than in men, which is accentuated during development and evident after adolescence. Anxiety disorders are also more common in people with unmarried status, low education, low income and those who are unemployed [8]. Another reported risk factor for mental illness is poor sleep. However, it may be a cause or a consequence of the disease [4]. The literature also describes an individual factor -anxiety sensitivity (AS) is a differential factor that has been associated with suicidal thoughts and behaviors [9]. Many studies have shown that an increased level of AS is associated with the appearance of suicidal thoughts or an increase in their intensity. Unfortunately the risk of suicide also increases [10].

TREATMENT

The first-line methods are, of course, pharmacotherapy and cognitive-behavioral therapy. The first choice in the treatment of a patient with anxiety disorders and depression should be a drug used for both individual diseases, such as a selective serotonin reuptake inhibitor [11], [12]. It is best to add cognitive-behavioral therapy to pharmacotherapy, it allows for a better understanding of how the human mind works, resulting from neuroscience and experimental and scientific psychology. This therapy includes the development of functional analysis, providing information through psychoeducation, experimenting with new behaviors and emotions (exposure, relaxation), and a cognitive approach. In addition, it is an effective treatment for GAD, usually leading to reduced worry and the study showed that such therapy is equal to pharmaceutical treatment and more effective 6 months after the end of the study [13]. Anxiety treatment also includes other psychological therapies such as interpersonal

therapy, behavioral activation, and mindfulness-based cognitive therapy. However, at least they are well tolerated, may not be available or too expensive, and are usually time-consuming. Further strategies include non-invasive stimulation techniques such as repetitive transcranial magnetic stimulation (rTMS) or transcranial direct current stimulation (tDCS). These, in turn, are not accepted by some patients [14], [15]. Therefore, people are increasingly turning to alternative treatment methods. Of particular interest is the use of physical activity and exercise in the treatment of anxiety disorders. This treatment is inexpensive and has few undesired effects [16], [17]. Exercises such as yoga, meditation, tai chi or qi gong are becoming more and more popular [18], [5]. The past few decades have also seen an increase in the use of natural remedies to treat a variety of conditions, including depression and anxiety. These products are perceived as safer alternatives to pharmacotherapy, with lower risk of adverse effects or withdrawal [19]. The most frequently researched methods include herbs, but also the influence of aromatherapy and art [20], [21]. In turn, among the most frequently studied herbs we can find lavender, passionflower and saffron. They brought benefits comparable to standard ones anxiolytics and antidepressants. Black cohosh, chamomile and chasteberry are also mentioned as promising herbs. Overall, 45% of studies reported positive findings with fewer adverse effects compared with conventional medications [19].

RESULTS

To diagnose anxiety disorders, a broad differential diagnosis is necessary to recognize possible somatic causes of the current condition. Treatment with psychoactive drugs and psychotherapy are first-line therapeutic strategies. Cognitive-behavioral therapy has the best documented effectiveness of all types of psychotherapy. Additionally, Mindfulness-based interventions are effective as adjunctive treatments [5]. Pharmacotherapy in association with psychotherapy had a relatively high effect size ($d=2.12$).

Due to the good risk-benefit balance, selective serotonin reuptake inhibitors and selective serotonin-noradrenaline reuptake inhibitors have been recommended as first-line treatment.

Benzodiazepines are not recommended as first-line therapy due to their potential side effects [22], [23]. Moreover, many articles describe the impact of physical exercise. Exercise may be a moderately beneficial adjunctive treatment option for both depressive disorders and anxiety disorders, especially treatment-resistant depression, unipolar depression and post-traumatic stress disorder [24]. In addition, Yoga is a therapeutic method for depression and has positive

effects for people suffering from anxiety disorders, especially panic attacks. While Tai chi and qi gong have varying effectiveness as complementary treatments for depression and anxiety [5]. Other studies have shown that combining different types of interventions, such as music therapy, aromatherapy and meditation, are effective in relieving stress and promoting relaxation through a synergistic effect. Fragrance substances used in aromatherapy with relatively small and volatile molecules are easily and quickly inhaled into the body through the nose and penetrate the blood-brain barrier, directly affecting the central nervous system. Another method is music therapy, which affects the neuroendocrine system and the autonomic nervous system. It has been proven that music therapy, which involves listening to calm music at a slow tempo, reduces anxiety and facilitates relaxation by influencing the limbic system of the brain, which is primarily responsible for controlling emotions [20]. Another element is AT (art therapy) improves resting HRV (heart rate and heart rate variability) and aspects of EF (cognitive functions), which has been linked to the reduction of anxiety associated with art therapy [21]. Moreover, mental illness is the most important risk factor for sexual dysfunction in women. Epidemiological studies confirm that anxiety disorders are risk factors for low sexual desire and arousal, and more recent research strongly links aspects of anxiety to orgasmic difficulties and sexual pain. The increased activity of the sympathetic nervous system during sexual arousal, while increasing genital congestion in women, involves non-genital sensations that may be misinterpreted by an anxious woman as threatening, thus negating any potential sexual pleasure [25].

CONCLUSION

Structured therapy supplemented with physical exercises leads to a reduction in depressive and anxiety symptoms [16].

Anxiety disorders can now be treated effectively. Patients should be involved in treatment planning and informed about therapeutic options. Current research focuses on individualized and therefore, one hopes, even more effective treatments than those currently available [2].

Available evidence suggests utility of some herbal medicines in mitigating anxiety and depression, but conclusive data to show superiority in benefit/risk ratio of

these products over current pharmaceuticals are lacking [19].

The results suggest that aromatherapy combined with music therapy may be effective in improving the performance of basic skills and reducing anxiety and stress [20].

Pharmacotherapy in association with psychotherapy, is associated with better efficacy [22].

Depression and GAD are closely related and often coexist, suggesting a common biological basis for both disorders [12].

Statement of the authors' contribution

Conceptualization: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas

Methodology: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas

Software Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas

check: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas

formal analysis: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz , Agata Kolano, Anna Pejas

investigation: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas

resources, data curation: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas

writing - rough preparation: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas

writing - review and editing: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas

visualization: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas

supervision: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas

project administration: Monika Truchta, Aleksandra Mańkowska, Szymon Markowiak, Marta Wardęszkiewicz, Wiktoria Jabłońska, Amelia Kasprzak, Maciej Świercz, Agata Kolano, Anna Pejas.

All authors have read and agreed with the published version of the manuscript.

Funding Statement

The study did not receive special funding.

Institutional Review Board Statement

Not applicable.

Informed Consent Statement

Not applicable.

Conflict of Interest Statement

No conflict of interest.

SOURCES

- [1] Kandola A, Vancampfort D, Herring M, et al. Moving to Beat Anxiety: Epidemiology and Therapeutic Issues with Physical Activity for Anxiety. *Curr Psychiatry Rep.* 2018; 20(8): 63. <http://doi.org/10.1007/s11920-018-0923-x>.
- [2] Ströhle A, Gensichen J, Domschke K. The Diagnosis and Treatment of Anxiety Disorders. *Dtsch Arztebl Int.* 2018; 155(37): 611-620. <http://doi.org/10.3238/arztebl.2018.0611>.
- [3] Nielsen B, Andersen K. Alcohol, anxiety, and depression. *Ugeskr Laeger.* 2022; 184(14): V10210816. PMID: 35410655.
- [4] Firth J, Solmi M, Wootton RE, et al. A meta-review of "lifestyle psychiatry": the role of exercise, smoking, diet and sleep in the prevention and treatment of mental disorders. *World Psychiatry.* 2020; 19(3): 360-380. <http://doi.org/10.1002/wps.20773>.
- [5] Saeed SA, Cunningham K, Bloch RM. Depression and Anxiety Disorders: Benefits of Exercise, Yoga, and Meditation. *Am Fam Physician.* 2019; 99(10): 620-627. PMID: 31083878.
- [6] Goodwin GM, Stein DJ. Generalised Anxiety Disorder and Depression: Contemporary Treatment Approaches. *Adv Ther.* 2021; 38(Suppl 2): 45-51. <http://doi.org/10.1007/s12325-021-01859-8>.
- [7] Mirchandaney R, Barete R, Asarnow LD. Moderators of Cognitive Behavioral Treatment for Insomnia on Depression and Anxiety Outcomes. *Curr Psychiatry Rep.* 2022; 24(2): 121-128. <http://doi.org/10.1007/s11920-022-01326-3>.
- [8] Penninx BW, Pine DS, Holmes EA, Reif A. Anxiety disorders. *Lancet.* 2021; 397(10277): 914-927. [http://doi.org/10.1016/S0140-6736\(21\)00359-7](http://doi.org/10.1016/S0140-6736(21)00359-7).
- [9] Maron E, Nutt D. Biological markers of generalized anxiety disorder. *Dialogues Clin Neurosci.* 2017; 19(2): 147-158. <http://doi.org/10.31887/DCNS.2017.19.2/dnutt>.

- [10] Stanley IH, Boffa JW, Rogers ML, et al. Anxiety sensitivity and suicidal ideation/suicide risk: A meta-analysis. *J Consult Clin Psychol.* 2018; 86(11): 946-960. <http://doi.org/10.1037/ccp0000342>.
- [11] Sáiz PA, Flórez G, Arrojo M, et al. Clinical practice guideline on pharmacological and psychological management of adult patients with an anxiety disorder and comorbid substance use. *Adicciones.* 2022; 34(2): 157-167. <http://doi.org/10.20882/adicciones.1548>.
- [12] Goodwin GM. Revisiting Treatment Options for Depressed Patients with Generalised Anxiety Disorder. *Adv Ther.* 2021; 38(Suppl 2): 61-68. <http://doi.org/10.1007/s12325-021-01861-0>.
- [13] Borza L. Cognitive-behavioral therapy for generalized anxiety. *Dialogues Clin Neurosci.* 2017; 19(2): 203-208. <http://doi.org/10.31887/DCNS.2017.19.2/lborza>.
- [14] Cirillo P, Gold AK, Nardi AE, et al. Transcranial magnetic stimulation in anxiety and trauma-related disorders: A systematic review and meta-analysis. *Brain Behav.* 2019; 9(6): e01284. <http://doi.org/10.1002/brb3.1284>.
- [15] Marwood L, Wise T, Perkins AM, Cleare AJ. Meta-analyses of the neural mechanisms and predictors of response to psychotherapy in depression and anxiety. *Neurosci Biobehav Rev.* 2018; 95: 61-72. <http://doi.org/10.1016/j.neubiorev.2018.09.022>.
- [16] Philippot A, Dubois V, Lambrechts K, et al. Impact of physical exercise on depression and anxiety in adolescent inpatients: A randomized controlled trial. *J Affect Disord.* 2022; 301: 145-153. <http://doi.org/10.1016/j.jad.2022.01.011>.
- [17] Gordon BR, McDowell CP, Lyons M, Herring MP. Resistance exercise training for anxiety and worry symptoms among young adults: a randomized controlled trial. *Sci Rep.* 2020; 10(1): 17548. <http://doi.org/10.1038/s41598-020-74608-6>.
- [18] Cramer H, Lauche R, Anheyer D, et al. Yoga for anxiety: A systematic review and meta-analysis of randomized controlled trials. *Depress Anxiety.* 2018; 35(9): 830-843. <http://doi.org/10.1002/da.22762>.

- [19] Yeung KS, Hernandez M, Mao JJ, et al. Herbal medicine for depression and anxiety: A systematic review with assessment of potential psycho-oncologic relevance. *Phytother Res.* 201; 32(5): 865-891. <http://doi.org/10.1002/ptr.6033>.
- [20] Son HK, So WY, Kim M. Effects of Aromatherapy Combined with Music Therapy on Anxiety, Stress, and Fundamental Nursing Skills in Nursing Students: A Randomized Controlled Trial. *Int J Environ Res Public Health.* 2019; 16(21): 4185. <http://doi.org/10.3390/ijerph16214185>.
- [21] Abbing A, de Sonnevile L, Baars E, et al. Anxiety reduction through art therapy in women. Exploring stress regulation and executive functioning as underlying neurocognitive mechanisms. *PLoS One.* 2019; 14(12): e0225200. <http://doi.org/10.1371/journal.pone.0225200>.
- [22] Thibaut F. Anxiety disorders: a review of current literature. *Dialogues Clin Neurosci.* 2017; 19(2): 87-88. <http://doi.org/10.31887/DCNS.2017.19.2/fthibaut>.
- [23] Singewald N, Sartori SB, Reif A, Holmes A. Alleviating anxiety and taming trauma: Novel pharmacotherapeutics for anxiety disorders and posttraumatic stress disorder. *Neuropharmacology.* 2023; 226: 109418. <http://doi.org/10.1016/j.neuropharm.2023.109418>.
- [24] Howes OD, Thase ME, Pillinger T. Treatment resistance in psychiatry: state of the art and new directions. *Mol Psychiatry.* 2022; 27(1): 58-72. <http://doi.org/10.1038/s41380-021-01200-3>.
- [25] Basson R, Gilks T. Women's sexual dysfunction associated with psychiatric disorders and their treatment. *Womens Health (Lond).* 2018; 14: 1745506518762664. <http://doi.org/10.1177/1745506518762664>.