Consortium PSYCHIATRICUM

2022 | Volume 3 | Issue 3 | www.consortium-psy.com | ISSN 2712–7672 (Print) | ISSN 2713-2919 (Online)

Professional Values and Educational Needs among Mental Health Specialists Page 36

Consortium
PSYCHIATRICUM

Consortium Psychiatricum
Peer-reviewed quarterly medical journal

Editorial office
Address: 2, Zagorodnoe shosse,
Moscow, Russia 117152
Phone/fax: +7 (495) 952-11-14
E-mail: editor@consortium-psy.com
WEB: www.consortium-psy.com

Editor
Alina Sabitova (Nur-Sultan, Kazakhstan)

Assistant Editor
Teona G. Chanturiya (Moscow, Russia)

Director of Marketing & Communications
Victoria A. Kirova (Moscow, Russia)

Publisher
Eco-Vector
Address: 3A, Aptekarskiy lane,
Saint-Petersburg, Russia 191186
Phone: +7 (812) 648-83-66
E-mail: info@eco-vector.com
WEB: www.eco-vector.com

For Authors
Author guidelines:
https://bit.ly/3D3gJuz

Submit a manusctipt:
https://bit.ly/36Flpug

DEAR COLLEAGUES!

I am happy to introduce the new issue of *Consortium Psychiatricum*.

This issue is dedicated to the scientific work of early-career psychiatrists. To put the issue together, we invited two young colleagues from the Young Scientists Council of the Russian Society of Psychiatrists — Sergey Potanin and Egor Chumakov — as guest editors. In addition, we staged a competition for best scientific paper in which we invited early-career psychiatrists to take part. Four members of our Editorial board served on the Jury. They were tasked to blindly rate the entries we received for the competition in absolute independence. Relevance of the study, research methodology, scientific novelty, practical significance, and quality of academic writing were rated on a scale of 1 to 5 points (1 — poor, 5 — excellent, maximum total score of 100 points). Professor Aleksander Veraksa kindly agreed to take on the role of Jury Chairman to help adjudicate complicated cases, with the right of final word in cases where a consensus could not be reached.

The work by Saha Meheli and Dr. Debanjan Banerjee *Revisiting Social Stigma in Non-suicidal Self-injury: a Narrative Review* won first place, with a total score of 78 points. The work by Dr. Natalia Gomzyakova, et al. *Association of Anxiety and Depression with Objective and Subjective Cognitive Decline in Outpatient Healthcare Consumers with COVID-19: a Cross-sectional Study* took second place, with a total score of 71 points. The winners will receive prizes from the journal and from the Jury Chairman.

I want to thank from the bottom of my heart all the authors, jury members, and the jury chairman for their participation in the competition and their hard work.

While preparing this issue, sad news of the passing of Professor Petr Morozov arrived. Professor Morozov was a prominent figure in psychiatry and a dear colleague of ours. We set out to do something special to commemorate him. We collected personal stories from members of our Editorial board, colleagues, and family about Professor Petr Morozov. You can find them in the issue.

Aside from the cited materials, this issue also contains traditional papers — original research, reviews, case report, and a special paper on community psychiatry in Thailand.

Enjoy!

George Kostyuk,
Editor-in-Chief, Consortium Psychiatricum

DEAR READERS!

This issue of *Consortium Psychiatricum*, featuring works by young scientists, aims to be a new voice in the field of psychiatric research. The competition we have conducted within, with participants from different countries, is actually unique for Russia. Such competitions are meant to motivate young psychiatrists and spur them to engage in scientific activity and self-development, and to help them master the methodology of how world-class scientific research is conducted. In addition, in the project, the participants had the opportunity to interact with reviewers affiliated with leading world publications. This allowed them to plan for the possibility of future publication in leading science journals with greater confidence and based on personal experience.

The works in this issue stand out for their high methodological quality, relevance, and off-the-beaten-track research topics. For example, the work of A.A. Kibitov touches on aspects of our work that usually remain outside the scope of attention — the needs of doctors themselves, especially those of young specialists. The problems encountered in our education system partly have to do with the lack of a feedback loop when ready-made programs are often fed to students without taking into account their needs as expressed by themselves. The works in this issue provide an opportunity to start remedying this situation.

The other works have in common their attempt to turn attention to the personal experiences of patients, which indicates a desire for the humanization of psychiatric care, in which phenomenological and therapeutically oriented approaches often prevail, somewhat shifting the focus of attention from subjectivity to objectiveness.

N.A. Gomzyakova's work pays attention to the aspect of the subjective experiences of cognitive decline after a COVID-19 infection. The topic is certainly relevant, especially given the lack of clarity on the possible pathogenesis of the development of such conditions. Practitioners often face complaints from patients regarding such problems, while there are no developed approaches to the diagnosis and treatment of such conditions. It is important to note that Gomzyakova's work is aimed at testing one of the rational hypotheses that attempt to explain cognitive decline: as a consequence of anxiety-depressive symptoms, not some primary organic change.

Saha Meheli's research into the problem of self-harm raises the issue of stigmatization, which is one of the most important topics of modern psychiatry. It is stigmatization that often turns out to be the most important factor limiting access to medical care and making a significant (if not the main) contribution to the erosion of the quality of life of patients. Self-harm is currently very common, especially among young patients (according to some data, up to 20% of the general population under the age of 18). Of course, the mythology that exists around this issue has a significant impact on the choice of treatment and, in principle, the perception of such patients. For example, the myth of the manipulative nature of such behavior can create obstacles for patients toward seeking help among their inner circle and limit the chances of receiving specialized treatment.

Thus, the collection of works by young psychiatrists assembled in this *Consortium Psychiatricum* competition are relevant and original studies that meet a high methodological bar and are of interest to a wide range of specialists in the field of mental health.

Sergei Potanin,

Head of the Young Scientists Council, Russian Society of Psychiatrists

DEAR COLLEAGUES,

History knows many pathways of development from early-career psychiatrist-scientist to world-renowned researcher. Often, such stories involve the interest of early-career psychiatrists being supported by their mentors and universities. But a special role in such careers is frequently played by the support of the professional community. Professional associations play a major role in the development and growth of early-career professionals and scientists, establishing specialized committees and sections to assist in the scientific evolution of early-career researchers, as well as to form a "talent pool" and train early-career psychiatrists in the ethics and "inner workings" of the scientific community practice.

In the last decade, editorial and journal programs aimed at helping early-career psychiatrists develop their skills in scientific writing and article preparation for publication have gained particular importance. These goals are achieved through scholarly internship programs in the role of guest editor, by inviting early-career psychiatrists to review articles, and by initiating specialized journal issues that create attractive opportunities for early-career psychiatrists to submit their research findings. In this regard, it is particularly gratifying that such practices are coming to Russia as part of a thematic issue of *Consortium Psychiatricum* featuring the work of young scientists in the field of mental health.

It is important to note that although psychiatrists and other researchers in the field of mental health in Russia are often involved in research at the stage of professional training and at the beginning of their careers, unfortunately, until now these researchers have not always turned into leading authors in their research teams (which is widely practiced in the world) and, thus, do not acquire timely experience with scientific journals, reviewers, and journal editors, which is necessary for the development of a researcher in the 21st century. The *Consortium Psychiatricum* thematic issue being presented to you has provided such an opportunity for early-career researchers in the field of mental health. The uniqueness of this experience for researchers lies in the journal's international status, as well as its strict adherence to best scientific practices in peer review and articles preparation for publication. Without too much modesty, I will say that the experience of being a guest editor was also new and exciting for me, but extremely valuable.

I think it is important to continue such initiatives aimed at stimulating the research activity of early-career psychiatrists and mental health professionals. And I hope that you will enjoy the selected papers of early-career researchers in this thematic issue.

Egor Chumakov,

Chair of the EPA ECPC Task Force on Communication and Publications

Table of contents

Revisiting Social Stigma in Non-suicidal Self-injury: A Narrative Review

Пересмотр социальной стигмы при несуицидальных самоповреждениях: нарративный обзор

doi: 10.17816/CP196

Review

Saha Meheli[1], Debanjan Banerjee[2]

[1] Department of Clinical Psychology, National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore, India

[2] Apollo Multispecialty Hospitals, Kolkata, India

Саха Мехелия[1], Дебанджан Банерджи[2]

[1] Национальный институт психического здоровья и нейронаук (NIMHANS), Кафедра клинической психологии, Бангалор, Индия

[2] Многопрофильные больницы Аполло, Калькутта, Индия

Editorial comment:

The article took part in the competition of scientific papers of early-career psychiatrists.

ABSTRACT

Non-suicidal self-injury (NSSI) is highly prevalent in our community. Yet, there is a significant discrepancy between the number of individuals engaging in NSSI and those who seek treatment for NSSI. This discrepancy can be due to the high social stigma associated with the behavior. The impact of NSSI stigma is significant and can impair the quality of life in the individuals engaging in NSSI, delay help-seeking, reduce access to mental health care and further fuel misinformation. Even though the symptomatology, risks, and demographics of NSSI have received attention in terms of research, there is limited literature on NSSI stigma and its consequences. With that background set, this review provides a bird's-eye view of the different levels of stigma in NSSI (public, self, and health care), associated discrimination, the various aspects of such stigmatization (NSSI-related language, physical scarring, misinformation, the media), and, finally, the collaborative clinical-outreach interventions for mitigating NSSI-associated social stigma. If NSSI is indeed recognized as a clinical disorder, future research would need to focus on these constructs of stigma and treat them with the same importance as the one given to clinical studies of intervention and symptomatology in NSSI.

АННОТАЦИЯ

Несуицидальное самоповреждающее поведение (НССП) широко распространено в нашем обществе. Тем не менее, существует значительное несоответствие в количестве людей с НССП, и тех, кто обращается за медицинской помощью в связи с этим состоянием. Такое несоответствие может быть связано с выраженной социальной стигматизацией, связанной с данным состоянием. Стигматизация НССП оказывает значительное влияние и может ухудшить качество жизни таких пациентов, отсрочить обращение за помощью, снизить доступ к психиатрической помощи и еще больше способствовать накоплению неверной информации. Несмотря на то, что симптоматике, рискам и демографическим характеристикам НССП уделялось внимание в исследованиях, литературные данные о стигматизации данного состояния и ее последствиях ограничены. Исходя из этого, данный обзор дает представление о различных уровнях стигматизации НССП (общественный, самостигматизация и медицинская помощь), связанной с данным состоянием дискриминацией, различных аспектах такой стигматизации (язык, связанный с НССП, физические повреждения, ошибочная информация,

СМИ) и, наконец, о совместных клинико-информационных мероприятиях для смягчения социальной стигматизацией НССП. Если НССП действительно будет признано клиническим расстройством, будущие исследования должны быть сосредоточены на этой концепции стигматизации и лечения с тем же значением, которое придается клиническим исследованиям вмешательств и симптоматики при НССП.

Keywords: *non-suicidal self-injury; self-harm; stigma; self-stigma; recovery*
Ключевые слова: *несуицидальное самоповреждающее поведение; самоповреждение; стигматизация; самостигматизация; выздоровление*

INTRODUCTION

Non-suicidal self-injury (NSSI) is the deliberate self-infliction of pain that involves tissue damage and is not culturally or socially sanctioned [1]. It is distinguished from behaviors where the harmful consequences are unintended (e.g., Smoking, substance use) [2] or where self-harm is not the primary intention (e.g., self-purging of Bulimia Nervosa [1]). Over the last two decades, NSSI has drawn attention from researchers and clinicians, especially since it was listed as a condition for further study in Diagnostic and Statistical Manual of Mental Disorders 5 (DSM 5) [3]. Adolescents and young adults are especially vulnerable to NSSI [4], with a high prevalence rate — 7.5–46.5% in adolescents; 38.9% in university students; and 4–23% among adults [5]. Indeed, a recent meta-analysis suggests that the pooled lifetime prevalence of NSSI is 20% [6]. Recent research suggests that even though the prevalence decreases with age, individuals with NSSI are more likely to have long-term negative outcomes than individuals without NSSI [7]. Additionally, NSSI can be a potentially lethal behaviour due to the high association with suicide thoughts and behaviors [8], and early intervention would be crucial to prevent the course from becoming chronic [9, 10]. To complicate matters further, NSSI is associated with a number of psychosocial difficulties [5] and may be present even without any psychiatric diagnosis [11]. According to a recent systematic review, it is highly prevalent not only in the clinical population, but also in community samples, with 7.5 to 46.5% in adolescents and 4 to 23% in adults [5].

Literature shows a wide discrepancy between the prevalence of NSSI in the general population and the number of people who seek formal help, such as from a hospital [12]. This significant gap suggests that the majority of individuals who engage in self-harm either refrain from help-seeking or are not receiving adequate care. One of the prime reasons for this significant discrepancy could be that NSSI is a highly stigmatized behavior [13]. Stigma refers to negative views towards a group and the resultant attitudes towards the group, when it is viewed as inferior to the societal norms, and stigma is very relevant in the context of mental health problems [14, 15].

Individuals engage in NSSI due to the wide range of interpersonal and intrapersonal functions that it serves, including emotion regulation, avoidance of psychological pain, or to seek physical sensation [16–19]. Due to the wide scope of its functions [18] and its self-reinforcing nature [20], individuals who self-injure are often reluctant to stop the behavior and there is a certain amount of ambivalence involved in the recovery process [21]. This ambivalence for recovery, along with the perceived stigma, makes individuals' engagement in NSSI high in secrecy and privacy [22, 23], thus creating reluctance in individuals for initiating the support-seeking process, or even delaying it.

SEARCH STRATEGY

This review specifically focuses on NSSI-related stigma, various attributes related to the same and its impact on individuals who engage in self-injury. Since there is limited literature in this area, an all-inclusive search was conducted in major databases (GOOGLE SCHOLAR, PSYCHINFO, PUBMED, PUBMED CENTRAL). The keywords **Non-suicidal, non-suicidal self-injury, NSSI, self-injury, non-suicidal self-harm, self-harm together** with **stigma, marginalization, labelling, and stigmatization** were used in various permutations and combinations. All original articles, case reports, case series, viewpoints and commentaries related to stigma, correlates of stigma, consequences of stigma, and management of stigma in NSSI were included. Since this is a descriptive review, the search strategy was not more inclusive and not very systematic. The authors decided to go for a 'narrative approach', since content is very limited and niched in the study area. Relevant search information was synthesized

and presented under appropriate sub-headings. The discussion also includes stigma-mitigating strategies which may enable more help-seeking and more positive responses to disclosure.

NSSI RELATED STIGMA: VARIOUS SHADES

Why is NSSI stigmatized?

NSSI is highly stigmatized, as it involves self-infliction of tissue damage and, thereby, violates the basic social expectation of self-preservation or avoidance of pain [24]. Thus, NSSI is viewed not only as pathological, but also as a voluntarily chosen socially deviant behavior [25], resulting in the associated stigma. Additionally, NSSI being self-inflicted, or volitional, is perceived to be high in controllability [13]. Extant literature on stigma suggests that the greater the controllability of a behaviour the more stigmatising it is, as society blames individuals and holds them responsible for recovery [15]. For instance, a substance use disorder, or a behaviorally generated physical illness, such as lung cancer caused by years of smoking, would be associated with greater stigma than an illness perceived to not be in one's control, such as Dementia or Post Traumatic Stress Disorder (PTSD) [26]. NSSI may also be the result of chronic perceived stress, which implies varied understanding including unconscious motives of avoidance [16, 17]. This perceived controllability of NSSI and, thereby, the responsibility for the origin of the disorder leads to higher stigma, reduced willingness to help, and more negative responses [27].

Language and NSSI stigma

Language plays a special role in further stigmatizing NSSI. While stereotypes such as "*attention seeking*" and "*calculating*" and *"manipulative*" create misconceptions about NSSI, thereby encouraging hostile attitudes from others, even seemingly innocuous labels such as "*cutters*" or "*self-injurers*" can exacerbate stigma and imply homogeneity for individuals who self-injure [28]. Treating individuals with such homogeneity is misleading, because individuals who self-injure have varied experiences of NSSI and this type of language further dehumanizes and undermines the right to be treated individually [29] and creates the possibility of discounting lived experiences. Hasking and Boyes [29], thereby, propose that, given the importance of language in influencing societal attitudes, modifying the language in discussing NSSI would be crucial in destigmatizing NSSI and creating a societal shift in related discourses.

Physical scarring and NSSI

NSSI stigma is further complicated because of the associated phenomena of scarring. Most individuals engaging in NSSI or having a history of NSSI carry at least one permanent or long-lasting and even visible scar [30], as a result of cut, scratches or burns marks from NSSI [31]. The visibility of the scars also increases the potential risk of being stigmatized by others [32]. These scars reduce the concealability of NSSI, thereby further increasing the possibility of experiencing stigma, even for individuals who stop self-injuring but continue to have scars [13]. A recent study by Burke et al. [33] indicated the presence of strong explicit and implicit negative biases towards NSSI scars when compared to tattoos or for non-intentional disfigurements. Besides increasing the risk of public stigma, scars are also associated with individuals' own feelings of anger, disgust, shame, and self-stigma [31]. Another recent study by Burke et al. [34] indicated that among individuals with a history of NSSI scarring, almost eighty percent engaged in scar concealment practices from others, and almost sixty-four percent engaged in concealment of these scars even from self. The study findings also demonstrated that the degree of scar concealment practices from others and from self was associated with a higher frequency of NSSI urges, greater anxiety, and depression symptomatology and higher degree of negative scar-related cognitions. Indeed, accepting one's scars, and thereby navigating the associated stigma and shame, plays an important role in any recovery from NSSI [35]. We could speculate that speaking about scars (in a safe non-judgemental environment) can reduce self-stigma and perhaps foster scar acceptance, which in turn can contribute to recovery.

The media and NSSI

It is perhaps especially important to examine the role of the media in NSSI knowledge and stigma. Both the language used in the media, as well as the information shared, can impact stigmatized views and stereotypes of mental health issues and mental illness [36, 37], and, thereby, the role of the media cannot be discounted [13]. NSSI is often portrayed in ways that justify engagement in NSSI or makes recovery seem impossible [38–40], thereby stigmatizing NSSI further. An accurate and

responsible media portrayal of NSSI is important, as it may act as a source of accurate information and can even play a protective role, by encouraging recovery [41]. *Secret Cutting (Painful Secrets)* (2000), *28 Days* (2000), *Thirteen* (2003), *Cut: Teens and Self-injury* (2018), etc. are some of the movies and documentaries that depict acts and conversations about NSSI. While the detailed discussion about media portrayals of NSSI is beyond the scope of this paper, Trewavas et al. [40] provide a detailed overview of representations of NSSI in motion pictures. NSSI has generally been correlated with substance abuse, adverse childhood experiences, and psychiatric illness while often being portrayed as covert and habitual. These depictions were often detailed and sensationalized. Mostly, the movies were criticized for showing inaccurate relationships of NSSI with suicide and poor availability of mental health care, which could have been shown to fuel hopeful narratives of recovery, highlight the availability of help and, thereby, promote help-seeking.

LEVELS OF STIGMA

Ahmedani [15] suggests that to gain a holistic understanding of how stigma manifests itself socially, it is important to look at its different levels. These levels are not hierarchical but rather represent the different overlapping fields of social stigma. We examine three levels of stigma in terms of stereotypes, prejudice, and discrimination specific to NSSI.

Public stigma

Public or social stigma is the stigma prevalent in the members of the general public, most often encountered from teachers, parents, and peers. Extant literature suggests that there are negative biases on NSSI, widely prevalent in the society, along with stereotyping of individuals who engage in NSSI as attention seekers, manipulative, fragile [42, 43], or is associated with other misconceptions (such as NSSI is prevalent only in teenagers, or in individuals having a gothic lifestyle; *see* study by Kapur and Gask [44], which explores attitudes towards self-harm, including NSSI and suicide). The negative biases and stereotypes result in lesser willingness to help and lack of sympathy, or even negative emotional reactions, such as anger toward individuals who engage in NSSI [45]. This social stigma runs parallel to structural barriers, including lack of knowledge resources or policies for the management of NSSI, as seen in research in school settings [46], and needs to be addressed. NSSI stigma also surfaces during disclosure to parents, teachers, peers, or trusted adults. Responses to disclosure often reflect negative emotional reactions, such as shock, disgust, and even avoidance or misconceptions of attention-seeking and manipulation [47–49]. The public stigma has far-reaching consequences, including internalization by people with lived experience, which manifests itself as self-stigma [48]. These consequences are discussed in the subsequent sections.

Self-stigma

Though there is an intuitive expectation that possession of knowledge and lived experience of the psychiatric disorder would act as protection against self-stigma, research demonstrates that there is significant self-stigma involved in psychiatric disorders and that individuals engaging in NSSI also conform to this pattern [50]. Self-stigma manifests itself in individuals who engage in NSSI in the form of shame and embarrassment regarding their self-injurious behavior, the relapses in recovery, as well as self-injurious thoughts and urges. Research also suggests that many individuals who engage in NSSI experience shame and disgust toward the NSSI scars [32]. Thus, NSSI is associated with significant self-stigma, which further hinders the process of recovery, as recovery entails the acceptance of self, acceptance of scars, and normalization of NSSI thoughts and urges [35].

Health worker stigma

The attitude of health professionals towards patients, including stigmatization, can influence the quality of health care offered. For instance, extant literature suggests that health professionals may perceive self-injurious behavior to be manipulative and, in such instances, may spend less time with such individuals, and may also be less willing to help [27, 51]. Even mental health professionals are not exempt from harboring such negative views, albeit, less so than other medical health professionals, perhaps due to some knowledge and training [52, 53]. Such negative views amongst mental health professionals often manifest themselves in the form of an urge to "fix" clients that may materialize in a form of coercive action meant to stop the self-injurious behavior, including premature or ill-conceived safety contracts [24]. Therapists may be tempted to prioritize stopping the self-injurious behavior prematurely, before the client is ready [24], or might

inadvertently use labels in therapy such as "*attention seeking disorder*" or *"maladaptive coping*" [23, 54], while sharing the diagnosis or formulation in an attempt to simplify the experience. This is quite plausible, given that therapists and other mental health professionals often feel incompetent in treating self-injurious behavior [55]. Additionally, disclosure of self-injury may evoke strong emotions in therapists, which might bring forth the need to separate themselves from clients who self-injure, and also bring forth latent judgements [48], which can manifest itself in the form of stigma.

Thus, social stigma for NSSI happens at three distinct levels. To capture the holistic understanding of NSSI stigma at these three levels it is important to understand the stereotypes (negative views about a group) and prejudice (negative emotional reactions congruent with belief or negative views) and the discriminatory practices at these three levels. The actions of discrimination from others are termed as enacted stigma, and these experiences of enacted stigma are often anticipated by the stigmatized group, resulting in actions taken from the anticipated stigma. Thus, discriminatory practices are behavioral responses to prejudice and may involve both enacted stigma as well as actions taken from anticipated stigma. Table 1 describes the stereotypes, prejudices, and discriminatory actions present at the three distinct levels of social stigma.

IMPACT OF STIGMA

The impact of stigma on NSSI can be multifold, the foremost of which is that it acts as a barrier in the help-seeking process or even discussion of NSSI [56, 57]. Additionally, stigma may also lead the individual to not adhere to the suggested treatment or drop out of treatment [15, 58]. Indeed, extant literature suggests that individuals who self-injure are often reluctant to seek help or support due to the stigma associated with NSSI, or, in other words, stigma is a barrier to help-seeking [59, 60]. Stigma from health professionals can also lead to unhelpful therapy experiences, such as feeling judged or misunderstood [23, 48], that can cause individuals to discontinue treatment or stop any further discloses [56, 57]. It can also lead the individual to internalize shame and stigma and potentially create more isolation and alienation for the individual [56]. Indeed, individuals who self-injure are often aware of the stigma associated with NSSI and this awareness often evokes fear of the negative impact of the stigma, such as labeling, misunderstandings, and judgement [48]. The fear of being stigmatized not only impedes help-seeking, but can also drive the individual to go to extreme lengths to hide their self-injury, maintain a social facade to ensure privacy, such as hiding scars or being untruthful about the origin of NSSI scars, or self-injuring in areas not easily visible [23, 48, 61].

Table 1. Stereotype, prejudice, discrimination for NSSI at different levels of social stigma

	Levels of stigma		
	Public stigma	**Self-stigma**	**Health professional stigma**
Stereotype negative views about a group	Seeing individuals who self-injure: • dangerous • attention seeking • fragile character • suicidal (even when the individual is not)	Seeing self as: • weak • incompetent	Seeing individuals who self-injure: • manipulative • attention seeking • suicidal (even when the individual is not)
Prejudice negative emotional reactions congruent with belief	Anger, disgust	Low self-worth, low self-efficacy, shame	Anger, disgust, reduced empathy
Discrimination behavioural response to prejudice	Enacted stigma taking forms of: • avoidance • rejection • withdrawal	Actions taken because of anticipated stigma: • not seeking help • concealing scars from self and others • not disclosing self-injury in treatment • avoiding social gatherings and • losing opportunities in fear of rejection or intrusive questions • discontinuing treatment	Enacted stigma taking the form of: • reduced willingness to help • coercing clients to stop NSSI before client is ready • referrals to others • refusing same treatment (e.g., refusing analgesia) • putting someone who is engaging in self-injury on suicide watch or forcing the individual to admit to being suicidal even when they are not

Additionally, stigma experiences also lead to ambivalence toward not only disclosing NSSI, but also the recovery process [21].

Moreover, internalization of stigma can lead to diminished self-efficacy, reduced self-esteem, and diminished hope for one's future [58, 62]. Indeed, individuals who engage in self-injury report lower self-esteem and self-efficacy than people without a history of self-injury [63]. Lower self-efficacy and self-esteem can lead to demoralization of the individual, and that ultimately leads to the "why try effect," where individuals give up on pursuing social opportunities [58, 64]. Indeed, NSSI (scar related stigma) has been reported to increase social isolation [61]. Individuals engaging in NSSI also report apprehension as regards their career prospects [48], and they often avoid social activities such as going to the beach or even swimming [61]. Thus, NSSI stigma has a far-reaching impact on an individual's social and personal life, which highlights the importance of reducing NSSI-related stigma. Indeed, misinformation and negative views and biases about NSSI lead to a vicious cycle where these stereotypes are internalized, hobbling help-seeking, increasing isolation, and possibly helping perpetuate the NSSI behavior and narrowing the chances for recovery.

UNDERSTANDING NSSI STIGMA

Assessment of stigma plays a very important role in understanding NSSI. Assessment of stigma can serve as an initial step before introducing interventions to mitigate public stigma and health worker stigma, including even self-stigma.

In the clinical setting, an individual's experiences of NSSI stigma can be assessed through an exploration of enacted stigma (experiences of prejudice and discrimination), as well as their actions based on anticipated stigma (expectation of prejudice and discrimination) [13]. Self-stigma plays a central role in influencing help-seeking, as well as clinical engagement, and it can be assessed in the clinical settings through an exploration of one's beliefs about self-harm, the affective experiences associated with NSSI (such as anger, disgust and shame), and the individuals willingness to discuss NSSI experiences [65]. The assessment should also include scar concealment practices and scar-related cognitions, as it may shed further light on the experience of stigma and shame that individual's experience [34]. This exploration of stigma associated with scars is especially relevant, because scars can have long-term implications even for individuals who have stopped self-injuring, as they continue to carry a physical reminder of past self-injury [13]. Additionally, in a recent study it has been suggested that personalized assessments and feedback interventions can be effective tools in the reduction of NSSI. Min et al. [65] found that individuals engaging in NSSI underestimate whether others would understand the reasons for engaging in NSSI, but people without a history of NSSI would still understand why individuals engaging in NSSI do so, suggesting that such an assessment and feedback loop may be utilized in Personalized feedback interventions to reduce the shame associated with NSSI. This type of intervention may reduce self-stigma and also promote help-seeking and disclosure of NSSI.

It would also be important to understand the explicit and implicit biases and negative attitudes toward NSSI among key stakeholders who may be approached for support by individuals engaging in NSSI. These stakeholders, like general health professionals, teachers, and guidance counsellors, are among the other resources likely to be approached [57]. The Self-Harm Antipathy Scale [67] developed to assess attitudes among health professionals towards self-harm can be modified to assess attitudes towards NSSI, specifically. Another tool, the Self-injury Stigma Scale (SISS), based on the model of self-stigma has been recently developed and validated [68]. Understanding these attitudes (implicit and explicit) would be helpful in specifically designing interventions that directly address these stigmatizing views.

The next step in understanding stigma is conceptualizing it. One of the ways to conceptualize NSSI stigma could be through the framework suggested by Staniland et al. [13]. Staniland and colleagues propose conceptualizing stigma along six constructs, in the context of NSSI from the six stigma constructs suggested by Jones et al. [69]. The framework examines public stigma, self-stigma, enacted stigma, and anticipated stigma along the six stigma constructs of origin, course, peril, disruptiveness, concealability, and aesthetics. This framework allows us to understand the distinctive facets within a single experience of stigma. Understanding and addressing these specific constructs could prove to be efficacious in stigma reduction in the therapeutic settings, as well as provide direction for future research.

This study highlights the multifaceted nature of NSSI stigma, and acquiring a holistic understanding of NSSI stigma may be crucial in facilitating help-seeking and

recovery from NSSI. It is, therefore, important to understand the various layers and depth of stigma experiences through assessments and conceptualize the different features of the experience.

REDUCING STIGMA: SUGGESTED INTERVENTIONS

Addressing and mitigating stigma becomes imperative to facilitate help-seeking and to facilitate the process of recovery from NSSI. Fostering empowerment of the individual is key to addressing stigma, especially self-stigma [62], and it has the added advantage of contributing to recovery. Indeed, acceptance of past NSSI, acceptance of scars, developing alternative methods to respond to NSSI, urges, and fostering psychological wellbeing are not only crucial to the process of recovery from NSSI [35], but can also empower the person, thereby reducing self-stigma. Thus, reducing stigma and recovery from NSSI appear to be closely aligned.

The de-stigmatization of NSSI warrants interventions at several levels and settings, such as the individual, the media, public, healthcare system. We discuss several methods that can be used to tackle public stigma, as well as self-stigma, both through outreach efforts and in the clinical setting. Such strategies have been further summarized in Table 2. Indeed, much of the outreach efforts are directed toward reducing public stigma, while certain strategies in clinical settings are focused on reducing the self-stigma experienced by individuals and facilitating recovery.

Outreach efforts to reduce stigma

Contact and education have been identified as effective means to reduce public stigma [70, 71]. This implies that mental health literacy with regards to NSSI and contact with individuals who engage in NSSI would be effective means to reduce NSSI stigma. Interventions that promote support-seeking and educate the public, such as psychoeducation programs, multimedia interventions, peer training interventions and outreach programs, have been well developed and validated for common mental health problems [72], but need to be designed specifically for NSSI. Indeed, a recent study found that a prevention program modified to include a psychoeducation module on NSSI could encourage support-seeking in individuals engaging in NSSI and also that it had no iatrogenic effects on others [73], therefore allaying the fears of contagion in NSSI. Such education programs have also been found to increase the willingness to help individuals engaging in NSSI and reduce rejection and avoidance responses to disclosure [47]. Another recent study found that educational intervention designed to increase overall understanding of self-harm reduced negative attitudes towards individuals who self-harm significantly among

Table 2. Multi-level strategies to reduce stigma related to NSSI

Outreach efforts to reduce stigma
Psychoeducation models, specific to NSSI, tailored for different groups.
Responsible reporting of NSSI by media.
Social media and internet-based services.
Peer support network (especially with individuals having lived experience).
Inclusion of lived experience accounts in education models and interventions.
Reduction of stigma in clinical settings
Detailed understanding and assessment of NSSI stigma experiences (enacted stigma, anticipated stigma, self-stigma, scar-related stigma experiences).
Acknowledging a therapist's negative biases toward NSSI and resolving them.
Using appropriate language to describe and discuss NSSI with clients.
Gaining a person-centered understanding of NSSI (Lewis & Hasking, 2021).
Therapeutic interventions: • using Cognitive behavioral strategies to reduce self-stigma and challenge negative biases, • using Compassion based approaches to reduce shame and internalized stigma, • fostering acceptance of past engagement with NSSI, • fostering scar acceptance, especially with a culture-based understanding of the value of scars as a predictor of scar acceptance. (for example: one way to look at scars is 'physical difference' rather than 'physical deformity'; in certain socio-cultural norms, like tattoos, scars are considered to be physical imprint of past memories and pain; further some belief that scars add value to their physique by making them aware how they navigated painful challenges in life that led to resilience, hope and healing [59,61,63])

health professionals [74]. This implies that community education models may not only prove beneficial in terms of reducing stigma, but also encourage support-seeking, and that they make positive disclosure experiences more likely. These programs should therefore be tailored to the different confidante groups, such as peers, parents, teachers, among others [47, 75], and future research should focus on exploring the effectiveness of different formats of such education programs, such as school-based seminars, or web-based formats [76].

Much of the stigma that exists is due to a failure to include NSSI in the list of disorders, which in turn leads to lack of awareness and the lack of structural resources such as policies specific to NSSI. Most mental health programs and policies include suicides and suicidal attempts, but NSSI is not clearly mentioned [4]. As the authors are from India, we provide the example of the Mental Healthcare Act (MHCA) 2017, which decriminalized suicide and advocated for the rehabilitation and treatment of suicide-survivors. It was a long-overdue welcome approach. However, throughout the Act, there has been no mention or a discourse related to NSSI. There is a prevailing view among many researchers and clinicians that NSSI needs to be recognized as a distinct disorder in DSM 5 [11, 77, 78], which could lead to better treatment options. Indeed, in the context of stigma, it has been argued that if NSSI gains the status of a disorder, it will not only validate the experience of NSSI for individuals, but also encourage treatment-seeking for NSSI, and potentially reduce stigma. The ambiguity surrounding NSSI as a concept reduces help-seeking and awareness, and limits management options [13]. According to the perspectives of individuals with a lived experience of self-injury, this could mean legitimizing NSSI as a mental health concern, possibly bringing about a reduction in misconceptions regarding NSSI, and thereby a shift in public attitude towards NSSI [79]. Inclusive practices could gradually lead to a recognition of NSSI in settings such as schools and colleges and result in standard guidelines and recommendations for the treatment of NSSI for counsellors. However, another view holds that inclusion of NSSI as a disorder could further stigmatize the behavior. Regardless of the status of NSSI as a disorder, Lewis et al. [79] emphasize the need to reduce stigma through increased awareness of NSSI, improved understanding of NSSI, and lessening the shame and isolation that affect individuals who self-injure, while suggesting participatory-based approaches to achieve that goal. Participatory-based approaches lead to empowerment and a lending of voice to individuals with lived experiences They also lead to improved understanding of the experiences, thereby, reducing stigma [62, 80].

One such participatory-based approach would be incorporating peer support workers in health services [62], especially ones with a lived experience of self-injury. Such peer networks would be helpful in a low- or middle-income country (such as India), where resources are limited but social networks are strong [65]. Extant literature suggests that there is a natural inclination to approach people who have gone through similar experiences for support [62], which could increase support-seeking without the fear of being stigmatized. Involving people with lived experiences in peer support capacity could also mean providing non-discriminatory and non-judgmental services that would go a long way in reducing the NSSI stigma prevalent in health services [65]. Inclusion of voices with a lived experience and perceived unmet needs in both interventions and policies is imperative.

Mental health literacy programs that encourage help-seeking could also include accounts of the lived experiences of individuals who are in recovery. Access to such resources has been known to reduce isolation, provide a person with the language needed to describe their own experiences, as well as instil hope for recovery [81]. Such accounts could reduce both public stigma and self-stigma, as well as encourage individuals to seek professional help [62]. An example of such an intervention would be the "In Our Own Voice Program" in the United States, which was developed by the National Alliance on Mental Illness and contains testimonials from individuals with mental illness. It was found to reduce both public stigma and self-stigma, as well as advance a narrative of recovery and hope [82–84]. This could be an example of a reduction of stigma through contact. Indeed, a recent study found that conversations and group sessions with other individuals with a lived experience of NSSI could help individuals feel hopeful and feel a sense of belonging [56].

Another effective platform for outreach and the reduction of stigma for self-harm would be social media [65]. Given the salience of social media and online platforms for NSSI [85], Internet-based services can possibly be a proximal step to seeking face-to-face help [86]. Indeed, Internet-based services could provide information

and guidance, reduce isolation, facilitate help-seeking and access, and also ensure privacy [87]. Social media platforms and Internet services can also be utilized to reduce stigma, whereby people with mental health difficulties are able to share their experiences in public online spaces and challenge public stigma [88]. Therefore, social media would also be an effective platform for reducing NSSI stigma. The media could be another platform for the reduction of NSSI stigma. Responsible reporting on NSSI, by using appropriate language and abiding by certain recommended guidelines to report on NSSI, could be effective in dispelling myths and misconceptions regarding NSSI and help in shifting public perception of NSSI [29, 41].

Reduction of stigma in clinical settings

Stigma has several implications for clinical services and the therapeutic setting as well. It is important for mental health care providers to acknowledge and understand the self-stigma that individuals who engage in NSSI may experience and provide a supportive environment in which to disclose and (or) discuss their NSSI experience [50]. This calls for a detailed understanding and assessment of the stigma experienced by the individual, which has been discussed in detail in an earlier section.

Disclosure in a supportive environment could lead to owning and acceptance of one's stigmatized identity, which itself could reduce self-stigma [62, 89]. Thus, fostering disclosure through a supportive environment would be crucial in the clinical and therapeutic settings.

Additionally, given that health care workers could also harbor negative biases towards NSSI, it is important to not reinforce the negative biases the individual engaging in NSSI may hold against NSSI or against themselves (in the context of NSSI). Thus, health care workers also need to be mindful of the language used to describe or discuss NSSI. Clinicians, mental health professionals, and allied health professionals are taught to discuss mental illness in a non-stigmatizing way, and this should also apply to the language and discourses surrounding NSSI [29]. Moreover, health professionals should refrain from using terms or labels such as "self-injurers" or "cutters" in clinical services as well as in published work [28]. Instead, using a person-centered understanding of NSSI [90] and respectful language that is deemed appropriate by individuals with a lived experience of self-injury is recommended [91]. In line with this, it is also important for mental health care providers to be aware of and tackle their own negative biases and misconceptions regarding NSSI and individuals who self-injure that may affect their work [50].

Additionally, in a therapeutic setting, self-stigma regarding self-harm can influence the degree of an individual's investment in therapy [65]. Therefore, it is critical to address the beliefs about self-injury, along with beliefs about one self that would be important in understanding how self-stigma can influence the recovery process. Knowledge of self and NSSI influence support-seeking and, thereby, plays a role in recovery. This indicates that therapeutic approaches that explore and address these cognitions, such as Cognitive behavior therapy approaches, may be beneficial [92]. Cognitive Behavioral strategies have been particularly recommended to address self-stigma [62]. Shame, embarrassment, and other effects associated with internalized stigma also need to be addressed in therapy, as it may influence NSSI experience, support-seeking, investment in treatment and would, thereby, also impact the process of recovery [59]. This indicates that approaches that address shame in the therapeutic context, such as suggestions by Tangney and Dearing [93] or compassion-focused therapy for NSSI [94], could prove to be potentially beneficial. Fostering scar acceptance through scar-specific treatment (such as cognitive restructuring for scar-specific dysfunctional beliefs, gradual exposure to aversive memories associated with scars, and building of tolerance for these distressing experiences) would be important in addressing the scar-related stigma, as well as the recovery process [34].

MOVING FORWARD: FUTURE DIRECTIONS FOR RESEARCH

While the amount of NSSI research has increased in the past decade, research into NSSI stigma is still in nascent stages and does not receive the same importance given to clinical studies. Indeed, much of the NSSI stigma experiences have emerged as part of other research work, limited in scope and ancillary [13]. This review has highlighted several areas that need further research. Phenomenological approaches to the study of stigma may shed light on the lived experiences of individuals' experiences of NSSI stigma. Moreover, stigma experiences may be further complicated, with added layers of being discriminated against for being part of minority groups.

Future research can focus on an area that is representative of such experiences. Additionally, research also needs to be specific on the way NSSI is defined and distinguished from self-harm. Most research has been focused on self-harm, which could mean both suicidal behavior as well as NSSI. To work on NSSI stigma, the definition of NSSI needs to be clearly demarcated from self-harm. Future research could focus on developing standardized assessments that examine NSSI stigma for self-harm, including scar concealment practices, scar cognition, and other anticipated stigma practices. Assessments that also look at public stigma, both explicit and implicit, also need to be developed through further research. Another area that needs further research is the development of stigma reduction interventions and examining the utility of these programs. NSSI stigma has many implications for treatment and interventions and needs to receive as much importance as clinical studies.

A discussion related to NSSI, and related stigma, will be incomplete without mentioning the added risk posed by the ongoing Coronavirus (COVID-19) pandemic. Studies have shown an increased prevalence of NSSI mainly among adolescents [95] and females [96]. The history of NSSI, internalizing symptoms, perceived stress, family conflicts, and adverse personal experiences during the pandemic were the main risks. The issues of personality and virtual environment, related risk factors, and self-esteem-enhancing strategies were highlighted as useful [95]. The stigma related to NSSI can compound the social stigma of the pandemic and lead to a compounded vulnerability, impeding health care access and help-seeking. While many of these factors are still being explored, empirical research is warranted in order to further understand the bi-directional relationship between disasters such as COVID-19 and NSSI behavior.

CONCLUSION

This review brings forth the multidimensional aspects that needs to be considered when talking about the NSSI stigma. The impact of the stigma can be significant, as it severely affects the help-seeking experiences of individuals, as well as their treatment experiences, and also plays a significant role in the recovery process and treatment outcomes. Addressing this stigma is beneficial both for managing and accessing support for NSSI. The reduction of stigma would also require a holistic approach, involving outreach efforts at multiple levels, clinical interventions, as well as the involvement of primary healthcare. Given the detrimental effects of NSSI stigma, and how highly stigmatized NSSI is, this review highlighted the fact that if NSSI is indeed recognized as a clinical disorder, future research would need to focus on these constructs and treat with a level of importance similar to the one given to clinical studies of intervention and symptomatology in NSSI.

Article history:
Submitted: 26.06.2022
Accepted: 23.09.2022
Published: 28.09.2022

Authors' contribution:
All the authors have contributed significantly to the conceptualization, design, drafting and editing of the article. The final version has been read and approved by both the authors.

Funding: The research was carried out without additional funding.

Conflict of interest: The authors declare no conflicts of interest.

For citation:
Meheli S, Debanjan B. Revisiting social stigma in non-suicidal self-injury: a narrative review. Consortium Psychiatricum 2022;3(3):6–18. doi: 10.17816/CP196

Information about the authors

Saha Meheli, MPhil, Fellowship in Cognitive Behavioral Therapy, Department of Clinical Psychology, National Institute of Mental Health and Neuro Sciences (NIMHANS); ORCID: https://orcid.org/0000-0001-7728-8581
***Debanjan Banerjee**, MD (Psychiatry), DM (Geriatric Psychiatry), Consultant Geriatric Psychiatrist, Apollo Multispecialty Hospitals;
ORCID: https://orcid.org/0000-0001-8152-9798
E-mail: dr.Djan88@gmail.com

*corresponding author

References

1. What is self-injury? | ISSS [Internet]. International Society for the Study of Self-injury. [cited 2022 Sep.22]. https://www.itriples.org/what-is-nssi.
2. Nock MK. Why do People Hurt Themselves? New Insights Into the Nature and Functions of Self-Injury. Curr Dir Psychol Sci. 2009 Apr 1;18(2):78–83. doi: 10.1111/j.1467-8721.2009.01613.x. PMID: 20161092; PMCID: PMC2744421.

3. Jeste D, Lieberman J, Fassler D, Peele R. Diagnostic and statistical manual of mental disorders: DSM-5. 5th ed. Arlington, VA: American Psychiatric Association; 2013.
4. Klonsky ED, Victor SE, Saffer BY. Nonsuicidal self-injury: what we know, and what we need to know. Can J Psychiatry. 2014 Nov;59(11):565–8. doi: 10.1177/070674371405901101. PMID: 25565471; PMCID: PMC4244874.
5. Cipriano A, Cella S, Cotrufo P. Nonsuicidal Self-injury: A Systematic Review. Front Psychol. 2017 Nov 8;8:1946. doi: 10.3389/fpsyg.2017.01946. PMID: 29167651; PMCID: PMC5682335.
6. Swannell SV, Martin GE, Page A, Hasking P, St John NJ. Prevalence of nonsuicidal self-injury in nonclinical samples: systematic review, meta-analysis and meta-regression. Suicide Life Threat Behav. 2014 Jun;44(3):273–303. doi: 10.1111/sltb.12070. Epub 2014 Jan 15. PMID: 24422986.
7. Daukantaitė D, Lundh LG, Wångby-Lundh M, Claréus B, Bjärehed J, Zhou Y, Liljedahl SI. What happens to young adults who have engaged in self-injurious behavior as adolescents? A 10-year follow-up. Eur Child Adolesc Psychiatry. 2021 Mar;30(3):475–492. doi: 10.1007/s00787-020-01533-4. Epub 2020 Apr 21. PMID: 32318877; PMCID: PMC8019412.
8. Kiekens G, Hasking P, Boyes M, Claes L, Mortier P, Auerbach RP, Cuijpers P, Demyttenaere K, Green JG, Kessler RC, Myin-Germeys I, Nock MK, Bruffaerts R. The associations between non-suicidal self-injury and first onset suicidal thoughts and behaviors. J Affect Disord. 2018 Oct 15;239:171–179. doi: 10.1016/j.jad.2018.06.033. Epub 2018 Jun 30. PMID: 30014957.
9. Kaess M, Edinger A, Fischer-Waldschmidt G, Parzer P, Brunner R, Resch F. Effectiveness of a brief psychotherapeutic intervention compared with treatment as usual for adolescent nonsuicidal self-injury: a single-centre, randomised controlled trial. Eur Child Adolesc Psychiatry. 2020 Jun;29(6):881–891. doi: 10.1007/s00787-019-01399-1. Epub 2019 Sep 11. PMID: 31512050; PMCID: PMC7305262.
10. Liu RT. Characterizing the course of non-suicidal self-injury: A cognitive neuroscience perspective. Neurosci Biobehav Rev. 2017 Sep;80:159–165. doi: 10.1016/j.neubiorev.2017.05.026. Epub 2017 Jun 1. PMID: 28579492; PMCID: PMC5705419.
11. Hooley JM, Fox KR, Boccagno C. Nonsuicidal Self-Injury: Diagnostic Challenges And Current Perspectives. Neuropsychiatr Dis Treat. 2020 Jan 10;16:101–112. doi: 10.2147/NDT.S198806. PMID: 32021203; PMCID: PMC6959491.
12. Doyle L, Treacy MP, Sheridan A. Self-harm in young people: Prevalence, associated factors, and help-seeking in school-going adolescents. Int J Ment Health Nurs. 2015 Dec;24(6):485–94. doi: 10.1111/inm.12144. Epub 2015 Jul 28. PMID: 26215186.
13. Staniland L, Hasking P, Boyes M, Lewis S. Stigma and nonsuicidal self-injury: application of a conceptual framework. Stigma Heal. 2021;6(3):312–323. doi: 10.1037/sah0000257
14. Corrigan PW, Markowitz FE, Watson A, Rowan D, Kubiak MA. An attribution model of public discrimination towards persons with mental illness. J Health Soc Behav. 2003 Jun;44(2):162–179.
15. Ahmedani BK. Mental Health Stigma: Society, Individuals, and the Profession. J Soc Work Values Ethics. 2011 Fall;8(2):41–416. PMID: 22211117; PMCID: PMC3248273.
16. Polk E, Liss M. Exploring the motivations behind self-injury. Couns Psychol Q. 2009 Sep;22(2):233–241. doi: 10.1080/09515070903216911
17. Edmondson AJ, Brennan CA, House AO. Non-suicidal reasons for self-harm: A systematic review of self-reported accounts. J Affect Disord. 2016 Feb;191:109–17. doi: 10.1016/j.jad.2015.11.043. Epub 2015 Nov 28. PMID: 26655120.
18. Taylor PJ, Jomar K, Dhingra K, Forrester R, Shahmalak U, Dickson JM. A meta-analysis of the prevalence of different functions of non-suicidal self-injury. J Affect Disord. 2018 Feb;227:759–769. doi: 10.1016/j.jad.2017.11.073. Epub 2017 Nov 21. Erratum in: J Affect Disord. 2019 Dec 1;259:440. PMID: 29689691.
19. Klonsky ED. The functions of deliberate self-injury: a review of the evidence. Clin Psychol Rev. 2007 Mar;27(2):226–39. doi: 10.1016/j.cpr.2006.08.002. Epub 2006 Oct 2. PMID: 17014942.
20. Selby EA, Nock MK, Kranzler A. How does self-injury feel? Examining automatic positive reinforcement in adolescent self-injurers with experience sampling. Psychiatry Res. 2014 Feb 28;215(2):417–23. doi: 10.1016/j.psychres.2013.12.005. Epub 2013 Dec 12. PMID: 24388504.
21. Gray N, Hasking P, Boyes ME. The impact of ambivalence on recovery from non-suicidal self-injury: considerations for health professionals. J Public Ment Health. 2021 Feb;20(4):251–258. doi: 10.1108/JPMH-07-2020-0093
22. O'Loughlin CM, Gomer B, Ammerman BA. The social context of nonsuicidal self-injury: Links to severity, suicide risk, and social factors. J Clin Psychol. 2021 Apr;77(4):1004–1017. doi: 10.1002/jclp.23073. Epub 2020 Oct 21. PMID: 33084062.
23. Meheli S, Bhola P, Murugappan NP. From self-injury to recovery: a qualitative exploration with self-injuring youth in India. J Psychosoc Rehabil Ment Heal. 2021 Apr;8:147–158. doi: 10.1007/s40737-021-00214-y
24. Walsh BW, ed. Treating self-injury: a practical guide. 2nd ed. Guildford Press; 2012:271–279.
25. Adler PA, Adler P. The demedicalization of self-injury: from psychopathology to sociological deviance. J Contemp Ethnogr. 2007 Oct;36(5):537–570. doi: 10.1177/0891241607301968
26. Feldman DB, Crandall CS. Dimensions of mental illness stigma: what about mental illness causes social rejection? J Soc Clin Psychol. 2007 Mar;26(2):137–154. doi: 10.1521/jscp.2007.26.2.137
27. Mackay N, Barrowclough C. Accident and emergency staff's perceptions of deliberate self-harm: attributions, emotions and willingness to help. Br J Clin Psychol. 2005 Jun;44(Pt 2):255–67. doi: 10.1348/014466505X29620. PMID: 16004659.
28. Lewis SP. I cut therefore I am? Avoiding labels in the context of self-injury. Med Humanit. 2017 Sep;43(3):204. doi: 10.1136/medhum-2017-011221. Epub 2017 Mar 6. PMID: 28264901.
29. Hasking P, Boyes M. Cutting Words: A Commentary on Language and Stigma in the Context of Nonsuicidal Self-Injury. J Nerv Ment Dis. 2018 Nov;206(11):829–833. doi: 10.1097/NMD.0000000000000899. PMID: 30371637.
30. Burke TA, Hamilton JL, Cohen JN, Stange JP, Alloy LB. Identifying a physical indicator of suicide risk: Non-suicidal self-injury scars predict suicidal ideation and suicide attempts. Compr Psychiatry. 2016 Feb;65:79–87. doi: 10.1016/j.comppsych.2015.10.008. Epub 2015 Nov 6. PMID: 26773994; PMCID: PMC4715861.
31. Lewis SP, Mehrabkhani S. Every scar tells a story: insight into people's self-injury scar experiences. Couns Psychol Q. 2015 Oct;29(3):1–15. doi: 10.1080/09515070.2015.1088431
32. Lewis SP. The Overlooked Role of Self-injury Scars: Commentary and Suggestions for Clinical Practice. J Nerv Ment Dis. 2016 Jan;204(1): 33–5. doi: 10.1097/NMD.0000000000000436. PMID: 26704463.
33. Burke TA, Piccirillo ML, Moore-Berg SL, Alloy LB, Heimberg RG. The stigmatization of nonsuicidal self-injury. J Clin Psychol. 2019 Mar;75(3):481–498. doi: 10.1002/jclp.22713. Epub 2018 Oct 28. PMID: 30368804; PMCID: PMC6679979.
34. Burke TA, Ammerman BA, Hamilton JL, Stange JP, Piccirillo M. Nonsuicidal self-injury scar concealment from the self

and others. J Psychiatr Res. 2020 Nov;130:313–320. doi: 10.1016/j.jpsychires.2020.07.040. Epub 2020 Aug 4. PMID: 32871456.
35. Lewis SP, Hasking PA. Self-injury recovery: A person-centered framework. J Clin Psychol. 2021 Apr;77(4):884–895. doi: 10.1002/jclp.23094. Epub 2020 Dec 9. PMID: 33296508.
36. Chan G, Yanos PT. Media depictions and the priming of mental illness stigma. Stigma Heal. 2017 Apr;3(3):253–264. doi: 10.1037/sah0000095
37. Frankham E. A modified framework for identifying stigma: news coverage of persons with mental illness killed by police. Stigma Heal. 2019;4(1):62–71. doi: 10.1037/sah0000121
38. Baker TG, Lewis SP. Responses to online photographs of non-suicidal self-injury: a thematic analysis. Arch Suicide Res. 2013;17(3):223–35. doi: 10.1080/13811118.2013.805642. PMID: 23889572.
39. Lewis SP, Seko Y, Joshi P. The impact of YouTube peer feedback on attitudes toward recovery from non-suicidal self-injury: An experimental pilot study. Digit Health. 2018 Jun 5;4:2055207618780499. doi: 10.1177/2055207618780499. PMID: 31463075; PMCID: PMC6034348.
40. Trewavas C, Hasking P, McAllister M. Representations of non-suicidal self-injury in motion pictures. Arch Suicide Res. 2010;14(1):89–103. doi: 10.1080/13811110903479110. PMID: 20112147.
41. Westers NJ, Lewis SP, Whitlock J, Schatten HT, Ammerman B, Andover MS, Lloyd-Richardson EE. Media guidelines for the responsible reporting and depicting of non-suicidal self-injury. Br J Psychiatry. 2021 Aug;219(2):415–418. doi: 10.1192/bjp.2020.191. PMID: 33161923.
42. Peralta AO, Lloyd-Richardson EE, Lewis SP. University stakeholder perspectives about non-suicidal self-injury: a qualitative investigation of stigma. International study self-injury annual conferences, 23–25, June 2021.
43. Staniland L, Hasking P, Lewis SP, Boyes M, Mirichlis S. Crazy, weak, and incompetent: a directed content analysis of self-injury stigma experiences. Deviant Behav. Published 12 Feb, 2022. doi: 10.1080/01639625.2022.2038022
44. Kapur N, Gask L. Introduction to suicide and self-harm. Psychiatry. 2009 Jul;8:233–236. doi: 10.1016/j.mppsy.2009.04.008
45. Lloyd B, Blazely A, Phillips L. Stigma towards individuals who self harm: impact of gender and disclosure. J Public Ment Health. 2018 Oct;17(4):184–194.
46. Duggan JM, Heath NL, Toste JR, Ross S. School counsellors' understanding of non-suicidal self-injury: experiences and international variability. Can J Couns Psychother. 2011;45(4):327–348.
47. Simone AC, Hamza CA. Examining the disclosure of nonsuicidal self-injury to informal and formal sources: A review of the literature. Clin Psychol Rev. 2020 Dec;82:101907. doi: 10.1016/j.cpr.2020.101907. Epub 2020 Aug 29. PMID: 32891855.
48. Long M. 'We're not monsters … we're just really sad sometimes:' hidden self-injury, stigma and help-seeking. Heal Sociol Rev. 2017 Sep;27(1):89–103. doi: 10.1080/14461242.2017.1375862
49. Hughes ND, Locock L, Simkin S, Stewart A, Ferrey AE, Gunnell D, Kapur N, Hawton K. Making Sense of an Unknown Terrain: How Parents Understand Self-Harm in Young People. Qual Health Res. 2017 Jan;27(2):215–225. doi: 10.1177/1049732315603032. Epub 2015 Sep 13. PMID: 26369673.
50. Piccirillo ML, Burke TA, Moore-Berg SL, Alloy LB, Heimberg RG. Self-Stigma Toward Nonsuicidal Self-Injury: An Examination of Implicit and Explicit Attitudes. Suicide Life Threat Behav. 2020 Oct;50(5):1007–1024. doi: 10.1111/sltb.12640. Epub 2020 May 28. PMID: 32462657.
51. Hadfield J, Brown D, Pembroke L, Hayward M. Analysis of accident and emergency doctors' responses to treating people who self-harm. Qual Health Res. 2009 Jun;19(6):755–65. doi: 10.1177/1049732309334473. PMID: 19429768.
52. Muehlenkamp JJ, Claes L, Quigley K, Prosser E, Claes S, Jans D. Association of training on attitudes towards self-injuring clients across health professionals. Arch Suicide Res. 2013;17(4):462–8. doi: 10.1080/13811118.2013.801815. PMID: 24224678.
53. Pintar Babič M, Bregar B, Drobnič Radobuljac M. The attitudes and feelings of mental health nurses towards adolescents and young adults with nonsuicidal self-injuring behaviors. Child Adolesc Psychiatry Ment Health. 2020 Sep 22;14:37. doi: 10.1186/s13034-020-00343-5. PMID: 32973922; PMCID: PMC7508242.
54. Hasking PA, Lewis SP, Boyes ME. When language is maladaptive: recommendations for discussing self-injury. J Public Ment Health. 2019 Jun;18(2):148–152. doi: 10.1108/jpmh-01-2019-0014
55. de Stefano J, Atkins S, Noble RN, Heath N. Am I competent enough to be doing this? A qualitative study of trainees' experiences working with clients who self-injure. Couns Psychol Q. 2012 Jul;25(3):289–305. doi: 10.1080/09515070.2012.698981
56. Robinson L. A qualitative study into people's experiences of interventions and support for non-suicidal self-injury (NSSI): stigma, shame, and society. [Internet] University of the West of England, Feb 28, 2019. [cited 2022 Sep.22]. https://uwe-repository.worktribe.com/output/1491411.
57. Meheli S, Lewis SP. Support Seeking in the Context of Self-Injury Recovery: Perspectives From Individuals With Lived Experience. J Nerv Ment Dis. 2022 Jul 1;210(7):547–556. doi: 10.1097/NMD.0000000000001481. Epub 2022 Jan 19. PMID: 35044359.
58. Corrigan P. How stigma interferes with mental health care. Am Psychol. 2004 Oct;59(7):614–625. doi: 10.1037/0003-066X.59.7.614. PMID: 15491256.
59. Rosenrot SA, Lewis SP. Barriers and responses to the disclosure of non-suicidal self-injury: a thematic analysis. Couns Psychol Q. 2018 Jul;33(2):121–141. doi: 10.1080/09515070.2018.1489220
60. Rowe SL, French RS, Henderson C, Ougrin D, Slade M, Moran P. Help-seeking behaviour and adolescent self-harm: a systematic review. Aust N Z J Psychiatry. 2014 Dec;48(12):1083–95. doi: 10.1177/0004867414555718. Epub 2014 Oct 21. PMID: 25335872.
61. Hodgson S. Cutting through the silence: a sociological construction of self-injury. Sociol Inq. 2004 Apr;74(2):162–179. doi: 10.1111/J.1475-682X.2004.00085.X
62. Corrigan PW, Rao D. On the self-stigma of mental illness: stages, disclosure, and strategies for change. Can J Psychiatry. 2012 Aug;57(8):464–9. doi: 10.1177/070674371205700804. PMID: 22854028; PMCID: PMC3610943.
63. Forrester RL, Slater H, Jomar K, Mitzman S, Taylor PJ. Self-esteem and non-suicidal self-injury in adulthood: A systematic review. J Affect Disord. 2017 Oct 15;221:172–183. doi: 10.1016/j.jad.2017.06.027. Epub 2017 Jun 15. PMID: 28647667.
64. Corrigan PW, Larson JE, Rüsch N. Self-stigma and the "why try" effect: impact on life goals and evidence-based practices. World Psychiatry. 2009 Jun;8(2):75–81. doi: 10.1002/j.2051-5545.2009.tb00218.x. PMID: 19516923; PMCID: PMC2694098.
65. Aggarwal S, Borschmann R, Patton GC. Tackling stigma in self-harm and suicide in the young. Lancet Public Health. 2021 Jan;6(1):e6–e7. doi: 10.1016/S2468-2667(20)30259-0. PMID: 33417848; PMCID: PMC7611270.

66. Min J, Lopez SV, Dunn DS, Leffingwell TR, Mullins-Sweatt SN. Understanding Perceptions of Nonsuicidal Self-Injury: Descriptive and Injunctive Norms. Psychiatr Q. 2021 Dec;92(4):1657–1671. doi: 10.1007/s11126-021-09933-8. Epub 2021 Jun 24. PMID: 34169388.
67. Patterson P, Whittington R, Bogg J. Measuring nurse attitudes towards deliberate self-harm: the Self-Harm Antipathy Scale (SHAS). J Psychiatr Ment Health Nurs. 2007 Aug;14(5):438–45. doi: 10.1111/j.1365-2850.2007.01102.x. PMID: 17635251.
68. O'Loughlin CM, Ammerman BA. Development and validation of the Self-Injury Stigma Scale. Poster presented at the 55th Annual Convention for the Association for Behavioral and Cognitive Therapies, New Orleans, Louisiana; 2021.
69. Jones EE, Farina A, Hastorf AH, Markus H, Miller DT, Scott RA. Social stigma: the psychology of marked relationships. New York: W.H. Freeman and Company; 1984.
70. Penn DL, Couture SM. Strategies for reducing stigma toward persons with mental illness. World Psychiatry. 2002 Feb;1(1):20–1. PMID: 16946808; PMCID: PMC1489812.
71. Corrigan PW, Watson AC. Understanding the impact of stigma on people with mental illness. World Psychiatry. 2002 Feb;1(1):16–20. PMID: 16946807; PMCID: PMC1489832.
72. Aguirre Velasco A, Cruz ISS, Billings J, Jimenez M, Rowe S. What are the barriers, facilitators and interventions targeting help-seeking behaviours for common mental health problems in adolescents? A systematic review. BMC Psychiatry. 2020 Jun 11;20(1):293. doi: 10.1186/s12888-020-02659-0. PMID: 32527236; PMCID: PMC7291482.
73. Baetens I, Decruy C, Vatandoost S, Vanderhaegen B, Kiekens G. School-Based Prevention Targeting Non-Suicidal Self-injury: A Pilot Study. Front Psychiatry. 2020 May 29;11:437. doi: 10.3389/fpsyt.2020.00437. PMID: 32587530; PMCID: PMC7298560.
74. Gibson R, Carson J, Houghton T. Stigma towards non-suicidal self-harm: evaluating a brief educational intervention. Br J Nurs. 2019 Mar 14;28(5):307–312. doi: 10.12968/bjon.2019.28.5.307. PMID: 30907659.
75. Armiento JS, Hamza CA, Willoughby T. An examination of disclosure of non-suicidal self-injury among university students. J Community Appl Soc Psychol. 2014 Feb;24(6):518–533. doi: 10.1002/casp.2190
76. Kelada L, Hasking P, Melvin G. The Relationship Between Nonsuicidal Self-Injury and Family Functioning: Adolescent and Parent Perspectives. J Marital Fam Ther. 2016 Jul;42(3):536–49. doi: 10.1111/jmft.12150. Epub 2016 Jan 4. PMID: 26725333.
77. Selby EA, Bender TW, Gordon KH, Nock MK, Joiner TE Jr. Non-suicidal self-injury (NSSI) disorder: a preliminary study. Personal Disord. 2012 Apr;3(2):167–75. doi: 10.1037/a0024405. Epub 2011 Jul 4. PMID: 22452757.
78. Brausch AM, Muehlenkamp JJ, Washburn JJ. Nonsuicidal self-injury disorder: Does Criterion B add diagnostic utility? Psychiatry Res. 2016 Oct 30;244:179–84. doi: 10.1016/j.psychres.2016.07.025. Epub 2016 Jul 13. PMID: 27479110; PMCID: PMC5026934.
79. Lewis SP, Bryant LA, Schaefer BM, Grunberg PH. In Their Own Words: Perspectives on Nonsuicidal Self-Injury Disorder Among Those With Lived Experience. J Nerv Ment Dis. 2017 Oct;205(10):771–779. doi: 10.1097/NMD.0000000000000733. PMID: 28837428.
80. Buchanan A, Murray M. Using participatory video to challenge the stigma of mental illness: a case study. Int J Ment Health Promot. 2012 Apr;14(1):35–43. doi: 10.1080/14623730.2012.673894
81. Honey A, Boydell KM, Coniglio F, Do TT, Dunn L, Gill K, Glover H, Hines M, Scanlan JN, Tooth B. Lived experience research as a resource for recovery: a mixed methods study. BMC Psychiatry. 2020 Sep 21;20(1):456. doi: 10.1186/s12888-020-02861-0. PMID: 32958045; PMCID: PMC7507671.
82. Pandya A. NAMI in our own voice and NAMI smarts for advocacy: self-narrative as advocacy tool. J Psychiatr Pract. 2012 Nov;18(6):448–50. doi: 10.1097/01.pra.0000422744.79871.1a. PMID: 23160251.
83. Brennan M, McGrew JH. Evaluating the effects of NAMI's consumer presentation program, In Our Own Voice. Psychiatr Rehabil J. 2013 Jun;36(2):72–9. doi: 10.1037/h0094974. Epub 2013 May 6. PMID: 23647146.
84. Corrigan PW, Rafacz JD, Hautamaki J, Walton J, Rüsch N, Rao D, Doyle P, O'Brien S, Pryor J, Reeder G. Changing stigmatizing perceptions and recollections about mental illness: the effects of NAMI's in Our Own Voice. Community Ment Health J. 2010 Oct;46(5):517–22. doi: 10.1007/s10597-009-9287-3. Epub 2010 Jan 14. PMID: 20072816.
85. Lewis SP, Seko Y. A Double-Edged Sword: A Review of Benefits and Risks of Online Nonsuicidal Self-Injury Activities. J Clin Psychol. 2016 Mar;72(3):249–62. doi: 10.1002/jclp.22242. Epub 2015 Nov 27. PMID: 26613372.
86. Frost M, Casey L. Who Seeks Help Online for Self-Injury? Arch Suicide Res. 2016;20(1):69–79. doi: 10.1080/13811118.2015.1004470. PMID: 25706352.
87. Frost M, Casey L, Rando N. Self-Injury, Help-Seeking, and the Internet: Informing Online Service Provision for Young People. Crisis. 2016;37(1):68–76. doi: 10.1027/0227-5910/a000346. Epub 2015 Nov 17. PMID: 26572908.
88. Betton V, Borschmann R, Docherty M, Coleman S, Brown M, Henderson C. The role of social media in reducing stigma and discrimination. Br J Psychiatry. 2015 Jun;206(6):443–4. doi: 10.1192/bjp.bp.114.152835. PMID: 26034176.
89. Corrigan PW, Matthews AK. Stigma and disclosure: implications for coming out of the closet. J Ment Heal. 2009 Jul;12(3):235–248. doi: 10.1080/0963823031000118221
90. Lewis SP, Hasking PA. Understanding Self-Injury: A Person-Centered Approach. Psychiatr Serv. 2021 Jun;72(6):721–723. doi: 10.1176/appi.ps.202000396. Epub 2021 Mar 26. PMID: 33765862.
91. Hasking PA, Boyes ME, Lewis SP. The Language of Self-Injury: A Data-Informed Commentary. J Nerv Ment Dis. 2021 Apr 1;209(4): 233–236. doi: 10.1097/NMD.0000000000001251. PMID: 33764949.
92. Slee N, Arensman E, Garnefski N, Spinhoven P. Cognitive-behavioral therapy for deliberate self-harm. Crisis. 2007;28(4):175–82. doi: 10.1027/0227-5910.28.4.175. PMID: 18265737.
93. Tangney JP, Dearing RL. Working with shame in the therapy hour: summary and integration. In: Dearing RL, Tangney JP, ed. Shame in the Therapy hour. 2nd ed. Washington DC, USA: American Psychological Assosication; 2011:375–404.
94. van Vliet KJ, Kalnins GR. A compassion-focused approach to nonsuicidal self-injury. J Ment Heal Couns. 2011 Oct;33(4): 295–311. doi: 10.17744/MEHC.33.4.J7540338Q223T417
95. Tang WC, Lin MP, You J, Wu JY, Chen KC. Prevalence and psychosocial risk factors of nonsuicidal self-injury among adolescents during the COVID-19 outbreak. Curr Psychol. 2021 Jun 1:1–10. doi: 10.1007/s12144-021-01931-0. Epub ahead of print. PMID: 34092987; PMCID: PMC8167308.
96. Carosella KA, Wiglesworth A, Silamongkol T, et al. Non-suicidal self-injury in the context of COVID-19: the importance of psychosocial factors for female adolescents. J Affect Disord Reports. 2021 Mar;4:100137. doi: 10.1016/j.jadr.2021.100137

Schizophrenia: a Narrative Review of Etiological and Diagnostic Issues

Шизофрения: нарративный обзор этиологических и диагностических проблем

doi: 10.17816/CP132

Review

Sofia Oskolkova

V. Serbsky National Medical Research Centre of Psychiatry and Narcology of the Ministry of Health of the Russian Federation, Moscow, Russia

Софья Осколкова

ФГБУ «Национальный медицинский исследовательский центр психиатрии и наркологии им. В.П. Сербского» Минздрава России, Москва, Россия

ABSTRACT

BACKGROUND: Despite the fact that schizophrenia has already been described historically and researched for a long time, this disorder remains unclear and controversial in many respects, including its etiology, pathogenesis, classification, diagnosis, and therapy.

METHODS: Literature from the selected sources (elibrary.ru, Russian Science Citation Index and the Russian branch of the Cochrane Library) were searched and analyzed using the diachronic method. Priority was given to reviews, guidelines, and original research on schizophrenia written during the past 10 years.

RESULTS: Historically, scientists have described schizophrenia as a single disorder, a group of disorders, or even as a combination of certain syndromes. The polymorphic symptoms and the most typical dynamics of various forms of schizophrenia have been systematized, but neither in Russia nor in other countries have the etiology and pathogenesis been proven. The reasons for the under- and overdiagnosis of schizophrenia cannot cover all possible objective and subjective difficulties arising in the diagnostic process.

CONCLUSION: The existing literature shows that the problem of schizophrenia may not be regarded as settled for a long time. This largely depends on the position of society, the development of biological sciences, and the pathomorphosis of the disorder itself. Many aspects of schizophrenia can become clearer and less controversial with systematic studies based on previous data, as well as data obtained using new research methods.

АННОТАЦИЯ

ВВЕДЕНИЕ: Несмотря на описание шизофрении еще в древней истории, многолетние исследования, данное расстройство во многих аспектах остается неясным и спорным. Это касается этиологии, патогенеза, классификации, диагностики, оптимизации терапии.

МЕТОДЫ: Литература (выборочные релевантные открытые источники — из системы elibrary.ru и РИНЦ, а также базы Российского отделения Кокрановской библиотеки (https://www.cochrane.org/ru/evidence) анализировалась диахроническим методом, что позволило выявить важные переменные в воззрениях на шизофрению на протяжении 100 лет до настоящего времени. Приоритет отдавался обзорам и руководствам, оригинальным исследованиям по проблеме шизофрении последних 10 лет.

РЕЗУЛЬТАТЫ: Согласно литературе, проанализированной по концепционной схеме (основные направления и факты в изучении этиологии, динамики, критериев диагностики шизофрении, спорные аспекты указанных

направлений и фактов; основные перспективы в изучении шизофрении), были получены представленные результаты. У психиатров всегда были основания различных воззрений на данное расстройство, варианты его динамики и критерии динамических этапов, включая ремиссию. В разные годы ученые находят аргументы для взгляда на шизофрению и как на одно расстройство, так и на два и даже на группу расстройств, а также как на синдромы. Систематизирована полиморфная симптоматика и наиболее типичная динамика многообразных форм шизофрении, однако ни в России, ни в других странах по-прежнему не доказана этиология и не сформирована концепция патогенеза даже в рамках отдельных типов расстройства. Приведенные в доступной литературе причины гипо- и гипердиагностики шизофрении не могут охватить все вероятные объективные и субъективные трудности, возникающие при диагностическом процессе.

ЗАКЛЮЧЕНИЕ: В целом же, как следует из отечественной и зарубежной литературы, проблему шизофрении еще долго нельзя будет относить к исчерпанным. Во многом это зависит от позиций общества, развития биологических наук и патоморфоза самого расстройства. Многие аспекты шизофрении могут стать более ясными и менее спорными при систематических системных исследованиях, основанных на полученных ранее и дальнейших данных, на новом этапе методических возможностей. Обзор литературных данных по указанным выше аспектам шизофрении может способствовать вниманию ученых к тем или иным результатам исследований, при ином анализе и синтезе информации.

Keywords: *schizophrenia; biological psychiatry; etiology; diagnostic approaches; diagnostic errors*
Ключевые слова: *шизофрения; биологическая психиатрия; этиология; диагностические подходы; диагностические ошибки*

INTRODUCTION

It has long been known that schizophrenia is a severe mental disorder distorting the life of the sufferer and their loved ones. Almost all outstanding psychiatrists of both the past and present have made the attempt to comprehend the condition [1–19]. In the Canon of Medical Science, Avicenna [20] mentioned a condition called "severe insanity", which by description resembles schizophrenia. The first descriptions of the manifestations of a mental disorder, which was named "ideophrenia" in 19th century, and "schizophrenia" in 1908, refer to the 17th century BC: the Book of Hearts, Egyptian papyrus of Ebers, mentioned "phrenitis" [20, 21].

Kraepelin, in the 19th century [2], called a similar mental disorder "dementia praecox". At the beginning of the 20th century, Bleiler introduced the term "schizophrenia" [1], noting its characteristic feature as "violation of the unity of psyche." In addition, the disease is characterized by productive and negative symptoms, neurocognitive disorders, and impaired social adaptation. In the 1930s, Schneider developed a nosological concept of schizophrenia and formulated "symptoms of the 1-st rank" [7].

Currently, about 24 million people in the world are affected by schizophrenia [22–24]. All existing research on schizophrenia is difficult to describe. Although the existing literature on the etiology of the disease is diverse and contradictory, the role of the hereditary nature of schizophrenia is the most proven. However, in the hereditary theory there is no consensus regarding which link the genetics "activates". Furthermore, scientists are relatively unanimous in their opinion about the role of the dopamine system in the etiology and pathogenesis of the disease. At the same time, opinions about the dynamics of schizophrenia and views on its remission remain controversial. Finally, there is no common opinion as to whether the term "schizophrenia" refers to a single disease or to a group of diseases with different etiologies [23–28]. It is not only the disease itself but also clinical syndromes [25–28] that combine both mental and behavioral phenomena that are referred to as "schizophrenia". Also, errors in the differential diagnosis of schizophrenia are the most common ones encountered in psychiatry and entail (in addition to medical) social, economic, and legal consequences; however, relatively little research has been devoted to this aspect of the disorder. Given the changes in psychiatric classifications, the pathomorphosis of schizophrenia and attention to the issues of its diagnostic criteria are still relevant. Based on the research gaps described above, the present review aims to explore the existing etiological and diagnostical issues of schizophrenia.

METHODS

The following electronic databases were searched: elibrary.ru, the RSCI (Russian Science Citation Index), and the Russian branch of the Cochrane Library (www.cochrane.org/ru/evidence) using search terms such as "schizophrenia", "etiology of schizophrenia", "diagnosis of schizophrenia", and "diagnostic errors". Priority was given to reviews, guidelines, and original research on schizophrenia written during the past 10 years. Records published in Russian, English, German, and Dutch were included in the review. When a reference to an earlier source of data was identified, the strategy of referring to the original source was adopted.

Included records were analyzed using the comparative phenomenological method and the diachronic method of information analysis in order to clarify the changes in certain views on the etiology and diagnosis of schizophrenia during certain periods of time (after 20 years, 50 years, before the introduction of antipsychotics into therapy, and after that).

RESULTS

According to the data reported in different years, schizophrenia is the main area of research in psychiatry [10, 11, 19, 24]. However, its diagnosis often comes 5–10 years after the actual onset of disease [10, 11, 19, 24, 27–33]. At the same time, considering its socio-economic significance, the issue of the timely diagnosis, correct therapy, and rehabilitation can be considered one of the priorities in the psychiatric practice [19, 27–33]. The results of the current review will be presented to highlight the following aspects of schizophrenia research:

1. Etiology of schizophrenia.
2. Course of schizophrenia.
3. Diagnosis of schizophrenia.
4. Errors in diagnostics of schizophrenia.

Etiology of schizophrenia

Scientists around the world were occupied with the issues of schizophrenia's etiology for a long time. There are several theories of the etiology of this disease, with different ones prevailing during different periods of time. It seems significant that scientists returned to some of these theories after decades. In this section, different etiological theories of schizophrenia that was or remain relevant during the period about 100 years will be discussed.

Genetic theory

In the late 20th to early 21st century, heredity began to be studied at the chromosomal level, which confirmed the scientific opinion about the great prospects of this direction in terms of understanding the etiology of schizophrenia. Several scientists note that the interpretation of genetic data in psychopathology is hampered by the complexity of their reproduction under identical methodological conditions and non-Mendelian mechanisms of inheritance [34, 35]. However, the same scientists cite important data [36] on the establishment of a relationship between mutations and the quantitative level of expression of the C4A and C4B genes and the clinical picture of schizophrenia. In addition, it is indicated [37] that knockout mice were created for the above genes using gene knockout technology. In these animals, a statistically significant decrease in neural connections between brain structures was found. This made it possible to convincingly prove the association between a separate genetic mutation with the pathophysiology of schizophrenia. According to Morozova et al. [36], disclosing the biology of the gene and the mechanism of occurrence of the risk of schizophrenia allows the potential genetic variations that are most significant in the etiology of this disease to be determined. These authors believe that advances in genetics already indicate a key role of gene networks in the development of disease complemented by likely biochemical pathways [34, 36, 37]. It was recently concluded that "there is no definitive genetic cause of schizophrenia" [38]. However, the authors further point out that "a new and promising direction in the study of the etiology of schizophrenia is in the search for associations between genetic polymorphisms and particular clinical and psychopathological manifestations of mental pathology, as well as with the identified neurochemical disorders" [34, 36, 38–40].

Neuromediator theory

In the second half of the 20th century, biological research had become more important. For about 40 years, the so-called "dopamine" hypothesis of schizophrenia was one of the most popular. It was largely confirmed by the discovery of antipsychotics that suppress dopamine, as mentioned in the works of various years [31, 41–43]. According to this hypothesis, productive symptoms of schizophrenia are associated with long-term elevation of levels of dopamine

in the brain striatum and negative symptoms are associated with long-term decreases in levels of dopamine in the brain cortex (compared to healthy people) [44–45]. But even among the supporters of the dopamine theory of schizophrenia and other psychoses, two main trends could be distinguished from the last 10 years. Some researchers consider this phenomenon to be congenital, whilst others believe it to be acquired [41–42].Scientists proved that antipsychotics block dopamine D2 receptors, which suppresses positive symptoms. However, since the action of antipsychotics is selective and affects such receptors outside the mesolimbic system, their use may be accompanied by extrapyramidal side effects [43]. The second part of classical dopamine hypothesis connects the hypoactivity of dopamine receptors in the cortex with negative symptoms, including the formation of severe cognitive deficit. Neurochemical correlates of glucose metabolism in central neurons with changes in thinking, attention, speech have been established [46].

Neurodegenerative theory

According to existing data [47, 48], intravital visualization of brain structures (using functional MRI, positron emission tomography (PET), and magnetic encephalography) came to represent a new era in the study of the etiology and pathogenesis of schizophrenia. The importance of such a scientific approach was demonstrated by the publication of data obtained from the positron emission tomography of the brain by British scientists Crow and Johnstone in 1976 [15]. This publication illustrates the expansion of the lateral ventricles in progressive mental pathology among schizophrenia patients with predominantly negative symptoms. In 1980, Crow [16] revealed that such patients showed an absence of pronounced dopaminergic pathology. Based on this data, Crow formulated a hypothesis about two types of schizophrenia, differing in etiology and pathogenesis with a predominance of negative symptoms (1), and with a prevalence of productive symptoms (2). In the second type of disorder, there is an increase in the activity of D2 dopamine receptors (during posthumous autopsy, an increase in their density was found) [16].

Research by Crow was supported by the American psychiatrist Andreasen (1995) [25]. She correlated the data on positive and negative symptoms with defects in cognitive and emotional spheres during therapy with antipsychotics, revealing that their long-term use leads to atrophy of the prefrontal cortex. Autopsy, including posthumous autopsy, over the last 20 years has lent a new impetus to the cytochemical direction in the search for the causes of schizophrenia. For the last 20 years, scientists have been turning to the analysis of brain substrate in schizophrenia, both posthumously and during intravital morphometric studies. The most common picture shown by CT and MRI scans are enlargements of the lateral and third ventricles of the brain, reduction of the frontal and temporal cortex, changes in the basal ganglia and hippocampus-amygdala complex, and a decrease in cerebellar volume [49–52]. These and other researchers emphasize a decrease in the volume of the brain (especially the hippocampus and amygdala) due to the expansion of the cerebral ventricles. This fact, from a biological point of view, proves that schizophrenia is an organic mental illness. The concept of the "functional" nature of schizophrenia as an aspect of its organic nature began to attract more attention after associated markers were found in patients. This indicated an impaired excretion of substances from the interhemispheric spaces into the blood, which is a sloughing off of cells with waste substances and toxins (endotoxicosis) in 80% of patients [51–52]. These authors also reported that the neurodegenerative process in schizophrenia is combined with autoimmune inflammatory changes in the brain in a significant number of cases [52]. However, MRI scans of the brains of patients did not produce significant results in support of this theory. In the available literature, this statement was commented in terms of the need to continue the indicated studies. A number of studies have noted the connection between changes in cognitive functions in schizophrenia and progressive loss of the gray matter of the brain [53, 54]. This confirms the long-standing statement by Kahlbaum (1874) [55] that anatomical justification may also be important in the understanding of mental illnesses. Neuroimaging studies in schizophrenia have shown frontal white matter abnormalities associated with clinical symptoms [52].

Viral theory

Furthermore, at the beginning of the 20th century, the onset of schizophrenia was associated with an unknown virus or infections [56]. The viral theory was "supported" by describing the existing seasonal patterns: in winter, mothers suffer from infectious and viral diseases more frequently, which affects the fetus, especially boys born

in February (their risk of developing schizophrenia was higher). Supposedly, it is also connected to the peculiarities of the genome and sexual dimorphism [54, 57, 58]. However, the interpretation of these data and changes in the frequency of disorders of gene locus (16p11.2 and 22q11.2) [59, 60] in schizophrenia in boys born in winter requires complex development of a general concept, clarifying the connections between the role of genetic factors in the fetus and the presence of a viral disease in the mother [57, 58]. A number of studies of schizophrenia identified that viral RNAs were in certain ways similar, at least to an extent, to the HIV, herpes, and Epstein-Barr viruses [61, 62]. It is believed that elucidating the effect of HIV infection on the psychopathology of endogenous disorders is important in understanding the etiology and pathogenesis of schizophrenia [63, 64]. In another hypothesis, the development of schizophrenia is associated with a distorted immune response to the Epstein-Barr virus and Type W (HERV-W) retrovirus [65].

Another theory that was common in the 20th century had a religious context [66–68]. According to this theory, destructive satanic views destabilize the psyche and lead to schizophrenia. This process was called "diabolizing" [67, 68]. Perhaps this is due to the fact that, almost a century later, traditional religions were supplemented by destructive satanic beliefs that destabilize the psyche [69, 70].

Immunological theory

Since the 20th century, psychiatrists' interest in immunological factors as the cause of schizophrenia was significant. Almost until the end of the 20th century, priority was given to research into cellular immunity [71, 72] and autoimmune factors — antibodies to one's own brain, including those of the brain [73–80]. Since the first decade of the 21st century, priority has been given to those immunological factors that are not products of one's own brain — interleukins, in particular Ig-2; Ig-10. The authors of Russian and foreign scientific studies consider their development to be caused by stress [81–86]. The place of these factors in the onset of the disease is also not entirely clear; it is possible that they are either its consequence or a correlating factor [82–84, 86]. In addition, the connection between immunological disorders and negative manifestations of schizophrenia has recently been identified. Thus, in patients, direct correlations (a close relationship of pathophysiological signs) were established between severe negative symptoms and one of the informative indicators of innate immunity, namely the activity of leukocyte elastase [87]. A greater severity of negative symptoms and cognitive impairments was revealed with a decrease in the level of regulatory T cells (a decrease in their level contributes to the development of autoimmune reactions in schizophrenia) [88–90]. This contradicts some of the work of other years, according to which pronounced psychotic symptoms are "consistent" with a significant distortion of immune indicators [91–93]. Although no satisfactory interpretation has been given, the unfavorable course in carriers of the AB (IV); Rh (-) phenotypes is deemed to be important. In the last 20 years, considerable attention has been given to the permeability of the blood-brain barrier (BBB) in mental disorders, including schizophrenia. A promising direction is the study of the BBB permeability for a number of cytoplasmic proteins, such as a violation of the BBB is currently referred to as additional diagnostic and prognostic parameter of mental disorders, including schizophrenia. The role of the abovementioned violation of BBB in the etiology of schizophrenia also cannot be ruled out [93–96].

Cortical disintegration theory

During the same period, a hypothesis was put forward about the cortical disintegration as the basis of mental disorders, including schizophrenia. This hypothesis is supported by the analysis of interhemispheric coherent connections, showing a decrease in gamma activity during EEG in patients with schizophrenia (absence or weakening of gamma waves) [97–99]. In an attempt to understand psychopathology, quantitative electroencephalography began to develop. Thus, the evoked potentials showed differences in the parameters of the P 300 wave in patients with schizophrenia, with a connection established between this parameter and impaired interhemispheric interactions [100]. However, the International and American Societies of Electroencephalography and the American Academy of Neurology consider even quantitative EEG to be a functional diagnostic method only, without linking its results with the possible causes of the disorder. Tiganov (2016) [101] stated that objective (paraclinical) research methods in psychiatry do not have an independent

meaning as yet, and should be considered — within the context of the diagnostic process — as part of the system that includes other data. The same opinion is supported by Aleksandrovsky (2016) [102].

Thus, it can be concluded that the etiology of schizophrenia is largely unknown and there still remains no unified concept of its discovery. Scientists are trying to find the "starting point of the disease" based on their own scientific ideas and methodological interests. A systematic interdisciplinary approach seems to be required to be able to draw some solid conclusions regarding the etiology of schizophrenia [4, 10, 16, 17, 31, 39, 44, 47, 66, 91, 100].

Course of schizophrenia

In the majority of studies and in the reports of forensic psychiatric examination written prior to the introduction of antipsychotics into practice, schizophrenia was considered a disorder with an almost unavoidable progression and an unfavorable outcome [103–105]. Psychiatrists of the "pre-antipsychotics period" [106] considered a diagnosis of schizophrenia to be synonymous with incurability. They did not attach much importance to temporary improvements in patients' condition, considering them incurable. Tatarenko (1960) [107] supported the view of psychiatrists of the 1920s [108] regarding the progression of the course of the disease and the worsening of the condition of patients after each attack, emphasizing that "the patient's fate is determined by the limit of his compensatory mechanisms". Despite such practical views, the concepts of remission and intermission have been known in science since the 19th century. For instance, Esquirol (1838) [109] insisted that there was a need to distinguish the terms "recovery" and "incomplete recovery" or "recovery only to a certain degree". The latter term indicated not only the tendency to relapse, but also a "damage to the brain and reason, expressed in the fact that patients, living in society, cannot play the role that they played before the disease". Improvements in the condition of patients with schizophrenia that meet the criteria for remission were described in the 19th century by the Russian authors Serbskii (1895) [110], Orshansky [111], Akkerman (1937) [112], Buneev (1950) [113] and Kraepelin (1911) [114], whoadmitted the possibility of long and complete remissions, describing a picture of practical recovery with symptoms of mental weakness and some alienation from the outside world. They categorized the defect conditions according to their severity. Both scientists believed that remission did not exclude new attacks of the disease and doubted that recovery from schizophrenia is possible (especially Kraepelin) [114].

According to Molochek (1941) [115], the schizophrenic post-process stage, or remission, is a stage of functional restructuring. Patients may demonstrate vulnerability, autism, even impaired thinking, but are subject to reactive mechanisms. Sereisky (1939) [116] included in the definition of remission cases of nosocomial improvement — the most insignificant therapeutic improvement in mental state — remission "D".

Kolle (1961) [117], around the same time, argued that the most frequent outcome of the disorder is recovery with some form of defect, and described three types of defect state:

1. Emotional coldness, autism, intrapsychic ataxia with impaired motility, facial expressions, speech, irritability.
2. The disease does not manifest itself in clinical symptoms, but in a break in the life curve, professional activity, and social growth.
3. The mildest form of violations manifests in spiritual life: a paradoxical interest in literature and art. This break in the life curve in these patients can only be detected by detailed research.

Melekhov (1981) [118] emphasized that the researchers of the defected states and remissions are in fact analyzing the same conditions. In the 1960s, according to his data and materials pertaining to Zharikov's [119] patients with "A"-type remission (according to the classification proposed by Sereisky) [117] amounted to about 4.5% of all patients. Such figures could be explained by the narrow use of antipsychotics in patient therapy. Zenevich (1964) [120], and Morozov and Tarasov (1951) [121] emphasized that in the case of remission, there is a desire to overcome the defect, whereas in the case of a defective state, it is some sort of adaptation to it. In general, the remission was viewed as a dynamic concept.

In 1981, Melekhov [118] emphasized that 90% of remissions involve a defect state that is milder than dementia. The concept of "practical recovery" remains ambiguous — this is just the disappearance of the symptoms of the disorder without complete restoration of mental functions or "new health', as described by Kondratiev (2010) [29]. It is important to note that despite more than a half century of research, remission in schizophrenia remains poorly described in practical psychiatry [122–125]. It is stated both in Russian and

foreign studies that so-called psychosocial remissions are observed in no more than 15% of patients [35, 122–126]. Potapov et al. (2010) [127] note that symptomatic remission is possible for about 20% of patients if modern therapy is administered (in compliance with international criteria). In our view, this fact demonstrates a very incomplete understanding of the etiology and pathogenesis of schizophrenic spectrum disorders. It seems that the existing theoretical developments of positive dynamics in the course of schizophrenia represent only the basis for future research.

Snezhnevsky and Nadzharov (1968–1970) identified three types of schizophrenia: continuous, paroxysmal-progressive (shift-like), and periodic [128, 129]. In the 1930s, febrile schizophrenia was described [130, 131]. After the 1960s, that is, in the "antipsychotic era", Romasenko (1967) [130], Ermosina (1971) [132], Tiganov (1982) [131], and Snezhnevsky (2008) [129] suggested that febrile seizures are possible in recurrent and paroxysmal-progressive schizophrenia, which are more common among young people. Such attacks are rare and should be differentiated from neuroleptic malignant syndrome. In the 1960s, in agreement with Bleuler's [133] idea of the secondary importance of acute productive symptoms in the long-term course of schizophrenia, Snezhnevsky [134] introduced the concept of "sluggish schizophrenia". The polymorphism of clinical manifestations led to the ongoing controversy regarding this disorder, and ultimately it was not included in the ICD-10 or ICD-11. DSM-5 describes the diagnostic criteria for schizotypal disorder, which is the closest in symptomatology to sluggish schizophrenia, but which is categorized amongst "personality disorders" [17, 135, 136].

Diagnosis of schizophrenia

Over the last 20 years, in Russian and foreign psychiatry many specialists hoped to capture the essence, course, and diagnosis of schizophrenia using psychometric methods [12, 137, 138]. At the same time, other Russian researchers completely reject measurement and instrumental approaches in psychiatry, attempting to find an adequate replacement for them in the form of a functional characteristic of the patient's condition [139–141, 24]. It seems that the rapid development of "technogenic" medicine, along with the attitude to the brain as a "great mystery" [142, 143], may not only allow for some form of consensus to be found but also an understanding of deeper mental processes.

The main changes in the diagnosis of schizophreniain comparison with ICD-10 in ICD-11 are: a) decrease in the significance of first rank symptoms; b) the introduction of "six dimensions"; c) exclusion of clinical forms; and d) inclusion of such sign as "the course of the disease" [144, 145, 9]. In ICD-11, schizophrenia is characterized by multiple mental dysfunctions. Chronic delusional symptoms, hallucinations, thought disorders, and impaired self-awareness are considered the most significant symptoms, and at least two of these must be present for 1 month or more [18].

The six main diagnostic criteria for schizophrenia adopted in previous versions of the DSM with minor changes were retained in DSM-5: delusions, hallucinations, disorganized speech, severely disorganized or catatonic behavior, and negative symptoms. At the same time, the clinical "borders" of schizophrenia are limited only by its most severe forms. DSM-5 also excludes all relatively mild forms of the disorder [8, 9, 146].

Considering the development of medical science, an increase in dimensions can be assumed in the diagnosis of schizophrenia. Possibly, knowledge of neuroanatomical dimensions, reflecting the specific localization of structural and functional disorders, may help to clarify the clinical symptoms, course, and outcomes of schizophrenic spectrum disorders.Back in 1940, Kronfeld [140] believed that "the syndrome can only be understood as a result of the activity of the whole brain". Later, it became obvious that in addition to knowing the localization of the pathological process in the brain, it is necessary to take into account the reaction of the whole body, in particular, neurohumoral and neurochemical changes [147]. Therefore, ICD-11 and DSM-5 are not the "ultimate truths" [136, 147]. In daily work, clinicians may continue to use many of the undefined constructs of the first classification (ICD-11), and researchers — of the second (DSM-5), along with the further development of diagnostic criteria [8, 9, 24, 43, 145]. Appealing to the undesired stigmatization of patients, many scientists admit that the term "schizophrenia" has already outlived its usefulness as a clinical concept denoting an independent disease [148, 149]. There are proposals to replace it with neurophysiological terms at the level of syndromes [8, 28]: "dopaminergic system dysregulation syndrome" [150] or "saliens dysregulation syndrome" [151]. In 2002, by the decision of the Japanese society

of psychiatrists and neurologists and the community of relatives of patients, the diagnosis of schizophrenia was changed to "disorder of loss of coordination" [152]. In South Korea, schizophrenia has become a "violation of internal attunement" or "psychosis susceptibility syndrome" [153]. However, destigmatizing patients is not possible through the simple replacement of the terms established in psychiatry. Such substitution may arise from socio-psychological desires, but it does not correlate with medical realities. It is necessary to change the attitude of the society towards mentally ill patients as a part of its humanization as a whole [154, 155].

In the middle of the 20th century, a non-academic approach to psychopathology called the "antipsychiatry movement" emerged that opposes the orthodox view of schizophrenia as a disease. According to the members of the antipsychiatry movement [156–158], mentally ill patients, including patients with schizophrenia, are not really sick but are rather individuals with non-standard thoughts and behavior that is inconvenient for society. It was noted that society is unfair, classifying their behavior as a disease and "subjecting it to treatment". Sass [151] even argued that schizophrenia does not exist, claiming that it is a societal construct based on the notion of norm and not norm. However, ambiguous criteria for necessity or needlessness of therapy may contribute to the usage of psychiatry and especially of the diagnosis of schizophrenia for manipulative purposes [159]. It seems that "antipsychiatry" is a topic for a separate analysis, and will not be included further in this article.errors in diagnostics of schizophrenia.

Errors in diagnostics of schizophrenia

The highest frequency of overdiagnosis of schizophrenia in accordance with the ICD-10 criteria was observed in examples of manic and manic-delusional attacks of bipolar disorder and schizoaffective disorders [26, 160–162], polymorphism, and atypical manifestations of bipolar disorder and personality disorders which, in combination with low levels of social adaptation, can lead to diagnostic errors [24, 163, 164]. As is known, no unambiguous criteria have been found to distinguish between bipolar disorder and schizophrenia during the last one hundred years [24, 165,166]. It is concluded that clinical interviews, such as MINI, CIDI and SCID MINI (The International Neuropsychiatric Interview) is a structured interview to identify the most common disorders according to DSM-IV and ICD-10 criteria [165, 166]; CIDI (Composite International Diagnostic Interview) is a highly structured tool for the diagnosis and classification of mental disorders, this scale was created as a part of a project by the World Health Organization and the US Office of Alcoholism, Addiction and Mental Health, it consists of 288 symptom questions, and takes longer to complete than MINI [165, 166]; SCID is a Structured Clinical interview for DSM-IV diagnosis), conducted in dynamics are important to reduce the role of the subjective factor in the differential diagnosis of endogenous mental disorders. The sensitivity and specificity of diagnosing schizophrenia by SCID [167, 168] is 19% and 100%, respectively, so this interview should only be used by clinicians in comparison with empirical data. Muchnik (2020) noted that extensive diagnostics of schizophrenia is associated with biased or dogmatic ideas about the essence of affective psychoses, their incomplete coverage in the clinical state in manuals, and giving decisive importance to non-specific psychotic symptoms [169].

Differential diagnosis in the underdiagnosis of schizophrenia can be complicatedby various factors, such as the pathomorphosis described above, the possibility of dissimulation [37, 170, 41] by psychiatrists [37, 36, 46, 25, 170], and comorbid pathology. Dvirskii (2001) [171], Klimenko [172], and other authors noted the difficulties in diagnosing schizophrenia when combined with chronic and acute intoxication more than 30 years ago [173, 174]. In recent decades, it has been stated that the factor of comorbid psychoactive substances addiction has taken a large place in the differential diagnostic process of schizophrenia [175, 176]. As has long been known, in schizophrenia the influence of a psychogenic factor on the clinical picture cannot be ruled out. According to Elkin (1999) [173], stressful situations take place in many cases around the onset of paranoid schizophrenia. This has been confirmed in different years in the works cited above. With regard to diagnostic errors, the role of stress was described by Lebedeva (2003) [174], and Shmilovich (2013) [175].

According to Lebedeva [174], 4–6% of patients with schizophrenia get an incorrect diagnoses annually. Atypical psychopathological conditions caused by exogenous factors may have significant phenomenological similarity to responses to stress in disharmonious personality [173–175]. Each exogenous factor contributes its psychopathological elements to the structure of the

clinical picture of schizophrenia. Reactive states can develop against the background of remission, which is especially difficult in the case of differential diagnostics. At the same time, differences with true exogenous disorders may be minor and unstable.

In addition, simulation for different purposes can be the reason for the erroneous diagnosis of schizophrenia; it is facilitated if the patient possesses a certain supply of psychiatric knowledge [38, 176–178]. No less relevant in this regard are mental changes that mimic the manifestations of schizophrenia and are caused by somatic diseases, social factors, including macroeconomic ones (difficulties with work, etc.). At the same time, a decrease in the energy potential, apathic-abulic disorders can be noted not only in the framework of the schizophrenic process, but also in chronic infections (tuberculosis, infectious hepatitis, etc.), oncological processes, which has also been observed since ancient times. In recent years, HIV infection has become relevant and more recently — the consequences of COVID-19 [179].

According to the observations of Shumsky [180], fear of damaging the patient by a schizophrenia diagnosis is a certain subjective reason causing the underdiagnosis of schizophrenia. This can be psychologically explained by the predominance of people with the onset of this diseaseduring childhood and adolescence, when the presence of a psychiatric diagnosis due to stigmatization can strongly affect social adaptation. Some doctors hope for age compensation of psychopathology with the formation of a picture of a non-endogenous disorder. Several authors [20, 180] noted that until the moment of correct psychiatric diagnosis, the duration of the disease may often span from 10 to 20 years. It is highlighted in the literature that the number of people in different countries of the world who suffer from schizophrenic psychoses is almost the same. However, the symptoms on the basis of which the diagnosis is made depend significantly on time and culture. This is why the clinical picture and the severity of all manifestations of the disease are susceptible to cultural pathoplasty (which coincides with the data of Yakovleva) [181].

Subjective errors in the diagnosis of schizophrenia can be caused by insufficient study of the anamnesis when the past psychotic state remains undetected and this fact subsequently remains hidden. In such cases, patients at some stage of life may appear before a psychiatrist as primary cases, which becomes a cause of the confrontation between the patient with schizophrenia and doctor, when a patient believes that the diagnosis will estrange them from society and dissimulates their anamnesis for this reason. Objective information about the mental state can be quite contradictory, which may be related to the very essence of schizophrenia.

Subjective reasons for under- and overdiagnosis of schizophrenia may also be connected with the psychiatrist being insufficiently qualified, preventing a proper assessment of the mental state, with a psychiatrist's bad mood or lack of time [182, 183]. It is known that in the ICD-10, several diagnoses can be placed on the same axis, which does not facilitate compliance with methodological standards and does not reduce the frequency of diagnostic discrepancies. This trend also persists in the ICD-11, leading to a blurring of the boundaries between psychopathology and behavioral characteristics, which is already a concern for psychiatrists around the world. This contributes to objective and subjective causes of diagnostic errors. In many cases, they are connected with the incorrect explanation of mechanisms at the adaptation level — high or low. However, the criteria for the level of adaptation may change in parallel with social change. Objective and subjective causes of diagnostic discrepancies may be related to the inaccurate understanding or application of dimensional and categorical diagnostic models. This, in turn, can erase the boundaries of normality and pathology and underscores the importance of following a systematic approach at all stages of diagnostic analysis [152, 183]. Disagreements in the diagnostic approaches of general psychiatry often have a negative effect on the diagnostic argument in forensic psychiatry, and can, of course, have legal consequences. Another cause of misdiagnosis may be linked to the indifference of specialists to their work and, accordingly, the fate of the patient [150–153; 184–185]. This, in turn, corresponds with the data that at the end of the 19th century doctors were much more likely to pay attention to their own mistakes than in the 20th to early 21st century, when mistakes were ignored [184]. In general, diagnosis in psychiatry is still largely subjective, so the "doctor factor" is one of the main issues in assessing psychopathology [152].

In recent years, the differential diagnosis of schizophrenia is often difficult due to significant migration of the population, including ethnically

diverse groups. Ethnocultural factors in the diagnosis of schizophrenia are important in many countries and objectively complicate the diagnostic process [186]. According to an extensive study, British citizens of African-American descent are twice as likely to be diagnosed with psychosis in comparison to citizens who are not a part of racial minority, but are 3–9 times more likely to be diagnosed with schizophrenia [147]. However, schizophrenia may be diagnosed on the basis of a smaller number of symptoms in comparison with white patients [187]. Such a situation can be regarded as a result of pathoplastic influence of culturally and socially conditioned forms of behavior on the design of the picture of psychopathology — that is, as an error in differential diagnosis. In other cases, according to the findings of the abovementioned study, there is more reason to assume that psychiatrists are biased when diagnosing non-white people. However, according to other data, in different ethnic groups with different content of psychopathological experiences, there is a basic similarity of psychoses, which allows a correct nosological hypothesis to be constructed [185, 186]. Studies have shown that migration is an objective factor in the potential triggering of the manifestation or exacerbation of endogenous diseases [187]. Certain groups of migrants in the Netherlands and Sweden showed an increased risk of non-affective psychotic disorders compared to indigenous peoples and other migrants. At the same time, it is acknowledged that this problem has not, to date, been sufficiently studied [147, 186]. Non-optimal language skills and psychogenic pathoplasty, along with subjective factors (mutual distrust of the migrant and non-migrant doctor and patient, ethnosocial barriers, etc.) can objectively complicate the diagnostic process [188–189].

Similar diagnostic problems in recent decades, as noted above, have been noted in many countries. In the case of follow-up change of the diagnosis of endogenous disorder (schizophrenia), diagnostic error may have a complex genesis — objective and subjective, as well as deliberate aggravation of the diagnosis [190].

Diagnostic discrepancies and errors in psychiatry in all countries are analyzed not only according to medical, but also to social and legal aspects. A special place is occupied by naturally unacceptable abuses of psychiatry for various purposes (political, with the aim of appropriating the property of patients, unjustified deprivation of certain rights, approbation of little-studied methods of treatment, etc.) [191, 192]. As a rule, it is a question of the legality or illegality of diagnosis of schizophrenia and mental underdevelopment. It should be noted that abuses in this field of medicine have long been identified, which is reflected in works on the history of psychiatry [23, 193, 194]. The problem appears to require separate consideration beyond the scope of this article.

DISCUSSION

Thus, as shown by the analysis of the literature conducted, the causes of schizophrenia remain mostly unclear. However, over the past few decades, research has gained depth and evidence (genetic, immunological, morpho-cytochemical, and others). The roles of biogenic amines, in particular dopamine, are being studied increasingly comprehensively in schizophrenia. Although some of the results of schizophrenia research are controversial, this research is ongoing. This is explained by the vast medical and social significance of the disease and the hopes of scientists for the development of science. This will change the lives of patients, since it will be possible to discuss optimal therapy and possible prevention.

The present review of the literature suggests that psychiatrists have always had the basis for various views on the course of schizophrenia and criteria regarding its dynamic stages, including remission. Remission in schizophrenia combines many complex issues (differential diagnosis, therapy, pathomorphosis, comorbid pathology) and can be considered an independent aspect of the disorder under consideration. In various years, scientists have found arguments for looking at schizophrenia both as a single disorder or as a group of disorders. The polymorphic symptoms and typical dynamics of diverse forms of schizophrenia have been systematized but neither in Russia nor in other countries has the concept of pathogenesis been formed. Given the constant multifactorial pathomorphosis of schizophrenia and the rapid changes in ecology, society, and pharmacotherapy, its clinical criteria may change. Nevertheless, there is no reason to agree with the assumptions that the term “schizophrenia” has become obsolete. From our point of view, the abovementioned causes of under- and overdiagnosis of schizophrenia cannot cover all the possible difficulties that arise in the diagnostic process.

In general, as follows from rather controversial Russian and foreign literature, it will still take a very long time before the problem of schizophrenia is solved. It seems that this timeframe is largely depends on the position of society, the development of the biological sciences and technology, and the pathomorphosis of the disorder itself. Many aspects of schizophrenia may become clearer and less controversial with systematic studies based on previous and subsequent data.

A review of the literature on the above mentioned aspects of schizophrenia should focus scientific attention on certain research results at a new stage of methodological possibilities, with a different analysis and synthesis of information.

CONCLUSION

The present literature review contributes to a better understanding of schizophrenia research and might be used to improve the quality of life of patients with schizophrenia and reduce the burden on society associated with such patients. The data presented on the etiology, psychopathological and diagnostic criteria of schizophrenia can guide scientists in choosing the most promising areas of schizophrenia research and practice. The review may be useful for the further research of schizophrenia and diseases on the schizophrenic spectrum.

Article history:

Submitted: 17.11.2022
Accepted: 28.04.2022
Published: 24.05.2022

Funding: The article was written without additional funding.

Conflict of interest: The author declares no conflicts of interests.

For citation:

Oskolkova SN. Schizophrenia: a narrative review of etiological and diagnostic issues. Consortium Psychiatricum 2022;3(3):20–35. doi: 10.17816/CP132

Information about the authors

***Sofia Natanovna Oskolkova,** Dr. Sci (Med.), Professor, leading researcher, branch of Endogenous Psychosis of the Department of Forensic Psychiatric Expertise in Criminal Proceedings, The Serbsky State Scientific Center for Social and Forensic Psychiatry; ORCID: https://orcid.org/0000-0003-13347866, e-Library SPIN-code: 7284-3874, Scopus Author ID: 6603176840, Researcher ID: G 8650-2013, RSCI: 401728
E-mail: oskolkova.1954@mail.ru

*corresponding author

References

1. Bleiler E. Handbook of Psychiatry. Moscow: Izdatel'stvo Nezavisimoy psikhiatricheskoy assotsiatsii; 1993. (In Russ).
2. Kraepelin E. Psychiatric. 5th ed. Moscow: Binom, Laboratoriya znanii; 2009. (In Russ).
3. Korsakov SS. General psychopathology. Moscow: Binom, Laboratoriya znanii; 2003. (In Russ).
4. Serbskii VP. On the issue of early dementia (dementia praecox). S.S. Korsakov journal of neurology and psychiatry. 1902;(1-2):33–61. (In Russ).
5. Freud S. Introductory lectures on psychoanalysis. Moscow: Eksmo; 2020. (In Russ).
6. Jaspers K. Allgemeine psychopathologie. Moscow: Praktikum; 1997. (In Russ).
7. Schneider K. Klinische psychopathologie. Kiev: Sphera; 1999. (In Russ).
8. Sartorius N. Revision of the classification of mental disorders in ICD-11 and DSM-V: work in progress. Adv Psychiatr Treatment. 2018;16(1):2–9. doi: 10.1192/apt.bp.109.007138
9. van Os J, Delespaul P, Wigman J, Myin-Germeys I, Wichers M. Beyond DSM and ICD: introducing "precision diagnosis" for psychiatry using momentary assessment technology. World Psychiatry. 2013;12(2):113–117. doi: 10.1002/wps.20046
10. Snezhnevskii AV, editor. Schizophrenia: a multidisciplinary study. Moscow: Meditsina; 1972. (In Russ).
11. Tiganov A, editor. A guide to popsychiatry. Vol. 1. Moscow: Meditsina; 1999. (In Russ).
12. Mosolov SN, Yaltonskaya PA. Concept, classification and clinical differentiation of negative symptoms in schizophrenia. Contemporary Therapy of Mental Disorders. 2020;(1):2–14. (In Russ).
13. Semke VY, Krasil'nikov GT. Autism in schizophrenia (phenomenology, typology, prognostics). Novosibirsk: Novosibirskii gosudarstvennyi meditsinskii universitet; 1998. (In Russ).
14. Tiganov AS, editor. Psychiatry. Scientific and practical reference. Moscow: Meditsinskoe informatsionnoe agentstvo; 2016:539–568. (In Russ).
15. Johnstone EC, Crow TJ, Frith CD, Husband J, Kreel L. Cerebral ventricular size and cognitive impairment in chronic schizophrenia. Lancet. 1976;2(7992):924–926. doi: 10.1016/s0140-6736(76)90890-4
16. Crow TJ. Positive and negative schizophrenia symptoms and the role of dopamine. Br J Psychiatry. 1981;139:251–254. doi: 10.1192/bjp.139.3.251
17. Sadock BJ. Kaplan and Sadok's comprehensive. Textbook of Psychiatry. 10th edition. Wolters Kluwer; 2017.
18. Gaebel W. Status of psychotic disorders in ICD-11. Schizophr Bull. 2012;38(5):895–898. doi: 10.1093/schbul/sbs104
19. Kostyuk GP, Shmukler AB, Golubev SA. Epidemiological aspects of diagnosis of schizophrenia in Moscow. Social Clin Psychiatry. 2017;27(3):5–9. (In Russ).

20. Abu Ali Ibn Sina (Avicenna). The canon of medical science. Publishing house: Mn: Popurri; 2000.
21. Kolta KS. Papyrus Ebers. In: Gerabek WE, Haage BD, Keil G, Wegner W, eds. Enzyklopädie Geschichte der Medizin. German: De Gruyter; 2005.
22. Strassnig M, Kotov R, Cornaccio D, Fochtmann L, Harvey PD, Bromet EJ. Twenty-year progression of body mass index in a county-wide cohort of people with schizophrenia and bipolar disorder identified at their first episode of psychosis. Bipolar Disord. 2017;19(5):336–343. doi: 10.1111/bdi.12505
23. Alexandrovsky YA. History of Russian psychiatry. Publishing house: Gorodets; 2020. (In Russ).
24. Sivolap YP, Portnova AA, Yanushkevich MV, Savchenkov VA, Pushin PV. Schizophrenia as a subject of competence of psychiatrist, narcologist, cardiologist, endocrinologist and pathologist. Neurol Bulletin. 2021;LII(3):76–81. doi: 10.17816/nb44729
25. Andreasen N. Symptoms, signs, and diagnosis of schizophrenia. Lancet. 1995;346(8973):477–481. doi: 10.1016/s0140-6736(95)91325-4
26. Carpenter WT. One hundred years. Schizophr Bull. 2011;37(3):443–444. doi: 10.1093/schbul/sbr032
27. Institute of Clinical Psychiatry and Psychology. Innovations in modern psychiatry Yu.A. Alexandrovsky. February 13, 2013. http://psy-vl.ru/publ/1/1/5-1-0-155
28. Smulevich AB. Schizophrenia or a group of endogenous diseases? The past and the present. J Neurol Psychiatrist Named After S.S. Korsakov. 2015;115(8):4–12. (In Russ). doi: 10.17116/jnevro2015115814-12
29. Kondratiev FV. The fate of patients with schizophrenia (clinical, social and forensic psychiatric aspects). Moscow; 2010. (In Russ).
30. Kotov VP, Maltseva MM. Reviewing the statistics on prevention of offences among mental patients. Social Clin Psychiatry. 2012;2(3):11–14. (In Russ).
31. Jones P, Bucly P. Schizophrenia. Elsiever Limited; 2006.
32. Shashkova NG, Semyonova ND. Patients with schizophrenia and schizophrenia spectrum disorders that refuse outpatientguidance and treatment. Social Clin Psychiatry. 2019;1(1):24–31. (In Russ).
33. Fedorovsky IG. Psychosocial characteristics of patients with paranoid schizophrenia with frequent rare hospitalizations. Saint Petersburg; 2019. (In Russ).
34. Reznik A, Kostyuk G, Morozova A, Zakharova N. Problems of the prerequisites of schizophrenia according to molecular genetic studies. Health Food Biotechnol. (In Russ). 2019;1(1):27–45. doi: 10.36107/hfb.2019.i1.s163
35. Bennett L, Thirlaway K, Murray AJ. The stigmatising implications of presenting schizophrenia as a genetic disease. J Genet Couns. 2008;17(6):550–559. doi: 10.1007/s10897-008-9178-8
36. Morozova AY, Zubkov EA, Zorkina YA, Reznik AM, Kostyuk GP, Chekhonin VP. Genetic aspects of schizophrenia. J Neurol Psychiatrist Named After S.S. Korsakov. (In Russ). 2017;117(6):126–132. doi: 10.17116/jnevro201711761126-132
37. Harrison PJ. Recent genetic findings in schizophrenia and their therapeutic relevance. J Psychopharmacol. 2015;29(2):85–96. doi: 10.1177/0269881114553647
38. Kendler K, Zachar P, Craver C. What kinds of things are psychiatric disorders? Psychol Med. 2010;41(6):1143–1150. doi: 10.1017/s0033291710001844169
39. Sekar A, Bialas AR, de Rivera H, et al. Schizophrenia risk from complex variation of complement component 4. Nature. 2016;530(7589):177–183. doi: 10.1038/nature16549
40. Mirnics K, Middleton FA, Lewis DA, Levitt P. Analysis of complex brain disorders with gene expression microarrays: schizophrenia as a disease of the synapse. Trends Neurosci. 2001;24(8):479–486. doi: 10.1016/s0166-2236(00)01862-2
41. Vasiliev VN. Diagnostics and therapy of incurable nervous and mental diseases of dopamine etiology. Biocorrection of Vasiliev. Publishing house: Mediakit; 2009. (In Russ).
42. Creese I, Burt DR, Snyder SH. Dopamine receptor binding predicts clinical and pharmacological potencies of antischizophrenic drugs. Science. 1976;192(4238):481–483. doi: 10.1126/science.3854
43. Nozdrachev AD, Maryanovich AT, Polyakov EL, Sibarov AD, Khavinson VKh. Nobel prize in physiology or medicine for 100 years. Saint Petersburg: Gumanistika; 2002. (In Russ).
44. Yeragani VK, Tancer M, Chokka P, Baker GB. Arvid Carlsson, and the story of dopamine. Indian J Psychiatry. 2010;52(1):87–88. doi: 10.4103/0019-5545.58907
45. Pathmanandavel K, Starling J, Merheb V, et al. Antibodies to surface dopamine-2 receptor and N-methyl-D-aspartate receptor in the first episode of acute psychosis in children. Biol Psychiatry. 2015;77(6):537–547. doi: 10.1016/j.biopsych.2014.07.014
46. Shkilnyuk G, Ilves A, Kataeva G, et al. The role of changes in glucose metabolism in the brain in the formation of cognitive impairments in patients with remitting and secondary-progressive multiple sclerosis. Neurosci Behav Physiol. 2013;43(5):565–570. doi: 10.1007/s11055-013-9772-6
47. Atyakova AS, Kovtyuh GS. Understanding schizophrenia: historical overview and modern concepts. Lechebnoe delo. 2016;(4):83–87. (In Russ).
48. Orlova VA, Savina TD, Trubnikov VI, et al. Structural features of the brain (according to MRI data) and their functional connections in families of patients with schizophrenia. Russ J Psychiatry. 1998;(35):998–1004. (In Russ).
49. Orlova VA, Serikova TM, Chernischouk EN, Eliseyeva NA, Kononenko IN. Concerning neurodegeneration in schizophrenia: data of spectral-dynamic analysis. Social Clin Psychiatry. 2010;20(2):67–79. (In Russ).
50. Iritani S. What happens in the brain of schizophrenia patients? An investigation from the viewpoint of neuropathology. Nagonya J Med. 2013;1-2:11–28.
51. Uzbekov MG, Misionzhnik EY. Nonspecific syndrome of endogenous intoxication as an integral component of the syndrome of mental disorders. Russ J Psychiatry. 2000;(4):56–65. (In Russ).
52. Mikhailova II, Orlova VA, Minutko VL, et al. Clinical and immunological correlations in patients with unfavorable paroxysmal schizophrenia and their conjugation with MRI signs of brain abnormality. Psychological Health. 2014;(10):17–31. (In Russ).
53. Prasad KM, Eack SM, Goradia D, et al. Progressive gray matter loss and changes in cognitive functioning associated with exposure to herpes simplex virus 1 in schizophrenia: a longitudinal study. Am J Psychiatry. 2011;168(8):822–830. doi: 10.1176/appi.ajp.2011.10101423
54. Fedorenko OY, Ivanova SA. A new look at the genetics of neurocognitive deficits in schizophrenia. J Neurol Psychiatrist Named After S.S. Korsakov. 2020;120(8):183–192. (In Russ). doi: 10.17116/jnevro2020120081183
55. Kahlbaum KL, Emminghaus H. Die klinisch-diagnostischen Gesichtspunkte der Psychopathologie. German, Leipzig: Breitkopf und Härtel; 1878.

56. Oifa AI. Brain and viruses (A virologic hypothesis of the origin of mental diseases). (In Russ). Accessed February 15, 2022. https://psychoreanimatology.org/download/books/Mozg_i_virusy.pdf
57. Vilyanov VB, Egorov SV. Seasonal factors in the birth of patients with schizophrenia. Successes Modern Natural Sci. 2002;(2):31–36. (In Russ).
58. Bolotina OV, Livanova YG, Kolesnichenko EV. Seasonality of birth with large schizophrenia. Bulletin Med Internet Conferences. 2014;4(11):1298–1299. (In Russ).
59. Hippolyte L, Maillard AM, Rodriguez-Herreros B, et al. The number of genomic copies at the 16p11.2 locus modulates language, verbal memory, and inhibition. Biol Psychiatry. 2016;80(2):129–139. doi: 10.1016/j.biopsych.2015.10.021
60. Bassett AS, Chow EW. Schizophrenia and 22q11.2 deletion syndrome. Curr Psychiatry Rep. 2008;10(2):148–157. doi: 10.1007/s11920-008-0026-1
61. Torrey EF, Leweke MF, Schwarz MJ, et al. Cytomegalovirus and schizophrenia. CNS Drugs. 2006;20(11):879–885. doi: 10.2165/00023210-200620110-00001
62. Polianskii DA, Kalinin VV. Immunology involvement in schizophrenia and HIV. Social Clin Psychiatry. 2015;25(4):85–91. (In Russ).
63. Dickerson F, Jones-Brando L, Ford G, et al. Schizophrenia is associated with an aberrant immune response to Epstein-Barr virus. Schizophr Bull. 2019;45(5):1112–1119. doi: 10.1093/schbul/sby164
64. Yolken R. Schizophrenia linked with abnormal immune response to Epstein Barr virus. January 9, 2019. https://www.sciencedaily.com/releases/2019/01/190109090911.htm
65. Leboyer M, Tamouza R, Charron D, Faucard R, Perron H. Human endogenous retrovirus type W (HERV-W) in schizophrenia: a new avenue of research at the gene-environment interface. World J Biol Psychiatry. 2013;14(2):80–90. doi: 10.3109/15622975.2010.601760
66. Peitl MV. Schizophrenia, exorcism, spirituality. Paper presented at: The Second Russian-Croatian International Congress on spiritual psychiatry, May 16–18, 2014. https://psychiatr.ru/download/1549
67. Samsonov IS. Psychopathology and clinic of the syndrome of mastering religious content. Dissertation. Moscow; 2021. (In Russ). Accessed https://www.dissercat.com/content/psikhopatologiya-i-klinika-sindroma-ovladeniya-religioznogo-soderzhaniya-pri-shizofrenii
68. Kondrat'ev FV. "Being held by demons" as a special phenomenon of mental disorder. Practice Forensic Psychiatric Examination. 2006;(44):189–197. (In Russ).
69. Polozhiy BS. Ethnocultural psychiatry. In: Dmitrieva TB, Poshego BS, ed. Handbook of social psychiatry. 2nd ed. Moscow: Meditsinskoe informatsionnoe agentstvo; 2009:143–157. (In Russ).
70. Kopeyko GI, Borisova OA, Gedevani EV. Psychopathology and phenomenology of religious delusion of possession in schizophrenia. J Neurol Psychiatrist Named After S.S. Korsakov. 2018;118(4):30–35. (In Russ). doi: 10.17116/jnevro20181184130-35
71. Dameschek W. The white blood cells in dementia praecox and dementia paralytica. Arch Neurol Psychiatry. 1930;8(1):257–262.
72. Hirata-Hibi M, Hayashi K. The anatomy of the P lymphocyte. Schizophr Res. 1993;8(3):257–262. doi: 10.1016/0920-9964(93)90024-d
73. Semenov SF, Popova NN. Neuropsychiatric diseases in the light of brain immunopathology. Moscow: Meditsina; 1969. (In Russ).
74. Kolyaskina GI. Patterns of autoimmune processes in schizophrenia (clinical, immunological and genetic correlations). Dissertation. Moscow; 1972.
75. Vartanyan ME. Biological psychiatry: selected works. Moscow: RM-Vesti; 1999. (In Russ).
76. Mikhailova II, Orlova VA, Minutko VL, et al. Anomalies in the level of serum autoantibodies to the am antigen of nerve tissues in patients with schizophrenia: a multiparametric immunological assessment. Social Clin Psychiatry. 2016;36 (1):12–20. (In Russ).
77. Maiorova MA, Petrova NN, Churilov LP. Schizophrenia as an autoimmune disease: hypotheses and facts. Crimean J Experimental Clin Med. 2018;(4):62–79. (In Russ).
78. Heath RG, Krupp IM, Byers LW, Lijekvist JI. Schizophrenia as an immunologic disorder. 3. Effects of antimonkey and antihuman brain antibody on brain function. Arch Gen Psychiatry. 1967;16(1):24–33. doi: 10.1001/archpsyc.1967.01730190026003
79. Steiner J, Walter M, Glanz W, et al. Increased prevalence of diverse N-methyl-D-aspartate glutamate receptor antibodies in patients with an initial diagnosis of schizophrenia: specific relevance of IgG NR1a antibodies for distinction from N-methyl-D-aspartate glutamate receptor encephalitis. JAMA Psychiatry. 2013;70(3):271–278. doi: 10.1001/2013.jamapsychiatry.86
80. Tauber AI. Reconceiving autoimmunity: an overview. J Theor Biol. 2015;375:52–60. doi: 10.1016/j.jtbi.2014.05.029
81. Chekhonin VP, Gurina OI, Ryabukhin IA, et al. Immunoenzymic analysis of neurospecific proteins in diagnosing neuropsychic diseases. Russ J Psychiatry. 2006;(6):41–498. (In Russ).
82. Chekhonin VP, Oskolkova SN, Fastovtsov GA, et al. Comparative quantitative analysis of pro- and anti-inflammatory cytokines in patients with paranoid schizophrenia. Paper presented at: Proceeding of 15th Congress of Russian psychiatrist; Moscow, November 9–12. Moscow: Medpraktika-M; 2010. (In Russ).
83. Klyushnik TP, Tiganov AS, ed. Laboratory diagnostic methods in psychiatry. Psychiatry. Scientific and practical reference. Moscow: Meditsinskoe informatsionnoe agentstvo; 2016. (In Russ).
84. Mondelli V, Ciufolini S, Murri BM, et al. Cortisol and inflammatory biomarkers predict poor treatment response in first episode psychosis. Schizophr Bull. 2015;41(5):1162–1170. doi: 10.1093/schbul/sbv028
85. Goldsmith DR, Rapaport MH, Miller BJ. A meta-analysis of blood cytokine network alterations in psychiatric patients: comparisons between schizophrenia, bipolar disorder and depression. Mol Psychiatry. 2016;21(12):1696–1709. doi: 10.1038/mp.2016.3
86. Hussain D. Stress, immunity, and health: research findings and implications. Int J Psychol Rehab. 2010;15(1):94–100.
87. Scherbakova IR. Features of innate and acquired immunity at high risk of schizophrenia and in the processes of its development (clinical and immunological aspects). Dissertation. Moscow; 2006. (In Russ). http://ncpz.ru/cond/0/diss/2006/5
88. Eaton WW, Byrne M, Ewald H, et al. Association of schizophrenia and autoimmune diseases: linkage of Danish national registers. Am J Psychiatry. 2006;163(3):521–528. doi: 10.1176/appi.ajp.163.3.521
89. Al-Diwani AA, Pollak TA, Irani SR, Lennox BR. Psychosis: an autoimmune disease? Immunology. 2017;152(3):388–401. doi: 10.1111/imm.12795
90. Malashenkova IK, Krynskiy SA, Ogurtsov DI. A role of the immune system in the pathogenesis of schizophrenia. J Neurol Psychiatrist

Named After S.S. Korsakov. 2018;118(12):72–80. (In Russ). doi: 10.17116/nevro. 201811812172
91. Klyushnik TP, Barkhatova AN, Sheshenin VS, et al. Specific features of immunological reactions in elderly and young patients with exacerbation of schizophrenia. J Neurol Psychiatrist Named After S.S. Korsakov. 2021;121(2):53–59. (In Russ). doi: 10.17116/jnevro202112102153
92. Khandaker G, Dantzer R, Jones P. Immunopsychiatry: important facts. Psychol Med. 2017;47(13):2229–2237. doi: 10.1017/s0033291717000745108
93. Chechonin VP. Innovative Neuroscience from theory to practice. Paper presented at: Proceedings of the 8th National Congress on psychiatry and narcology "Mental health: looking to the future", Moscow, October 4–5. Moscow; 2021. (In Russ).
94. Morozova A, Zorkina Y, Pavlov K, et al. Associations of genetic polymorphisms and neuroimmune markers with some parameters of frontal lobe dysfunction in schizophrenia. Front Psychiatry. 2021;(12):655178. doi: 10.3389/fpsyt.2021.655178
95. Govorin NV, Vasilyeva AI. Neuromakers and endothelial dysfunction characteristics in acute schizophrenia. Social Clin Psychiatry. 2011;21(1):29–33. (In Russ).
96. Uranova NA, Zimina IS, Vikhreva OV, Krukov NO, Rachmanova VI, Orlovskaya DD. Ultrastructural damage of capillaries in the neocortex in schizophrenia. World J Biol Psychiatry. 2010;11(3):567–578. doi: 10.3109/15622970903414188
97. Strelets VB, Garakh ZV, Novototskii-Vlasov VY, Magomedov RA. Relationship between EEG power and rhythm synchronization in health and cognitive pathology. Neurosci Behav Physiol. 2006;36(6):655–662. doi: 10.1007/s11055-006-0070-4
98. Kirenskaya AV. EEG-studies in biological psychiatry: main trends and outlook. Russ J Psychiatry. 2006;(6):19–27. (In Russ).
99. Kirenskaya AV, Storozheva ZI, Tkachenko AA. Neurophysiological endophenotypes as a tool for studying attention and controlling behavior: prospects for research and diagnostics. Saint Petersburg: Nestor-History; 2015. (In Russ).
100. Bochkarev VK, Solnceva SV, Kirenskaya AV, Tkachenko AA. Comparative study of the characteristics of the P300 wave and the event-related θ rhythm in schizophrenia and personality disorders. Neuroscience Behav Physiology. 2020;51(1):1–6. doi: 10.1007/s11055-020-01030-w
101. Tiganov AS, Yurov YB, Vorsanova SG, Yurov IY. Genomic instability in the brain: etiology, pathogenesis and new biological markers of psychiatric disorders. Ann Russ Academy Med Sci. 2012;67(9):45–53. (In Russ). doi: 10.15690/vramn.v67i9.406
102. Alexandrovsky YuA. Psychiatry and society (Assembly lecture for doctors. 12.04.2016). Moscow; 2016. (In Russ).
103. Shepherd M, Zangwill OL, ed. Handbook of psychiatry. Vol. 1. General psychipathology. Cambridge University Press; 1983:11–38. doi: 10.1192/S000712500020216X
104. Kraepelin E. Psychiatrie: Ein kurzes lehrbuch für studierende und aerzte. VI Auflage, 1898; VII Auflage, 1904; VIII Auflage. Leipzig: Ambr Abel; 1913. Universelle Sammlung, German. (In Deutsch).
105. Zelenin NV. Criteria for the effectiveness of psychiatric hospitalization and the forms of its accounting. Modern Neuropathology Psychiatry. 1948;7(1):118–135. (In Russ).
106. Baruk H. Le prognosis destructeurs; le mefaites des diagnostics incomideres des schizophrenies. Sem Hop Paris.1954;301(34):2164–2169.
107. Tatarenko NP. The "internal picture of the disease" in schizophrenia and its significance for the clinic. Med Research. 2001;1(1):140–143. (In Russ).
108. Osipov VL. Private teaching about mental illness. Petrograd; 1928. (In Russ).
109. Esquirol JE. Die maladies mentales: considérées sous les rapports médical, hygiénique et médico-legal. University of Ottawa; 1838. (In French).
110. Serbskii VP. Psychiatry: a guide to the study of mental illness. 2nd ed. Moscow; 1912. (In Russ).
111. Orshansky IT. Textbook of general psychiatry: a guide for students. Khar'kov: Parovaya tipografiya i litografiya M. Zil'berberg i S-v'ya; 1910. (In Russ).
112. Akkerman VM. Experience of electroconvulsive therapy. J Neuropathol. 1948;(4):11. (In Russ).
113. Buneev AN. Experience of electroconvulsive therapy. Moscow: Medgiz; 1950. (In Russ).
114. Kraepelin E. Psychiatric. 5th edition. Moscow: Binom, Laboratory of Knowledge; 2009. (In Russ).
115. Molochek AI. Psychoreactive mechanisms in schizophrenia. Problems Forensic Psychiatry. 1941;(3):94–117. (In Russ).
116. Sereisky MYa. On the issue of the methodology for taking into account therapeutic effectiveness in the treatment of mental illness. Proceedings of the Institute Gannushkina. 1939;(4):9–25. (In Russ).
117. Kolle K. Psychiatrie. Ein Lehrbuch fur Studierende und Arzte. German: Vero Verlag; 1961. (In Deutsch).
118. Melekhov DE. On the problem of residual and defective conditions in schizophrenia (in connection with the tasks of clinical and socio-labor prognosis). J Neurology Psychiatry named after S.S. Korsakov. 1981;81(1):128–138. (In Russ).
119. Zharikov VM. On the issue of clinical features and therapy of certain forms of remissions in schizophrenia. In: Andreev NP, ed. Issues of forensic psychiatry. Moscow; 1960:214–223. (In Russ).
120. Zenevich GV. Remissions in schizophrenia. Leningrad: Meditsina; 1964. (In Russ).
121. Morozov GV, Tarasov YK. Some types of spontaneous remission in schizophrenia. J Neurology Psychiatry named after S.S. Korsakov. 1951;(4):44–47. (In Russ).
122. Malin DI. Side effect of psychotropic drugs. Moscow: Vuzovskaya kniga; 2000. (In Russ).
123. Tikhonov DV. Features of the formation of remission after the first psychotic attack suffered in adolescence (multidisciplinary study). Dissertation. Moscow; 2020. (In Russ). http://ncpz.ru/siteconst/userfiles/file/diss/Tikhonov/
124. Petrova NN, Lugovskaia LV. Clinical and functional characteristics of remission and rehabilitation of patients with schizophrenia. Neurology Bulletin. 2020;LII(2):33–39. (In Russ). doi: 10.17816/nb34054
125. Bjornestad J, Joa I, Larsen TK, et al. "Everyone needs a friend sometimes" — social predictors of long-term remission in first episode psychosis. Front Psychol. 2016;(7):1491. doi: 10.3389/fpsyg.2016.01491
126. Valencia M, Fresán A, Barak Y, Juárez F, Escamilla R, Saracco R. Predicting functional remission in patients with schizophrenia: a cross-sectional study of symptomatic remission, psychosocial remission, functioning, and clinical outcome. Neuropsychiatr Dis Treat. 2015;11:2339–2348. doi: 10.2147/NDT.S87335
127. Potapov AV. Standardized clinical and functional criteria for therapeutic remission in schizophrenia (population, pharmacoepidemiological and pharmacotherapeutic study). Dissertation. Moscow; 2010. (In Russ). https://search.rsl.ru/ru/record/01004605869

128. Snezhnevsky AV. Schizophrenia: Clinic and pathogenesis. Moscow: Meditsina; 1969:29–119. (In Russ).
129. Snezhnevsky AV. Schizophrenia: a series of lectures 1964. Moscow: MAKS-Press; 2008. (In Russ).
130. Romasenko VA. Hypertoxic schizophrenia. Moscow: Meditsina; 1967. (In Russ).
131. Tiganov AS. Febrile schizophrenia: clinic, pathogenesis, treatment. Moscow: Meditsina; 1982. (In Russ).
132. Ermosina LA. Febrile states in paroxysmal-progressive schizophrenia. Neurol Psychiatry. 1971;(5):176–181. (In Russ).
133. Bleuler E. Dementia praecox, oder Gruppeder Schizophrenien. Leipzig und Wien: Deuticke; 1911. (In Deutsch).
134. Snezhnevsky AV, Najarov RA, Smuleviched AB, ed. Handbook of psychiatry. 2nd ed. Moscow: Meditsina; 1985:333–355. (In Russ).
135. Smulevich AB. Low-grade schizophrenia and borderline states. Moscow: MedPress-inform; 2019:304. (In Russ).
136. Smulevich AB, Dubnitskaya EB, Lobanova VM, et al. Personality disorders and schizophrenic defect (problem of comorbidity). J Neurol Psychiatrist Named After S.S. Korsakov. 2018;118(11):4–14. doi: 10.17116/jnevro20181181114
137. Linscott RJ, Allardyce J, van Os J. Seeking verisimilitude in a class: a systematic review of evidence that the criterial clinical symptoms of schizophrenia are taxonic. Schizophr Bull. 2010;36(4):811–829. doi: 10.1093/schbul/sbn181
138. Cuthbert BN. Dimensional models of psychopathology: research agenda and clinical utility. J Abnorm Psychol. 2005;114(4):565–569. doi: 10.1037/0021-843X.114.4.565
139. Cuthbert BN. The RDoC framework: facilitating transition from ICD/DSM to dimensional approaches that integrate neuroscience and psychopathology. World Psychiatry. 2014;13(1):28–35. doi: 10.1002/wps.20087
140. Kronfeld AS. Problems of syndromology and nosology in modern psychiatry. Proceedings of the P.B. Gannushkin Institute. 1996;(5):5–147. (In Russ).
141. Bekhtereva NP. The magic of the brain and the labyrinths of life. Saint Petersburg: Sova; 2019. (In Russ).
142. Martines-Konde S, Meknik S. The brain is in focus. World of Science. 2009;(3):42–49. (In Russ).
143. Kandel ER. A new intellectual framework for psychiatry. Am J Psychiatry. 1998;155(4):457–469. doi: 10.1176/ajp.155.4.457
144. Pickersgill MD. Debating DSM-5: diagnosis and the sociology of critique. J Med Ethics. 2014;40(8):521–525. doi: 10.1136/medethics-2013-101762
145. Kasyanov E. Renaming schizophrenia. October 27, 2017. https://sch.psychiatr.ru/news/704
146. Möller H. Development of DSM-V and ICD-11: Tendencies and potential of new classifications in psychiatry at the current state of knowledge. Psychiatry Clin Neurosci. 2009;63(5):595–612.
147. Read J, Mosher LR, Bentall RP, ed. Models of madness: psychological, social and biological approaches to schizophrenia. Published 2 August, 2004. doi: 10.4324/9780203420393
148. Freedman R, Lewis DA, Michels R, et al. The initial field trials of DSM-5: new blooms and old thorns. Am J Psychiatry. 2013;170(1):1–5. doi: 10.1176/appi.ajp.2012.12091189
149. Foucault M. Maladie mentale et personnalite. Paris: Presses universitaires de France; 1954. (In France).
150. Laing RD. The Self and Others. London: Tavistock Publications; 1961.
151. Sass LA. Self and world in schizophrenia: three classic approaches. Philosophy Psychiatry Psychology. 2001;8(4):251–270. doi: 10.1353/ppp.2002.0026
152. Suatbaev NR. Psychiatry social or manipulative? Independent Psychiatric J. 2006;(2):22–27. (In Russ).
153. Smulevich AB, Vartanjan ME, Zavidovskaja GI, Rumyantseva GM. Some problems of pathomorphosis of schizophrenia associated with the use of psychotropic drugs. Herald AMN SSSR. 1971;(5):79–85. (In Russ).
154. Smulevich AB. Schizophrenia or a group of endogenous diseases? The past and the present. J Neurol Psychiatrist Named After S.S. Korsakova. 2015;115(8):4–12. (In Russ). doi: 10.17116/jnevro2015115814-12
155. Muchnik PY, Snedkov EV. The study of differential diagnosis of endogenous mental disorders in hospital practice. Rev Psychiatry Med Psychol. 2013;(2):32–36. (In Russ).
156. Bobrov AS, Chuyurova ON, Rozhkova NY. Bipolar depression in the schizophrenia clinic. J Neurol Psychiatrist Named After S.S. Korsakova. 2014;114(7):9–16. (In Russ).
157. Usyukina MV, Shakhbazi TA, Ushakova IM. On differential diagnosis of epileptic and endogenous psychoses. Practice Forensic Psychiatric Examination. 2010;(48):14–24. (In Russ).
158. Nenasteva A. Psychometric scales used in modern clinical addiction medicine. Issues Narcol. 2018;7(16):46–71. (In Russ).
159. Shamrey VK, Marchenko AA, Nechiporenko VV, ed. Psychiatry: Textbook for medical universities. Saint Petersburg: SpetsLit; 2019. (In Russ).
160. Nordgaard J, Revsbech R, Saebye D, Parnas J. Assessing the diagnostic validity of a structured psychiatric interview in a first-admission hospital sample. World Psychiatry. 2012;11(3):181–185. doi: 10.1002/j.2051-5545.2012.tb00128.x
161. Sanchez-Villegas A, Schlatter J, Ortuno F, et al. Validity of a self-reported diagnosis of depression among participants in a cohort study using the Structured Clinical Interview for DSM-IV (SCID-I). BMC Psychiatry. 2008;8(1):1–8.
162. Lomovatsky LE. Dissimulation options in patients with paranoid schizophrenia, their diagnosis and forensic psychiatric evaluation. Dissertation. Moscow; 1982.
163. Hofman AG, Schlemina IV, Loshakov ES, Malkov KD. Sluggish schizophrenia: schizotypical disorder combined with alcohol addiction. Independent Psychiatric J. 2009;(1):21–25. (In Russ). doi: 10.1186/1471-244x-843
164. Aleksandrovskii YA, Neznanov NG, ed. Psychiatry: a national guide. Moscow: GEOTAR-Media; 2018. (In Russ).
165. Vinnikova IN, Oskolkova SN, et al. Modern approaches to the problem of schizophrenic psychoses due to the use of stimulants. Mental Health. 2020;(10):54–64. (In Russ).
166. Alexandrovsky YA, ed. Combined mental disorders of various genesis in forensic psychiatric practice. Moscow: National Medical Research Center of Psychiatry and Neurology named after Serbian; 1991:33–37. (In Russ).
167. Sivolap YP, Yanushkevich MV, Savchenkov VA. The dual diagnosis: schizophrenia and substance abuse. Neurological Bulletin. 2017;49(2):57–60. (In Russ).
168. Ezhkova EV. The syndrome of dependence on surfactants in patients with comorbid pathology of the schizophrenic spectrum: clinical and dynamic features, therapeutic approaches. Dissertation. Moscow; 2021. (In Russ).
169. Muchnik PY. Prichiny I sledstviya oshibok differentsialnoi diagnostiki v psikhiatricheskom statsionare. Synopsis of Phd thesis in Russian. North West Stale Medical University named after I.I. Mechnikov. 2019.
170. Ivanets N, Vinnikova M, Ezhkova E, Titkov M, Bulatova R. Clinical presentations and therapy of polysubstance dependence in

patients with schizophrenia. J Neurology Psychiatry named after S.S. Korsakov. 2021;121(4):63–69. (In Russ). doi: 10.17116/jnevro202112104163280
171. Dvirskii AA, Ivanikov NV, Babanin VL. Alcohol disorders in patients with schizophrenia. J Neurology Psychiatry named after S.S. Korsakov. 2006;(5):34–38. (In Russ). 171.
172. Klimenko TV. Osnovnye zakonomernosti razvitija shizophrenii pri ee sochetanii s narkomaniej. In: Aleksandrivskii YuA. Et al., ed. Sochetannue psihicheskie rasstrojstva razlichnogo geneza v sudebno-psihiatricheskoj praktike. Book in Russian. V. Serbsky National Medical Research Centre of Psychiatry and Narcology. 1991: 33-37.
173. Elkin SP. The influence of exogenous factors on the recovery and course of paranoid schizophrenia. In: Schizophrenia disorders of the schizophrenic spectrum. 1999:263–265.
174. Lebedeva NS. Outcomes of acute atypical psychoses in the process of compulsory treatment. Russian Psychiatric Journal. 2003;(1):24–26. (In Russ).
175. Shmilovich AA. Psychoses of the schizophrenic spectrum associated with stress. Dissertation. Moscow; 2013.
176. Felinskaya NI. On the role of psychogenic factor in the development of schizophrenia. In: Morozov GV, eds. Problems of the clinic, forensic psychiatric examination, pathophysiology and immunology of schizophrenia. Collection of articles, Issue XV(3). Moscow; 1964:214–226. (In Russ).
177. Pelipas VE. ed. Simulation of mental disorders and its recognition during forensic psychiatric examination: Method. recommendations. Moscow; 1983. (In Russ).
178. Vasilevsky VK, Pechenkina OH. Cases of erroneous diagnosis of schizophrenia in a psychopathic personality. Practice of Forensic Psychiatric Examination. 2000;(38):83–93. (In Russ).
179. Shepeleva II, Chernysheva AA, Kiryanova EM, Salnikova LI, Gurina OI. COVID-19: nervous system damage and psychological and psychiatric complications. Social and Clinical Psychiatry. 2020;30(4):76–82. (In Russ).
180. Shumsky NG. Diagnostic errors in forensic psychiatric practice. Humanitarian Agency “Akademicheskii proekt”; 1997. (In Russ).
181. Yakovleva MV. Clinical pathomorphosis of schizophrenia in the ethno-cultural aspect. Dissertation. Moscow; 2011. (In Russ).
182. Yudin BG, Tishchenko PD, Ivanyushkin AYa, Ignatiev VN, Korotkov RV, Siluyanova IV. Introduction to Bioethics: study guide. Moscow: Progress-Traditsiya; 1998. (In Russ).
183. Kassirskii IA. About healing: problems and thoughts. Moscow: Meditsina; 1970. (In Russ).
184. Abramov VA, Tabachnikov SI, Podkorytov VS. Fundamentals of high-quality psychiatric practice. Donetsk: Kashtan; 2004. (In Russ).
185. Savenko YuS. Error analysis as the necessary line of research in psychiatry. Independent Psychiatric Journal. 2016;(2):7–10. (In Russ).
186. Kirkbridge J. Migration and Psychosis: our smoking lung7 World Psychiatry. 2017; 16 (2): 119-120.
187. Boydell J., van Os J., McKenzic K et al. Incidence of Schizophrenia in ethnic minorities in Londin: ecological study into intractions with environment. BMY 2001; 323 (7325): 336-1336. .
188. Skodlar B, Dernovsek MZ, Kocmur M. Psychopathology of schizophrenia in Ljubljana (Slovenia) from 1881 to 2000: changes in the content of delusions in schizophrenia patients related to various sociopolitical, technical and scientific changes. Int J Soc Psychiatry. 2008;54(2):101–111. doi: 10.1177/0020764007083875
189. Oskolkov PV. Essays on ethnopolitology. Moscow: Aspekt Press; 2021. (In Russ).
190. Oliva F, Dalmotto M, Pirfo E, Furlan PM, Picci RL. A comparison of thought and perception disorders in borderline personality disorder and schizophrenia: psychotic experiences as a reaction to impaired social functioning. BMC Psychiatry. 2014;14:239. doi: 10.1186/s12888-014-0239-2
191. Abbs B, Achalia RM, Adelufosi AO, et al. The 3rd Schizophrenia International Research Society Conference, 14–18 April 2012, Florence, Italy: summaries of oral sessions. Schizophr Res. 2012;141(1):e1–e24. doi: 10.1016/j.schres.2012.07.024
192. Lebedeva IS, Akhadov TA, Semenova NA, Barkhatova A, Kaleda V. Towards multidisciplinary synthesis in psychiatry: neuroimaging methods. In: Zvereva NV, Roshhina IF, ed. Medical (clinical) psychology: Traditions and prospects (For the 85th anniversary of Yuri Fedorovich Polyakov). Moscow; 2013:229–236.
193. Kannabikh YuV. History of psychiatry. Moscow: Medgiz; 1929. (In Russ).
194. van Voren R. Political abuse of psychiatry--an historical overview. Schizophr Bull. 2010;36(1):33–35. doi: 10.1093/schbul/sbp119

Professional Values and Educational Needs among Mental Health Specialists in Russia: Survey Results

Профессиональные ценности и потребности в образовании у специалистов сферы охраны психического здоровья: результаты опроса

doi: 10.17816/CP184

Original research

Andrey Kibitov[1], Egor Chumakov[2], Anastasia Nechaeva[1], Mikhail Sorokin[1], Nataliia Petrova[2], Marina Vetrova[3]

[1] V.M. Bekhterev National Research Medical Center for Psychiatry and Neurology, Saint Petersburg, Russia

[2] Saint Petersburg State University, Saint Petersburg, Russia

[3] Pavlov First State Medical University of Saint Petersburg, Saint Petersburg, Russia

Андрей Кибитов[1], Егор Чумаков[2], Анастасия Нечаева[1], Михаил Сорокин[1], Наталия Петрова[2], Марина Ветрова[3]

[1] ФГБУ «Национальный медицинский исследовательский центр психиатрии и неврологии им. В.М. Бехтерева» Минздрава России, Санкт-Петербург, Россия

[2] ФГБОУ ВО «Санкт-Петербургский государственный университет», Санкт-Петербург, Россия

[3] ФГБОУ ВО «Первый Санкт-Петербургский государственный медицинский университет имени академика И.П. Павлова» Минздрава России, Санкт-Петербург, Россия

Editorial comment:

The article took part in the competition of scientific papers of early-career psychiatrists.

ABSTRACT

BACKGROUND: Exploring the professional values and educational needs of future and practicing mental health specialists is required to develop effective measures aiming at improving their skills and interest in their work.

AIM: Our aim was to explore professional values and educational needs of mental health specialists in Russia.

METHODS: We conducted a survey that captured socio-demographic data, professional characteristics, professional values, and educational needs. Fisher's exact test, logistic regression, and the k-means cluster analysis were used in our statistical analysis.

RESULTS: The survey included 133 participants, 71% of whom had completed their postgraduate education. The following items were mentioned as important professional values by the respondents: "Job opportunities", "Stimulation of intellectual activity", and "Work-life balance". The most popular options for educational activities were English language (63.4%), the principles of evidence-based medicine (63.4%), and developing skills for conducting scientific research (59.4%).

In comparison with practicing specialists, respondents who had not yet completed their postgraduate education were more interested in developing their curriculum vitae (39% vs. 60%, p=0.044) and communication skills (49% vs. 77%, p=0.0048). Compared to male respondents, female respondents were more interested in developing skills in conducting scientific research (47 vs. 70%, p=0.0165).

A cluster analysis showed that specialists who attached more importance to almost all professional values, in comparison to those who did not, were more interested in activities aimed at developing their research skills (64% vs. 41%, *p*=0.0287), learning about the principles of evidence-based medicine (70% vs. 41%, *p*=0.0063), and participating in journal clubs (39% vs. 11%, *p*=0.0193).

CONCLUSION: The present study suggests that job opportunities, intellectual stimulation, and work-life balance are the most important professional values for future and practicing mental health specialists. These findings might be used as a basis for developing educational activities for mental health specialists.

АННОТАЦИЯ

ВВЕДЕНИЕ: Для планирования эффективных мер, направленных на повышение квалификации и профессиональной заинтересованности практикующих и будущих специалистов в сфере охраны психического здоровья, необходимо определение их профессиональных ценностей и образовательных потребностей.

ЦЕЛЬ: Идентификация профессиональных ценностей и образовательных потребностей российских специалистов в области охраны психического здоровья.

МЕТОДЫ: Проведен конфиденциальный опрос, включавший социально-демографические и профессиональные характеристики, вопросы о профессиональных ценностях и образовательных потребностях. Для статистического анализа использовались точный тест Фишера, логистическая регрессия, кластерный анализ методом k-средних.

РЕЗУЛЬТАТЫ: В опросе приняли участие 133 человека, 71% участников закончили постдипломное образование. Наиболее важными профессиональными ценностями для респондентов являлись (при оценке по 5-балльной шкале): “Возможности для работы”, “Стимуляция интеллектуальной деятельности”, “Баланс работа и жизнь”, наиболее популярными вариантами образовательных мероприятий — обучение английскому языку (63,4%), принципам доказательной медицины (63,4%), развитие навыков для проведения собственных научных исследований (59,4%).

Респонденты, еще не завершившие постдипломное образование, по сравнению с практикующими специалистами, были более заинтересованы в разработке портфолио (39% vs. 60%, *p*=0,044), развитии коммуникационных навыков (49% vs. 77%, *p*=0,0048). Респонденты женского пола оказались более заинтересованы в развитии навыков для проведения собственных научных исследований (47% vs. 70%, *p*=0,0165).

Кластерный анализ показал, что специалисты, придающие большее значение практически всем профессиональным ценностям, чаще предпочитали мероприятия, направленные на развитие навыков проведения собственных исследований (64% vs. 41%, *p*=0,0287); обучение принципам доказательной медицины (70% vs. 41%, *p*=0,0063); журнальные клубы (39% vs. 11%, *p*=0,0193).

ЗАКЛЮЧЕНИЕ: Полученные результаты демонстрируют наибольшую важность для специалистов в области охраны психического здоровья ценностей, связанных с условиями труда и стимуляцией интеллектуальной деятельности, а также высокий интерес к участию в образовательных мероприятиях, направленных на развитие “научно-ориентированных” и коммуникативных навыков, что необходимо учитывать при планировании образовательной деятельности.

Keywords: *mental health services; Russia; specialists; values; education*
Ключевые слова: *охрана психического здоровья; Россия; специалисты; ценности; образование*

INTRODUCTION

The sustainable provision of high-quality mental health care depends on the efficiency of the policies for human resources for health, aiming to maintain an adequate number of mental health care providers and improve their well-being. It is well known that the number of human resources for mental health is limited in the majority of low- and middle-income countries [1].

For example, the Global Health Observatory reports that there were 8.5 psychiatrists per 100,000 people in Russia (an upper-middle- income country) in 2015 (https://apps.who.int/gho/data/view.main.HWF11v). Although this number is relatively close to the recommended ratio of 10 psychiatrists per 100,000 people, there is an issue of lack of interest in mental health among medical students [2].

Previous international studies have shown that less than 6% of medical university graduates choose a career in psychiatry [3–4]. This might have several reasons. Firstly, mental health problems and mental health services remain stigmatized in the medical community [5–6]. Secondly, a significant proportion of medical students describe interactions with psychiatric patients as disturbing, stressful, and emotionally challenging [7]. Thirdly, although there have been suggestions that interest in psychiatry among medical students increases after clinical practice in psychiatric wards, the quality of mental health education still needs substantial improvement [8]. Considering that mental and addictive disorders are among the leading causes of mortality, morbidity, and disability worldwide [9–11], such low interest in a career in mental health among medical students may lead not only to staff shortages, but also to significant problems in the diagnosis and treatment of mental and behavioral disorders [12–13]. Taking into account this fact, the World Psychiatry Association (WPA) has included the education of specialists; strengthening of personnel resources; the development of international partnerships between mental health professional resources, health-related institutions and non-medical organizations; and the promotion of psychiatry as a medical specialty in clinical, academic, and research areas in the list of priorities in the current WPA Action Plan 2020–2023 [14].

Another important issue affecting the quality of mental health care is poor job-related well-being among mental health providers, including a high level of burnout and lack of job satisfaction. Poor job-related well-being has been associated with increased staff turnover and a decrease in the quality of the provided care [15]. Workloads, long working hours, stress, lack of support from family and friends, low salaries, and high expectations from society weigh negatively on the job-related well-being of mental health specialists, which, in turn, affects the quality of provided care [16]. Chumakov et al. showed that signs of professional burnout, which is an important aspect of job-related well-being, were observed in 118 (71,5%) out of the 165 surveyed early career psychiatrists in Russia [17].

Providing sufficient opportunities for professional development and improving the job-related well-being of mental health care providers are one of the key tasks of the Russian Society of Psychiatrists and the Early Career Psychiatrists' Council of the Russian Society of Psychiatrists (RSP ECPC) (https://psychiatr.ru/about/ustav).

However, before planning measures aiming at making mental health practice more attractive to medical students, or improving job satisfaction among practicing specialists, the most relevant professional values and educational needs should be determined. Professional values have been defined as the basis on which a person chooses, masters, and performs his/her working activity [18]. Educational needs, in turn, refer to the gaps in knowledge or skills on the part of specialists required to be filled in order to achieve the desired level of competence [19–20]. However, these domains have not been studied, to date, among Russian mental health care specialists.

Against this background, we conducted a pilot study aimed at exploring the professional values and educational needs of mental health specialists in Russia.

METHODS

Study design

This study adopted a cross-sectional study design. A voluntary confidential survey was administered to personnel and trainees providing care to people with mental health problems in Russia. The data was collected in-person as part of the VI School of St. Petersburg Early Career Psychiatrists and online using the Internet platform (https://docs.google.com/forms/), from May to December 2021. Invitations to participate were distributed in the profile groups of social networks that unite mental health specialists, as well as through the information platforms of the Early Career Psychiatrists' Council of the Russian Society of Psychiatrists and the Young Scientists' Council of the V.M. Bekhterev National Medical Research Center for Psychiatry and Neurology.

Participants were eligible if they met the following criteria: 1) work or receiving training in the field of psychiatry, addiction psychiatry, psychotherapy, psychology, or other areas related to mental health; 2) over 18 years of age; and 3) possess sufficient

knowledge of the Russian language to understand the questionnaire. The criterion for non-inclusion was refusal to participate in the study.

Questionnaire

The questionnaire was developed based on the existing literature, specifying the professional values and types of educational activities for mental health specialists [4, 16, 21–25], and it included three main sections (Supplement 1). We did not conduct a validation study for the questionnaire.

The first section was designed to capture socio-demographic data and the individual characteristics of the respondents and included the following sub-sections: a) demographic characteristics; b) work activities (position, mental health field, place of employment, educational and research activities at the time of completing the survey, work duration and availability of a curriculum vitae (CV); and c) education (completion of a professional education program and the number of years since the completion of the first professional education in mental health). In order to assess the alignment of educational programs with clinical practice, the following question was asked: "Does the content of the educational programs that you completed correspond to the cases that you are currently facing in clinical practice?", with the following answer choices: "Yes" or "No". If he/she chose "No" the respondent was asked to clarify their answer.

The second section was devoted to the professional values, which in the past studies [4, 16, 21] have been identified as the factors that drive professional interest in the mental health field. Participants were asked to evaluate the following professional values: "Intellectual stimulation", "Short duration of training", "Financial compensation", "Work-life balance", "Prestige", "Research opportunities", "Research supervisors on a topic of interest", "Annual conferences", and "Job opportunities" on a five-point Likert scale (from 1 — "Not at all important" to 5 — "Very important").

The third section consisted of questions about future educational activities, including the intention to become a part of the RSP ECPC and participate in various educational events, such as "Developing a Curriculum Vitae (CV)"; "Developing skills for communication with patients and their families"; "Developing skills for conducting own research and publishing results"; "Developing the skills required for genetic counseling"; "Principles of evidence-based medicine"; "English language skills"; "Writing resumes, motivation letters"; "Journal club" and "Developing a grant application". Such activities are considered to be the most popular among mental health specialists [19–20, 22–23, 26]. In addition, participants could freely express their wishes regarding the format and topics of the educational events.

Participants who did not complete the questionnaire in full were not excluded from the study. All the available data were included in the statistical analysis. Since the proportion of missing data was less than or about 10%, we did not use any missing data imputation methods. Such a decision was informed by the guidance of Bennett, which suggests that a statistical analysis is likely to be biased if more than 10% of the data is missing [27].

Statistical analysis

The obtained data was analyzed using the SAS JMP Statistical Discovery Pro 16.0 software package (SAS Institute Inc., USA). The distribution of the continuous variables was checked for normality using histograms and the Shapiro-Wilk test. Due to the fact that the continuous variables did not follow a normal distribution, the data was presented in the median and first and third quartile format (Me [Q1, Q3]). Ordinal variables are presented in the mean and standard deviation format (M [SD]). Fisher's exact test was used to assess the differences in the frequencies of categorical variables between the groups. The logistic regression estimated the association between professional values and the choice of an educational activity. To facilitate the interpretation of regression model results, independent variables (values) were measured using a 5-point Likert scale and converted to dichotomous variables (score below median vs. score equal to median or above). The associations were considered statistically significant at a two-tailed p-value of less than 0.05. A k-means cluster analysis was used for sample clustering based on the professional values. The model using two clusters was regarded as the most appropriate, as it allowed for maximum homogeneity within the groups and optimal distance between the centers of the clusters.

Ethical approval

Ethical approval was not obtained for the purposes of this study. The survey was confidential, and no identifying information was collected. All participants provided

voluntary, informed consent to participate in the survey. During the active survey phase, no reports about any potential harm related to the survey were received.

RESULTS

Sample characteristics

A total of 133 people participated in the survey, of which the majority were females (54%, *n*=72). The median age was 28 years [Q1=25, Q3=33] (119 answers, 89.5% of total sample). Most respondents were employed in psychiatry (58.6%, *n*=78), psychotherapy (21.1%, *n*=28), psychology (10.5%, *n*=14), and addiction psychiatry (11.3%, *n*=15). The majority of the respondents (71%, *n*=95) had completed professional education, and 91% (*n*=121) were employed in the field of adult patients care. The most common places of employment for the respondents were public hospitals (47.4%, *n*=63) and outpatient departments in private clinics (27.1%, *n*=36). About half of the respondents were engaged in educational (49.6%, *n*=66) and scientific activities (37.6%, *n*=50).

The results of the current study will be presented in three parts. Firstly, we will present the results on professional values and educational needs among mental health specialists. In the second part, discovered associations between professional values and preferences for educational activities will be reported. This will be followed by a discussion of the cluster analysis results.

Professional values

All participants answered questions about the professional values except for one missed answer for the "Job opportunities" (99.2%, *n*=132 answers). On a 5-point Likert scale, the most important professional values for the respondents were "Job opportunities" (4.6 [0.78]), "Intellectual stimulation" (4.5 [0.78]), and "Work-life balance" (4.4 [0.90]). Factors such as "Short duration of training" (3.3 [1.05]), "Prestige" (3.6 [1.14]), and "Research opportunities" (3.8 [1.17]) were found to be the least important to this sample of respondents.

Educational activities and preferences for their options

According to the majority of respondents (76.7%, *n*=102), the content of the currently available educational programs is relevant to their daily clinical practice. The majority of participants (92.5%, *n*=123) also answered questions about their preferences regarding the choice of topics and options for educational activities. The most popular options were "English language skills", "Principles of evidence-based medicine", and "Developing skills for conducting own research and publishing results". The least popular were the "Developing skills required for genetic counseling", "Journal club" and "Developing a grant application" (Table 1).

The results of the Fisher's two-tailed exact test showed that preferences in the choice of topics and options for educational activities differed according to socio-demographic and professional backgrounds. In comparison with the respondents who had already graduated, those who are still studying were more interested in educational activities aimed at developing a CV (39% vs. 60%, *p*=0.044, *n*=123) and communication skills (49% vs. 77%, *p*=0.0048, *n*=123).

Table 1. Preferences for educational activities

Educational activities	N of positive answers (% of overall N of answers)	Overall N of answers (% of total sample)
Principles of evidence-based medicine	78 (63.4%)	123 (92.5%)
English language skills	78 (63.4%)	123 (92.5%)
Developing skills for conducting own research and publishing results	73 (59.4%)	123 (92.5%)
Developing skills for communication with patients and their families	70 (56.9%)	123 (92.5%)
Developing a CV	55 (44.7%)	123 (92.5%)
Writing resumes, motivation letters	46 (37.7%)	122 (91.7%)
Developing a grant application	41 (33.3%)	123 (92.5%)
Journal club	40 (32.5%)	123 (92.5%)
Developing the skills required for genetic counseling	39 (31.7%)	123 (92.5%)

Consequently, older age turned out to be a factor associated with a lesser preference for these activities (B=-0,09, p=0.034 for developing a CV and B=-0,13, p=0.0015 for communication skills).

The activities related to the development of skills for conducting one's own research and publishing their results were more often preferred by respondents who were already engaged in scientific activities (72% vs. 52%, p=0.0375) and respondents who reported having an up-to-date CV (71% vs. 52%, p=0.039), compared to those who did not. It is also worth noting that females were significantly more interested in this type of educational activities, in comparison with males (70% vs. 47%, p=0.0165). Respondents already involved in research, compared to those who were not, were also significantly more interested in participating in journal clubs (21% vs. 52%, p=0.0013) and grant application development seminars (25% vs. 48%, p=0.0105).

Association between professional values and preferences for educational activities

Using Fisher's two-tailed exact test, it was established that preference for a particular educational activity depended on the subjective importance of certain professional values. In this analysis, all values-related variables were dichotomized by the median. For example, the activities related to the skills for conducting one's own research and publishing the results were more often preferred by respondents who more valued (i.e. score for the value was equal to median or above) research opportunities [Me=4] and the availability of research supervisors on their topic of interest [Me=4] compared to those who scored below the median (72% vs. 25%, p=0.0005 and 66% vs. 38%, p=0.0095, respectively). Interest in learning the principles of evidence-based medicine was associated with the professional importance of annual conferences (71% among those who had a score at the median or above [Me=4] vs. 42% among those with a score below the median, p=0.0053). Grant writing events turned out to be more interesting to respondents for whom research opportunities had a more important professional value (42% among those who had a score equal to the median or above vs. 18% among those with a score below the median, p=0.0055).

Cluster analysis results

Our sample was clustered using professional values as variables (Table 2). Participants in the larger cluster number 2 attached more importance to almost all of the presented professional values, with the exception of the short duration of training. The most pronounced differences were noticed in values such as prestige, research opportunities, research supervisors on a topic of interest, as well as annual conferences. It should be noted that cluster number 2 contained a significantly higher proportion of women in comparison with cluster number 1 (59% vs. 37%, p=0.0324).

Respondents also differed in their preferences for educational activities between the two clusters. Thus, respondents in cluster number 2, compared to respondents in cluster number 1, were more likely to prefer activities that aimed at developing skills for conducting research and publishing results (64% vs. 41%, p=0,0287), learning the principles of evidence-based medicine (70% vs. 41%, p=0,0063), and joining journal clubs (39% vs. 11%, p=0,0193).

Table 2. Mean scores of professional values variables in the clusters

Professional values	Cluster 1, n=30	Cluster 2, n=102
Intellectual stimulation	3.7	4.7
Short duration of training	3.3	3.3
Financial compensation	3.5	4.1
Work-life balance	3.7	4.5
Prestige	2.5	4.0
Research opportunities	2.7	4.2
Research supervisors on a topic of interest	2.8	4.4
Annual conferences	2.9	4.4
Work opportunities	4.0	4.7

DISCUSSION

Main findings

To our knowledge, ours was the first study to analyze professional values, preferences and educational needs among mental health specialists in Russia. Based on our survey data analysis, the main findings were as follows:

1. The most important professional values for mental health specialists are job opportunities, intellectual stimulation, and work-life balance.
2. Mental health specialists have the greatest need for educational activities aimed at developing their English language skills, learning the principles of evidence-based medicine, and developing the skills for conducting research and publishing their results.
3. Compared to those who have completed formal education, younger specialists who are still in training show greater interest in educational activities that focus on developing CV and communication skills.
4. Female specialists appear more interested in educational activities that focus on developing skills for conducting research and publishing their results.
5. Specialists who place greater importance on professional values are more interested in educational activities focused on developing research skills, learning the principles of evidence-based medicine, and attending journal clubs.

Strengths and limitations

The main strength of this study is that the assessment of the professional values and educational needs was conducted not only among already working specialists, but also among those who are still in training. This approach allowed us to capture diverse perspectives. This study adds to the growing body of literature on the issues of career initiation and retention among mental health specialists.

This study has a number of limitations. Firstly, the participants' responses were gathered via self-reports, which leaves open the possibility for potential methodological biases (e.g., the social desirability effect or informational biases). Secondly, due to the relatively small number of respondents employed in the field of mental health, aside from psychiatry, we were not able to compare professional values and educational needs between specialists with different profiles. Thirdly, the survey did not take into account many socio-demographic factors (e.g., marital status, social support), and job characteristics (e.g., number of hours worked, wages, presence/absence of administrative support, multidisciplinary medical team characteristics, work conflict resolution processes) that may have influenced the interest in mental health care. Finally, some respondents did not complete the questionnaire in full, which may have had a slight impact on our results regarding the preferences in education activities.

Comparison with the existing literature

Our findings suggest that organizational measures may need to focus not only on improving work-life balance and creating more job opportunities, but also on building an environment that stimulates intellectual activity. These findings are consistent with the results of a study from Switzerland that demonstrates the importance of intellectual stimulation in maintaining a high level of job satisfaction among Swiss physicians [21].

Our results also showed the "scientific orientation" of early career specialists, which is undoubtedly a positive trend, because the translation of science into clinical practice is one of the most important ways to improve quality [22]. Therefore, to stimulate the interest of mental health specialists in their work and improve the quality of the care they provide, these activities should be considered when developing educational strategies in the field of mental health. A promising approach would be to conduct scientific and educational activities such as journal clubs in English. This educational format was well received by medical students in Russia, as it allows them to improve their English language skills, learn the principles of evidence-based medicine, and develop the skills needed to conduct research and publish the results in international peer-reviewed journals [23].

Our results also revealed the demand for seminars on developing a CV among early career specialists still in training. On the one hand, interest in CV development among specialists who are not yet employed can indicate a high level of professional ambition and deep interest in their future field of choice, which is a positive trend. On the other hand, interest in this topic may reflect the intention of early career specialists to seek a job abroad, since using CVs is neither key nor particularly useful for finding a job in Russia. This explanation is consistent with the results of previous studies showing the migration trends of trained specialists to higher income countries [24].

The strong interest of future specialists in developing their communication skills reflects positive changes in

the field of mental health. Until recently, the problem of communication between doctors and patients in psychiatry had received almost no attention, even though communication skills are key in achieving compliance and for effective treatment [25]. There is evidence that good communication skills can improve patients' subjective perception of the treatment process, which improves the quality of delivered care [26]. Therefore, it is necessary to plan and provide theoretical and practical educational activities aiming at developing communication skills. Currently, one of the possible directions for the development of this area is teaching communication skills using simulation models, in which specialists simultaneously acquire both clinical and nonclinical skills [28].

It is important to note that female respondents in our study were more interested in developing the skills needed to conduct their own research. This finding reflects the global trend towards the narrowing of the gender gap in science: despite the fact that women are still underrepresented in academia in most countries, the proportion of women active in research is on a steady increase [29].

Our findings indicate that specialists whose attitude towards their work is largely determined by professional values are more interested in "scientifically oriented" educational activities. Previous studies have shown that the "scientific orientation" of physicians can be associated with higher perceived professionalism and prestige [30–31], meaning that modern training programs should include modules with a focus on research in order to increase interest in psychiatry among students. Nevertheless, to our knowledge, our study is the first to report an association between professional values and a "scientifically oriented approach" among mental health specialists.

Implications for future research and practice

Based on the findings of the current study, the following suggestion can be put forth. Future research in this field may need to include non-medical specialists (e.g. clinical psychologists or social workers) and nursing staff in their sample of interest. Our results also highlight the need for inclusion of research activities as a component of mental health program curricula. Furthermore, educational resources should be made available to support the research activities of current and future care providers.

CONCLUSION

The present study suggests that job opportunities, intellectual stimulation, and work-life balance are the most important professional values for mental health specialists. The results we obtained could allow to identify the most important areas for the future educational activities which are necessary for improving specialists' qualifications and job satisfaction. This will lead to an increase in the quality of the care provided to people with mental disorders.

Article history:

Submitted: 19.05.2022
Accepted: 29.08.2022
Published: 22.09.2022

Authors' contribution:

Methodology was developed by E.M. Chumakov, N.N. Petrova, M.V. Vetrova; E.M. Chumakov, M.Y. Sorokin, M.V. Vetrova collected the data; A.A. Kibitov, E.M. Chumakov, A.I. Nechaeva, M.Y. Sorokin were involved in Statistical Analysis and Interpretation of Results; M.V. Vetrova. A.A. Kibitov, A.I. Nechaeva, M.V. Vetrova wrote the first draft of the manuscript, which has been revised by A.A. Kibitov, E.M. Chumakov, A.I. Nechaeva, M.Y. Sorokin, N.N. Petrova, M.V. Vetrova.

Funding: The research was carried out without additional funding.

Conflict of interest: The authors declare no conflicts of interest.

For citation:

Kibitov AA, Chumakov EM, Nechaeva AI, Sorokin MY, Petrova NN, Vetrova MV. Professional values and educational needs among mental health specialists in Russia: survey results. Consortium Psychiatricum 2022;3(3):36–45. doi: 10.17816/CP184

Information about the authors

***Andrey Alexandrovich Kibitov**, MD, resident of Translational Psychiatry Department, V.M. Bekhterev National Research Medical Center for Psychiatry and Neurology; ORCID: https://orcid.org/0000-0001-7766-9675, e-Library SPIN-code: 5502-2307, Scopus Author ID: 57216579973

E-mail: andreykibitov18@gmail.com

Egor Maksimovitch Chumakov, MD, PhD, Assistant Professor, Department of Psychiatry and Addiction, Saint Petersburg State University; ORCID: https://orcid.org/0000-0002-0429-8460, e-Library SPIN-code: 2877-2154, Scopus Author ID: 57202854981

Anastasia Igorevna Nechaeva, research fellow at the Department of Treatment of Outpatients with Addictive Disorders, V.M. Bekhterev National Research Medical Center for Psychiatry and Neurology; ORCID: https://orcid.org/0000-0002-2531-8707, e-Library SPIN-code: 8177-5635

Mikhail Yuryevitch Sorokin, MD, PhD, research associate of the integrative pharmaco-psychotherapy of mental disorders department, academic secretary, V.M. Bekhterev National Research Medical Center for Psychiatry and Neurology; ORCID: https://orcid.org/0000-0003-2502-6365, e-Library SPIN-code: 7807-4497; Scopus Author ID: 57191369987, ResearcherID: AAN-5757-2020

Nataliia Nikolaevna Petrova, Dr. Sci. (Med.), Professor, The Head of Department of Psychiatry and Addiction, Saint Petersburg State University; ORCID: https://orcid.org/0000-0003-4096-6208, e-Library SPIN-code: 3341-2372

Marina Vladislavovna Vetrova, MD, research associate, the Laboratory of Clinical Psychopharmacology of Addiction; Pavlov First State Medical University of Saint Petersburg;
ORCID: https://orcid.org/0000-0002-9698-0327, e-Library SPIN-code: 3966-0847, Scopus Author ID: 56798582900,
ResearcherID: AAG-6621-2020

*corresponding author

References

1. Kakuma R, Minas H, van Ginneken N, Dal Poz MR, Desiraju K, Morris JE, Saxena S, Scheffler RM. Human resources for mental health care: current situation and strategies for action. Lancet. 2011 Nov 5;378(9803):1654–1663. doi: 10.1016/S0140-6736(11)61093-3
2. Winkler P, Krupchanka D, Roberts T, Kondratova L, Machu V, Hoschl C, Sartorius N, Van Voren R, Aizberg O, Bitter I, et al. A blind spot on the global mental health map: a scoping review of 25 years' development of mental health care for people with severe mental illnesses in central and eastern Europe. Lancet Psychiatry. 2017 Aug;4(8):634–642. doi: 10.1016/S2215-0366(17)30135-9
3. Goldacre MJ, Turner G, Fazel S, Lambert T. Career choices for psychiatry: national surveys of graduates of 1974–2000 from UK medical schools. Br J Psychiatry. 2005 Feb;186:158–164. doi: 10.1192/bjp.186.2.158
4. Malhi GS, Coulston CM, Parker GB, Cashman E, Walter G, Lampe LA, Vollmer-Conna U. Who picks psychiatry? Perceptions, preferences and personality of medical students. Aust N Z J Psychiatry. 2011 Oct;45(10):861–870. doi: 10.3109/00048674.2011.604301
5. Knaak S, Mantler E, Szeto A. Mental illness-related stigma in healthcare: Barriers to access and care and evidence-based solutions. Healthc Manage Forum. 2017 Mar;30(2):111–116. doi: 10.1177/0840470416679413
6. Lutova NB, Sorokin MY, Petrova YI, Vid VD. The structure of the psychiatric stigma in our days. Mental health. 2016;14(8):44–50.
7. Cutler JL, Harding KJ, Mozian SA, Wright LL, Pica AG, Masters SR, Graham MJ. Discrediting the notion "working with 'crazies' will make you 'crazy'": addressing stigma and enhancing empathy in medical student education. Adv Health Sci Educ Theory Pract. 2009 Oct;14(4):487–502. doi: 10.1007/s10459-008-9132-4
8. Lyons Z. Impact of the psychiatry clerkship on medical student attitudes towards psychiatry and to psychiatry as a career. Acad Psychiatry. 2014 Feb;38(1):35–42. doi: 10.1007/s40596-013-0017-3
9. Vigo D, Thornicroft G, Atun R. Estimating the true global burden of mental illness. Lancet Psychiatry. 2016 Feb;3(2):171–178. doi: 10.1016/S2215-0366(15)00505-2
10. Prince M, Patel V, Saxena S, Maj M, Maselko J, Phillips MR, Rahman A. No health without mental health. The Lancet. 2007;370(9590):859–877. doi: 10.1016/s0140-6736(07)61238-0
11. Lozano R, Naghavi M, Foreman K, Lim S, Shibuya K, Aboyans V, Abraham J, Adair T, Aggarwal R, Ahn SY, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012 Dec 15;380(9859):2095–2128. doi: 10.1016/S0140-6736(12)61728-0
12. Andrade LH, Alonso J, Mneimneh Z, Wells JE, Al-Hamzawi A, Borges G, Bromet E, Bruffaerts R, de Girolamo G, de Graaf R, et al. Barriers to mental health treatment: results from the WHO World Mental Health surveys. Psychol Med. 2014 Apr;44(6):1303–1317. doi: 10.1017/S0033291713001943
13. Araya R, Zitko P, Markkula N, Rai D, Jones K. Determinants of access to health care for depression in 49 countries: A multilevel analysis. J Affect Disord. 2018 Jul;234:80–88. doi: 10.1016/j.jad.2018.02.092
14. Javed A. WPA Action Plan 2020–2023: a way forward. World Psychiatry. 2020 Oct;19(3):411–412. doi: 10.1002/wps.20791
15. Aiken LH, Sermeus W, Van den Heede K, Sloane DM, Busse R, McKee M, Bruyneel L, Rafferty AM, Griffiths P, Moreno-Casbas MT, et al. Patient safety, satisfaction, and quality of hospital care: cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. BMJ. 2012 Mar 20;344:e1717. doi: 10.1136/bmj.e1717
16. Scanlan JN, Still M. Job satisfaction, burnout and turnover intention in occupational therapists working in mental health. Aust Occup Ther J. 2013 Oct;60(5):310–318. doi: 10.1111/1440-1630.12067
17. Chumakov EM, Gvozdetsky AN, Vasilchenko KF, Golygina SE, Marachev MP, Osadashiy YY, Potanin SS, Fedotov IA, Shishkina IO, Petrova NN. Characteristics and determinants of professional burnout among early career psychiatrists in Russia — results of a cross-sectional study. VM Bekhterev Review of Psychiatry and Medical Psychology. 2022;56(1):63–78. doi: 10.31363/2313-7053-2022-56-1-63-78
18. Bazhenova NG, Grin NV. [Professional interest as development's basis of the individual's professional values]. V Mire Nauchnykh Otkrytiy. 2014;51:59–67. Russian.
19. Luconi F, Montoro R, Lalla L, Teferra M. An Innovative Needs Assessment Approach to Develop Relevant Continuing Professional Development for Psychiatrists. Acad Psychiatry. 2022 Feb;46(1):106–113. doi: 10.1007/s40596-021-01564-2
20. Young JQ, Holmboe ES, Frank JR. Competency-Based Assessment in Psychiatric Education: A Systems Approach. Psychiatr Clin North Am. 2021 Jun;44(2):217–235. doi: 10.1016/j.psc.2020.12.005
21. Bovier PA, Perneger TV. Predictors of work satisfaction among physicians. Eur J Public Health. 2003 Dec;13(4):299–305. doi: 10.1093/eurpub/13.4.299

22. Kristensen N, Nymann C, Konradsen H. Implementing research results in clinical practice- the experiences of healthcare professionals. BMC Health Serv Res. 2016 Feb 10;16:48. doi: 10.1186/s12913-016-1292-y
23. Irkhina MD, Vetrova MV. Journal club in English at medical university as promising learning tool. The Scientific Notes of the Pavlov University. 2022;28(4):72–80. doi: 10.24884/1607-4181-2021-28-4-72-80
24. Pinto da Costa M, Giurgiuca A, Holmes K, Biskup E, Mogren T, Tomori S, Kilic O, Banjac V, Molina-Ruiz R, Palumbo C, et al. To which countries do European psychiatric trainees want to move to and why? Eur Psychiatry. 2017 Sep;45:174–181. doi: 10.1016/j.eurpsy.2017.06.010
25. Priebe S, Dimic S, Wildgrube C, Jankovic J, Cushing A, McCabe R. Good communication in psychiatry--a conceptual review. Eur Psychiatry. 2011 Oct;26(7):403–407. doi: 10.1016/j.eurpsy.2010.07.010
26. Papageorgiou A, Loke YK, Fromage M. Communication skills training for mental health professionals working with people with severe mental illness. Cochrane Database Syst Rev. 2017 Jun 13;6:CD010006. doi: 10.1002/14651858.CD010006.pub2
27. Bennett DA. How can I deal with missing data in my study? Australian and New Zealand Journal of Public Health. 2001;25(5):464–469. doi: 10.1111/j.1467-842X.2001.tb00294.x
28. Neale J. What is the evidence for the use of simulation training to teach communication skills in psychiatry? Evid Based Ment Health. 2019 Feb;22(1):23–25. doi: 10.1136/ebmental-2018-300075
29. Roper RL. Does Gender Bias Still Affect Women in Science? Microbiol Mol Biol Rev. 2019 Jul 17;83(3):e00018-19. doi: 10.1128/MMBR.00018-19.
30. Menchik DA, Meltzer DO. The cultivation of esteem and retrieval of scientific knowledge in physician networks. J Health Soc Behav. 2010 Jun;51(2):137–152. doi: 10.1177/0022146510372231
31. Crawford P, Seehusen D. Scholarly activity in family medicine residency programs: a national survey. Fam Med. 2011 May;43(5):311–317.

Association of Anxiety and Depression with Objective and Subjective Cognitive Decline in Outpatient Healthcare Consumers with COVID-19: A Cross-Sectional Study

Связь тревоги и депрессии с субъективным и объективным когнитивным снижением у пациентов, находящихся на амбулаторном лечении с COVID-19: кросс-секционное исследование

doi: 10.17816/CP189

Original research

Natalia Gomzyakova, Ekaterina Palchikova, Marianna Tumova, Evgeny Kasyanov, Mikhail Sorokin

V.M. Bekhterev National Medical Research Centre for Psychiatry and Neurology, Saint Petersburg, Russia

Наталья Гомзякова, Екатерина Пальчикова, Марианна Тумова, Евгений Касьянов, Михаил Сорокин

ФГБУ «Национальный медицинский исследовательский центр психиатрии и неврологии имени В.М. Бехтерева» Минздрава России, Санкт-Петербург, Россия

Editorial comment:

The article took part in the competition of scientific papers of early-career psychiatrists.

ABSTRACT

BACKGROUND: In addition to the neurological complications affecting people infected with COVID-19, cognitive impairment symptoms and symptoms of anxiety and depression remain a frequent cause of complaints. The specificity of cognitive impairment in patients with COVID-19 is still poorly understood.

AIM: An exploratory study of factors that may be associated with cognitive decline during the COVID-19 pandemic.

METHODS: The cross-sectional multicentre observational study was conducted in a polyclinic unit in Saint Petersburg and in the regions of the North-Western Federal Region. During the study, socio-demographic parameters and information about the somatic condition of patients who applied for primary health care was collected. Emotional and cognitive state were investigated using the Hospital Anxiety and Depression Scale (HADS) and Montreal Cognitive Assessment (MoCA). Mathematical and statistical data processing was carried out using SPSS and RStudio statistical programs.

RESULTS: The study included 515 participants, 60% (n=310) of which were women. The sample was divided into those who did (28.5%, n=147) and did not (71.4%, n=368) complain of cognitive decline. Patients with complaints of cognitive decline were significantly older, had lower levels of education and higher levels of depression and anxiety according to HADS (p <0.05). Patients with complaints of cognitive decline underwent the MoCA test (24.3%, n=125). The median MoCA test scores were within the normal range (Median=27, Q1=25, Q3=28), and cognitive decline (MoCA less than 26 points) was detected in 40% (n=50) of patients with complaints of cognitive decline. No significant

correlations were found between the MoCA scores and the levels of anxiety and depression according to the HADS (p >0.05). Patients with mild severity of the COVID-19 course were more successful with MoCA subtests than patients with moderate and severe courses.

CONCLUSION: We found no linear association between objective cognitive deficit and the affective state of respondents. Patients' subjective complaints about cognitive dysfunction were mostly caused by their emotional state than an objective decrease of their cognitive functions. Therefore, in case of subjective complaints on cognitive decline, it is necessary to assess not only the cognitive but also the affective state of the patient. The severity of the COVID-19 course affects the functions of the cognitive sphere, including attention, regulatory functions and speech fluency. Mild and moderate severity of the COVID-19 correlates with clinically determined depression. The absence of this relationship with the severe course of the disease is probably explained by the significant somatic decompensation of patients.

АННОТАЦИЯ

ВВЕДЕНИЕ: Помимо неврологических симптомов, развивающихся у лиц, инфицированных COVID-19, симптомы тревоги и депрессии, когнитивные нарушения являются частым причинам жалоб. Специфика нарушений когнитивной сферы у пациентов с COVID-19 до сих пор изучена недостаточно.

ЦЕЛЬ: Поисковое исследование факторов, связанных с когнитивным снижением в период пандемии COVID-19.

МЕТОДЫ: Поперечное многоцентровое обсервационное исследование пациентов, находящихся на амбулаторном лечении в медицинских учреждениях Санкт-Петербурга и Северо-Западного федерального округа. В ходе исследования были собраны социально-демографические параметры и информация о соматическом состоянии пациентов, обратившихся за первичной медицинской помощью. Эмоциональное и когнитивное состояние исследовали с использованием Госпитальной шкалы тревоги и депрессии (HADS) и Монреальской когнитивной шкалы (MoCA). Математическая и статистическая обработка данных проводилась с использованием статистических программ SPSS и RStudio.

РЕЗУЛЬТАТЫ: В исследовании приняли участие 515 участников, 60% (n=310) из которых были женщины. Выборка была разделена на тех, кто жаловался (28,5%, n=147) и не жаловался (71,4%, n=368) на снижение когнитивных способностей. Пациенты с жалобами на снижение когнитивных функций были значительно старше, имели более низкий уровень образования и более высокие уровни депрессии и тревоги по данным HADS (p <0,05). Пациентам с жалобами на снижение когнитивных функций была проведена оценка по шкале MoCA (24,3%, n=125). Медианные баллы MoCA были в пределах нормы (Медиана=27, Q1=25, Q3=28), снижение когнитивных способностей (MoCA менее 26 баллов) было обнаружено у 40% (n=50) пациентов с жалобами на когнитивное снижение. Не было обнаружено значимых корреляций между баллами MoCA и уровнями тревоги и депрессии в соответствии с HADS (p >0,05). Пациенты с легкой степенью тяжести COVID-19 были более успешны в выполнении субтестов MoCA, чем пациенты с умеренным и тяжелым течением.

ЗАКЛЮЧЕНИЕ: Оценены факторы, которые, возможно, связаны со снижением когнитивных функций у пациентов поликлинических отделений в период пандемии COVID-19. Объективный когнитивный дефицит не имел линейной связи с аффективным состоянием респондентов. Однако субъективные жалобы на когнитивную дисфункцию у пациентов были в большей степени обусловлены эмоциональным состоянием, чем их объективным снижением когнитивных функций. Поэтому при наличии субъективного снижения когнитивных функций необходимо оценивать не только когнитивный профиль, но и аффективное состояние пациента. Тяжесть заболевания влияет на когнитивные функции, включая внимание, регуляторные функции и беглость речи. Легкая и умеренная степень тяжести COVID-19 коррелирует с клинически определяемой депрессией. Отсутствие этой взаимосвязи при тяжелом течении заболевания, вероятно, связано со значительной соматической декомпенсацией пациентов.

Keywords: *COVID-19; subjective cognitive decline; anxiety; depression*
Ключевые слова: *коронавирусная инфекция; субъективное когнитивное снижение; тревога; депрессия*

INTRODUCTION

Cognitive impairment is one of the main factors that disrupt daily social functioning and quality of life. This issue has become more acute in the context of the coronavirus (COVID-19) pandemic. The symptoms of cognitive impairment were noted not only in patients with the acute form of COVID-19 but also in persons with an asymptomatic course of the disease and in patients six months after recovery [1, 2]. The following symptoms were commonly observed: headache, dizziness, loss of sense of smell and taste, an increased sense of anxiety, agitation, impaired attention and confusion [3], delirium [4–6], inflammatory complications (meningitis, encephalitis, encephalomyelitis) [7] and stroke [8, 9]. Furthermore, in a recent meta-analysis J. Deng et al. determined that depression was observed among 45% of the patients with COVID-19, anxiety in 47%, and insomnia in 34% of patients [10]. These rates significantly exceed the levels of depression, anxiety, and insomnia before the pandemic among both hospital patients and the general population. Studies also report that mental disorders tend to be more common among hospitalised patients with COVID-19 [11], and clinically significant cognitive decline is especially frequent among elderly people who have been infected with this virus [12]. Although it is difficult to correctly assess the symptoms of cognitive impairment during the acute phase of COVID-19, the Mini Mental State Examination (MMSE) detected the presence of such symptoms among 33% of patients [13]. According to the systematic review findings, the majority of patients with COVID-19-related severe acute respiratory syndrome (SARS) or Middle East respiratory syndrome (MERS) do not develop mental disorders [15]. However, 34% of patients tend to show signs of memory disorders [15].

The existing literature suggests that about one-third of patients have cognitive impairment symptoms upon discharge from the hospital. Psychopathological symptoms often remain present longer than complications associated with the respiratory or cardiovascular systems [15, 16]. An online survey in the United States showed that among 1,500 people infected with COVID-19, about 50% of respondents had difficulties in concentrating on a task for a long time [15]. It was determined that the severity of cognitive impairment during the post-COVID-19 syndrome directly correlates with the severity of the disease. The severity of the COVID-19 course depends on the level of hypoxemia, increased concentration of D-dimer in the acute period, residual pulmonary insufficiency, the level of C-reactive protein (CRP), and increased density of the white matter of the brain [17]. Besides the COVID-19 itself, various psychiatric disorders were caused by contradictory and often alarming opinions about the pandemic expressed by the medical community and media representatives [18].

Although diagnosis and treatment of mental disorders and cognitive impairment during the acute period of COVID-19 are not prioritised due to the urgency of somatic or neurological pathology, they may cause difficulties in the long-term perspective. Taking this into account, we conducted an exploratory study of factors that may be associated with cognitive decline during the COVID-19 pandemic among the polyclinic patients of the North-West Region of Russia. The objectives of the research were as follows: 1) to assess the prevalence of cognitive decline complaints in patients diagnosed with COVID-19; 2) to objectify the presence of cognitive impairment in patients with subjective cognitive decline complaints; 3) to assess the relationship between age and education level of patients with the emergence of objective and subjective cognitive decline complaints; 4) to assess the role of the severity of COVID-19 on cognitive status.

METHODS

Study design

The cross-sectional multicentre observational study was conducted in the polyclinic unit of Saint Petersburg and regions of the North-Western Federal Region.

Procedure

Within the framework of mandatory practical training, resident doctors of the V.M. Bekhterev National Medical Research Centre for Psychiatry and Neurology collected anamnesis and laboratory parameters of polyclinic patients, including the nasopharyngeal polymerase chain reaction (PCR) test, C-reactive protein (mg/L), platelets (10^9/L), and lymphocytes (10^9/L). Further, a physical examination was performed and included measurement of respiration rate, oxygen saturation in the blood (SpO_2 (%), and computed tomography (CT) of the chest (volume of lesion) according to the recommended criteria (CT-1 — Minimal (<25% of volume), CT-2 — Average (25–50% of volume), CT-3 — Significant (50–75%

of volume), CT-4 — Subtotal [19]). Due to the non-interventional nature of the study, investigators collected only those laboratory parameters, which were available for patients who agreed to participate in the study. All study participants were screened for the presence of anxiety and depression, using the Hospital Anxiety and Depression Scale (HADS) [20]. Furthermore, participants with cognitive decline complaints were screened for the presence of cognitive impairment using Montreal Cognitive Assessment (MoCA) [21, 22].

Prior to the study, the Young Scientists Council of the V.M. Bekhterev National Medical Research Centre for Psychiatry and Neurology instructed residents on the methodology of conducting an assessment using MoCA and HADS and provided step-by-step video description of the required scope of the survey.

Instruments

HADS is one of the most commonly used scales for assessing anxiety and depression among patients in a general hospital setting [20, 23]. It is a 4-point Likert scale, consisting of two subscales with seven items each: first subscale measures anxiety (HADS-A) and second subscale measures depression (HADS-D). The total score is obtained by summarising the scores within each subscale. The scores from 0 to 7 represent "normal," 8–10 "mild," 11–14 "moderate," and 15–21 "severe" levels of anxiety and depression according to international guidance [20].

MoCA is a screening test used to detect mild cognitive impairment (MCI) at a very early stage, which makes it possible to diagnose and treat patients faster. MoCA includes nine areas: executive function, fluency, orientation, computation, abstraction, delayed recall, visual perception, naming, and attention. A score less than or equal to 26 points out of 30 indicates cognitive impairment [2, 12, 24].

Participants

Inclusion criteria:

1) patients from 18 to 70 years old who have given voluntary informed consent to participate in the study and who were able to understand tasks of the research scales;
2) patients who received primary health care (in a polyclinic unit) in St. Petersburg and regions of the North-Western Federal District of Russia;
3) patients receiving primary health care from residents of the V.M. Bekhterev National Medical Research Centre for Psychiatry and Neurology.

Exclusion criteria:

1) patients in need of emergency hospitalisation at the time of applying for outpatient primary health care and specialised medical care due to the deterioration of their general condition;
2) patients in need for emergency, resuscitation or other medical care during hospitalisation due to the severity of their current condition;
3) refusal of the patient to participate in the study at any stage;
4) aggravation of the patient's mental or somatic condition at any stage of the research.

Statistical analysis

For the purposes of this study, subjective cognitive decline is defined as a self-perceived cognitive decline in cognitively normal people [31]. In line with this definition the sample was divided in two subgroups: those who complained about decreased cognitive functions and those who had no cognitive complaints. Based on the laboratory and instrumental examination, participants were divided into three groups depending on the severity of their condition: severe, moderate and mild. The criteria for severe degree were as follows: respiration rate >30, SpO_2 ≤93% and CT signs typical for a viral lesion (the volume of the lesion is significant or subtotal; CT 3–4). The criteria for moderate degree were as follows: 22 < respiration rate < 30, 95% < SpO_2 ≤ 93%, CT signs typical for a viral lesion (the volume of the lesion is minimal or average; CT 1–2), serum CRP >10 mg/l. Mild severity group included persons who had no signs of moderate or severe condition. The severity criteria were determined according to the temporary guidelines for prevention, diagnosis, and treatment of the COVID-19 infection at the time of the study [25].

Mathematical and statistical data processing was carried out using the software product SPSS (v.26.0.0.0) and the programming language R (version 4.0.2) in RStudio v1.4.1717. The arithmetic mean and standard deviation — M(σ), as well as the median and interquartile range — Me (Q1–Q3) were used as measures of the central trend. Categorical variables were described by percentages with the reduction of absolute numbers —

% (n) and comparison using Pearson's criterion χ^2. The test for the normality of the distribution was carried out according to the Shapiro-Wilk criterion with the correction of the significance by Lilyfors. Due to the abnormality of the distribution of most variables, the Kraskal-Wallis criterion was used for data with ordinal scales, followed by the application of the Mann-Whitney U criterion for pairwise comparison and considering Bonferroni corrections. Spearman's criterion (ρ) was used for the correlation analysis.

Ethical approval

The study was conducted in compliance with the current legislation of the Russian Federation, the Helsinki Declaration of Human Rights Protection, and the rules for organising research protocols. Data on the results of invasive research methods were used from available medical documents, if the patient had them at the time of his inclusion in the study. The participants (patients) were informed in full and accessible form about the nature and purpose of the study and provided their written consent. The study was approved by the Local Ethics Committee (IRB Registration number: EC-I-132/20).

RESULTS

Overall sample characteristics

The study included 515 participants, 60% (*n*=310) of which were women. The mean age of respondents was 41.5 (±15) years (M(σ) for women=40.97 (±15.09) and M(σ) men=42.36 (±14.94)). Overall, 57.6% (*n*=297) of the participants had higher education, 9.9% (*n*=51) did not complete higher education, 15.7% (*n*=81) of respondents had professional, 14.9% (*n*=77) had secondary education and 1.74% (*n*=9) of the participants had an academic degree. In total, 74.2% (*n*=382) of participants were diagnosed COVID-19. In particular, 52.4% (*n*=270) of patients had instrumentally confirmed COVID-19 infection: 43.1% (*n*=222) of patients were diagnosed based on the PCR-test results at the time of inclusion in the study, whereas 9.3% (*n*=48) of patients were diagnosed according to the detected signs of the chest CT. Other 21.7% (*n*=112) of patients had signs of severe acute respiratory syndrome (SARS) and were diagnosed with COVID-19 (according to medical documents) although PCR test verification of diagnose was not presented.

Prevalence and factors associated with subjective cognitive decline

The overall sample (*n*=515) was divided into those who complained of subjective cognitive decline (28.5% (*n*=147)) and those who did not have cognitive complaints (71.4% (*n*=368)). The groups differed by age, education level, and COVID-19 status. The characteristics of the sample are presented in Table 1.

In the group of patients with subjective cognitive decline, 116 patients were diagnosed with COVID-19 or showed signs of SARS. The complete body of clinical and laboratory data required to determine the severity of the disease was available for 72 patients. Thus, a severe course of the disease was found in six people; the average condition — in 39 patients; and mild — in 27. The sample stratification is illustrated in Figure 1.

Table 1. The characteristics of the sample

Factors	Group with subjective cognitive decline (*n*=147)	Group without complaints of cognitive decline (*n*=368)	χ^2 (Pearson's criterion)	*p*-value
Age, Me (Q1-Q3)	45 (31–62)	36.5 (29–48)	111.156	0.000
Male, *n* (%)	60 (41%)	145 (39.4%)	0.088	0.767
Female, *n* (%)	86 (59%)	223 (60.6%)		
Education level				
Academic degree, *n* (%)	0	9 (2.4%)	18.107	0.001
Higher education, *n* (%)	74 (50%)	223 (60.5%)		
Incomplete higher education, *n* (%)	10 (6.8%)	41 (11.1%)		
Secondary vocational education, *n* (%)	33 (22.4%)	44 (11.9%)		
Secondary education, *n* (%)	30 (20.4%)	51 (13.8%)		
COVID-19 positive status, *n* (%)	116 (78.9%)	266 (72.3%)	20.748	0.000

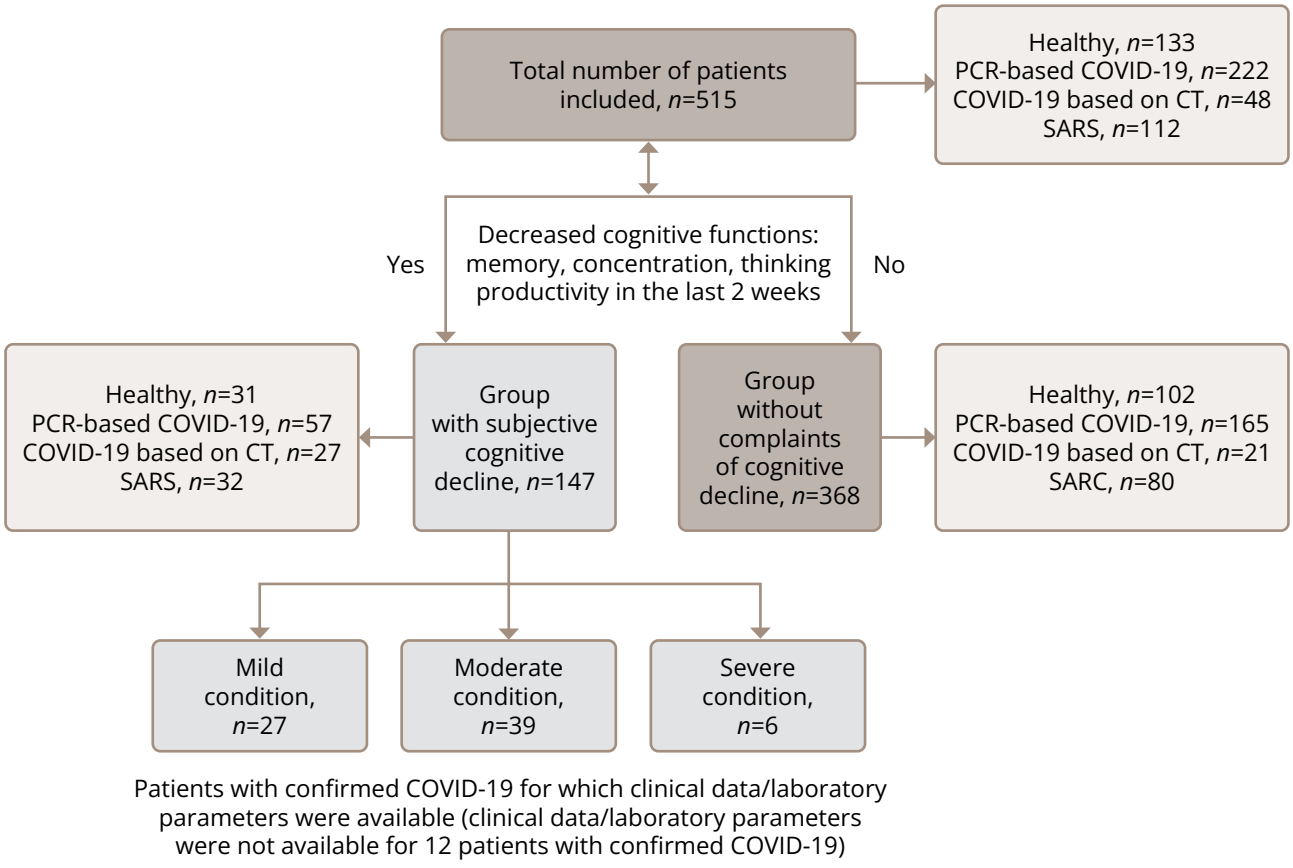


Figure 1. Flow chart of the study.

Out of 515 participants, HADS was completed by 503 participants. The distribution of anxiety and depression levels significantly differed in the groups with or without complaints of subjective cognitive decline (Table 2).

Prevalence and factors associated with objective cognitive decline in COVID-19 patients

Patients with subjective cognitive complaints were given an opportunity to undergo a screening examination of the cognitive functions using the MoCA test. Out of 147 participants with subjective cognitive decline complains, the MoCA test was performed on 125 (response rate 85%, no incomplete tests) respondents and demonstrated the following results (Table 3). Objective cognitive decline (MoCA score less than 26 points) was detected in 40% (*n*=50) of participants with subjective cognitive complaints, whereas COVID-19 was diagnosed in 31% (*n*=39) of participants. The median MoCA score Me (Q1–Q3) was 27 (25–28), indicating the normal range. No significant correlations were found between the MoCA score and the levels of anxiety and depression according to HADS (p >0.05) among those

Table 2. Comparative analysis of the HADS indicators among patients with and without complaints of subjective cognitive decline

Scale	Median and interquartile range, Me (Q1–Q3)			
HADS	**With subjective cognitive decline (*n*=147)**	**Without complaints of cognitive decline (*n*=357)**	**U**	***p*-value**
HADS-A	9 (5–12)	4 (1–8)	36895.5	0.000
HADS-D	7 (4–11)	3 (1–27)	3739.0	0.000

Table 3. The results of the MoCA test in a group of patients with subjective complaints of cognitive decline

	Median and interquartile range, Me (Q1–Q3)
MoCA	Patients with subjective cognitive decline (*n*=125)
Trail making test	1 (1-1)
Copy square box	1 (1-1)
Clock drawing test	3 (2-3)
Naming	3 (3-3)
Repetition of digits	2 (1-2)
Tap hand at letter	1 (1-1)
Serial account	3 (2-3)
Repetition of phrases	2 (2-2)
Verbal fluency	1 (0-1)
Abstraction	2 (1-2)
Delayed recall	4 (3-5)
Orientation	6 (6-6)
Total MoCA score	27 (25-28)

who complained of memory and attention loss. There was no relationship between the overall MoCA score and age according to the nonparametric Spearman correlation test (ρ=-0.193, *p*=0.099).

Statistically significant differences were found in MoCA scale subsets between the three groups of patients stratified by the severity of the COVID-19 course (Table 4). In particular, the group of patients with a mild course of the COVID-19 were more successful compared to the patients with a moderate course in the following tasks: clock drawing test, phonetic verbal fluency, and generalising concepts (abstraction). We observed that a moderate course of COVID-19 predominantly affected optic-spatial and regulatory cognitive functions, including a decrease in speech fluency and the level of the abstraction process. Compared to the patients with a mild course of the disease, a group of patients with a severe course coped worse with the task of paying attention to the "serial account". Since attention is a "cross-cutting" mental process, its disturbance may affect the state of other cognitive functions. Median values in the groups showed an increase in cognitive impairment depending on the severity of COVID-19. Based on these results, we may suggest that cognitive functions are influenced by the severity of the COVID-19 course.

DISCUSSION

Main result

This study analysed a cognitive profile of patients diagnosed with COVID-19, as well as the relationship between subjectively perceived cognitive impairment and objective cognitive and emotional screening results. Our study resulted in three main observations. Firstly, patients with subjective complaints of cognitive decline comprised 43% of the subgroup with diagnosed COVID-19. They were older, had lower levels of education, and higher levels of depression and anxiety. Secondly, according to the MoCA test results, objective cognitive decline was observed in 40% of participants with subjective cognitive complaints, whereas COVID-19 was diagnosed among 31% of participants. However, no significant correlations were found between the MoCA scores and the anxiety and depression levels. Finally, patients with

Table 4. Comparative analysis of age and MoCA scale subsets across three groups of patients stratified by the severity of COVID-19 course

Median and interquartile range, Me (Q1–Q3)					
MoCA subtest	**Mild condition (*n*=27)**	**Moderate condition (*n*=39)**	**Severe condition (*n*=6)**	***p*-level for Kruskal-Wallis test**	***p*-value for pairwise comparison**
Clock drawing test	2 (2–3)	3 (3–3)	3 (2.75–3)	0.022	Mild-Moderate: 0.029
Verbal fluency	1 (1–1)	1 (0–1)	1 (0–1)	0.008	Mild-Moderate: 0.006
Abstraction	2 (2–2)	2 (1–2)	2 (1–2)	0.04	Mild-Moderate: 0.035
Serial account	3 (2–3)	2 (2–3)	2 (0.75–2)	0.011	Mild-Severe: 0.011
Total MoCA score	27 (25.5–28)	25 (24–27.5)	23.5 (21.75–26)	0.04	Mild-Severe: 0.042
Age	40 (32–52)	53 (40.5–66)	49 (23–59)	0.049	Mild-Moderate: 0.047

mild severity of the COVID-19 were more successful with MoCA subtests than patients with moderate and severe courses of the disease.

Strengths and limitations of the study

To our knowledge, the current research is one of the first studies exploring objective and subjective cognitive decline among patients with confirmed COVID-19 in Russia. Valuable data was obtained regarding the links between objective and subjective cognitive functioning and the affective state of patients. Further implementation of this study should be considered in the light of the following limitations. Firstly, the study employed a cross-sectional design, limiting the possibility for a prospective assessment of cognitive impairment. Secondly, the scales used for the purposes of this study cannot be the sole basis for diagnosis. Thirdly, participants were unevenly represented in the sample sub-groups. Finally, cognitive functions were not screened in patients who did not complain of cognitive decline. This may have influenced the results as awareness of cognitive problems is a characteristic of mild cognitive impairment. Therefore, patients with more pronounced impairment may have not reported the presence of cognitive deficits.

Comparison with the existing literature

Cognitive impairment is a frequent complaint both during the COVID-19 period and in the post-COVID period. Rass et al. [26] revealed cognitive impairment among 23% of patients with COVID-19. According to the observations of Beaud V, et al. [15], a few days after the discharge from ICU significant cognitive impairment was observed in 38% of patients with COVID-19 based on the MoCA scale results [15]. Among them, 61.5% of patients had frontal cortex dysfunction according to the FAB (Frontal Assessment Battery) [15]. Also, the existing research suggests that subacute cognitive impairment (COVID-19-induced encephalopathy) may occur in patients with the mild/moderate course of COVID-19 more than seven days after the onset of the disease [27]. The severity of cognitive impairment, as a rule, correlates with the severity of COVID-19 [11, 26], which is similar to the results of the present study.

In the research by Matos et al., cognitive dysfunction is observed in all patients based on the MoCA test results. Particularly, the decline was observed in phonemic verbal fluency with a median of six words/min (Q1=5.25, Q3=10.75) and visual-spatial skills with a median of four points (Q1=4, Q3=9) [27]. It was suggested that such cognitive dysfunction is mainly caused by the dysregulation associated with the damage to the frontal lobe. Dysregulatory (dysexecutive) syndrome usually includes emotional, motivational and behavioural symptoms, and cognitive deficits [28]. This syndrome was observed among COVID-19 patients and has been reported in several studies [29, 30]. Cognitive impairment can also be observed during an asymptomatic course of the COVID-19. In a study [12] conducted on 93 newly infected and 102 healthy respondents, there was no significant difference in the overall cognitive assessment scores between the two groups. However, COVID-19 patients showed lower scores in comparison with healthy respondents in the domains of visual perception, naming, and fluency. In our study, patients demonstrated the greatest difficulties with the "drawing the clock" subtest, which reflects impairment of optical-spatial and regulatory functions.

Similar to our findings, the existing research suggests that subjectively perceived cognitive impairments may not always correspond with the results of objective assessment using psychometric scales [32–34]. It has been also determined that worries about potential memory/thinking difficulties were present in 24% of the population and were associated with the risk of MCI [34]. Furthermore, it is known that 12.84% of those who had COVID-19 were diagnosed with psychiatric or neurological impairment for the first time after six months of the disease [36]. Therefore, the group of patients with subjective cognitive decline complaints recruited for the purposes of the current study requires further observation.

It is known that cognitive impairments can be associated with anxiety, depression, and traumatic experiences of hospitalisation [37]. This has led to the uncertainty on whether it is subjective cognitive decline that predicts the subsequent development of neurocognitive disorders or they are caused by anxiety symptoms. The subjective cognitive decline has been shown to strongly correlate with anxiety symptoms among older persons [38], which is similar to the findings of the present study. This is especially pertinent given that anxiety has consistently been identified as a key predictor of neurocognitive disorders in several meta-analyses [4, 8, 10]. Thus,

exploring relationships between the subjective and objective cognitive consequences of COVID-19 and their association with the quality of life is needed for assessing the cognitive abilities of patients with post-COVID syndrome [17].

Implementation into practice

In accordance with the findings of the current study, the following suggestions are made. Firstly, further studies on the cognitive profile of patients with COVID-19 may need to employ a longitudinal design, allowing one to perform a long-term assessment of the cognitive impairment. Secondly, psychometric scales shall be used to screen for affective syndromes and cognitive decline in clinical settings during the periods of high incidence of COVID-19. Such screenings might help to detect patients who are in a greater risk of developing depression, anxiety disorders, MCI, and dementia. Thirdly, it is important to note that the MMSE (Mini–Mental State Examination) scale, which is widely used in clinical practice, is insufficiently sensitive for vascular cognitive disorders that occur during the COVID-19 [9, 39]. In our opinion, the MoCA test is able to detect early signs of cognitive decline; therefore, it is more suitable for use in clinical practice. Finally, the diagnosis of cognitive decline cannot be made solely based on the results of the screening scales and subjective complaints of patients. It is crucial to follow the diagnostic criteria of the International Classification of the Disease 10/11.

CONCLUSION

According to the obtained results, subjective complaints about cognitive dysfunction in patients of outpatient units during the pandemic are mainly caused by the emotional state rather than the objective decline in cognitive functions. The severity of the disease affects the functioning of the cognitive sphere, including attention, regulatory functions, and speech fluency. Mild and moderate severity of COVID-19 correlates with clinically determined depression. The absence of this relationship in the case of a severe course of COVID-19 is probably caused by the significant somatic decompensation of patients.

Article history:

Submitted: 01.06.2022
Accepted: 21.09.2022
Published: 28.09.2022

Acknowledgements:

the authors express their gratitude to the Institute of Graduate Studies and its head, E.Y. Zubova, as well as to the Young Scientists Council of the V.M. Bekhterev National Medical Research Centre for Psychiatry and Neurology.

Authors' contribution:

N.A. Gomzyakova: development of study design, analysis and interpretation of the data obtained, writing the text of the manuscript, review of publications on the topic of the article; E.I. Palchikova: development of study design, data interpretation, writing the text of the manuscript, review of publications on the topic of the article; M.A. Tumova: obtaining data for analysis, analysis of the obtained data, revision of the manuscript; E.D. Kasyanov: study design development, manuscript revision; M.Y. Sorokin: development of the idea, research design, setting research objectives, discussion of the results and formation of conclusions. All authors made a significant contribution to the study and preparation of the article, read and approved the final version before publication.

Funding: The research was carried out without additional funding.

Conflict of interest: The authors declare no conflicts of interest.

For citation:

Gomzyakova NA, Palchikova EI, Tumova MA, Kasyanov ED, Sorokin MY. Association of anxiety and depression with objective and subjective cognitive decline in outpatient healthcare consumers with COVID-19: a cross-sectional study. Consortium Psychiatricum 2022;3(3):46–56. doi: 10.17816/CP189

Information about the authors

Natalia Alexandrovna Gomzyakova, Junior researcher, department of geriatric Psychiatry, V.M. Bekhterev National Medical Research Center for Psychiatry and Neurology; ORCID: https://orcid.org/0000-0002-0300-0861, e-Library SPIN-code: 4014-1508, Scopus Author ID: 57216464358, ResearcherID: AAB-6572-2021

***Ekaterina Igorevna Palchikova**, MD, junior researcher, department of geriatric Psychiatry, V.M. Bekhterev National Medical Research Center for Psychiatry and Neurology; ORCID: https://orcid.org/0000-0002-9313-5435, e-Library SPIN-code: 8402-0960, Scopus Author ID: 16473593800, ResearcherID: AGN-3892-2022

E-mail: ofcoursekate@gmail.com

Marianna Anatolievna Tumova, MD, junior researcher, department of biological therapy of the mentally ill, V.M. Bekhterev National Medical Research Center for Psychiatry and Neurology; ORCID: https://orcid.org/0000-0002-3418-8596, e-Library SPIN-code: 5422-4593, Scopus Author ID: 57224679509

Evgeny Dmitrievich Kasyanov, MD, junior researcher, department of Translational Psychiatry, V.M. Bekhterev National Medical Research Center for Psychiatry and Neurology; ORCID: https://orcid.org/0000-0002-4658-2195, e-Library SPIN-code: 4818-2523, Scopus Author ID: 57205549541

Mikhail Yurievich Sorokin, PhD, Academic Secretary, Researcher of the Department of Integrative Pharmaco-Psychotherapy of patients with mental Disorders, V.M. Bekhterev National Medical Research Center for Psychiatry and Neurology; ORCID: https://orcid.org/0000-0003-2502-6365, e-Library SPIN-code: 7807-4497, Scopus Author ID: 57191369987, ResearcherID: AAN-5757-2020

*corresponding author

References

1. Blazhenets G, Schroeter N, Bormann T, Thurow J, Wagner D, Frings L, Weiller C, Meyer PT, Dressing A, Hosp JA. Slow but Evident Recovery from Neocortical Dysfunction and Cognitive Impairment in a Series of Chronic COVID-19 Patients. J Nucl Med. 2021 Jul 1;62(7):910–915. doi: 10.2967/jnumed.121.262128. Epub 2021 Mar 31. PMID: 33789937; PMCID: PMC8882885.
2. Del Brutto OH, Wu S, Mera RM, Costa AF, Recalde BY, Issa NP. Cognitive decline among individuals with history of mild symptomatic SARS-CoV-2 infection: A longitudinal prospective study nested to a population cohort. Eur J Neurol. 2021 Oct;28(10):3245–3253. doi: 10.1111/ene.14775. Epub 2021 Mar 1. PMID: 33576150; PMCID: PMC8014083.
3. Mao L, Jin H, Wang M, Hu Y, Chen S, He Q, Chang J, Hong C, Zhou Y, Wang D, Miao X, Li Y, Hu B. Neurologic Manifestations of Hospitalized Patients With Coronavirus Disease 2019 in Wuhan, China. JAMA Neurol. 2020 Jun 1;77(6):683–690. doi: 10.1001/jamaneurol.2020.1127. PMID: 32275288; PMCID: PMC7149362.
4. Rogers JP, Chesney E, Oliver D, Pollak TA, McGuire P, Fusar-Poli P, Zandi MS, Lewis G, David AS. Psychiatric and neuropsychiatric presentations associated with severe coronavirus infections: a systematic review and meta-analysis with comparison to the COVID-19 pandemic. Lancet Psychiatry. 2020 Jul;7(7):611–627. doi: 10.1016/S2215-0366(20)30203-0. Epub 2020 May 18. PMID: 32437679; PMCID: PMC7234781.
5. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, Qiu Y, Wang J, Liu Y, Wei Y, Xia J, Yu T, Zhang X, Zhang L. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Lancet. 2020 Feb 15;395(10223):507–513. doi: 10.1016/S0140-6736(20)30211-7. Epub 2020 Jan 30. PMID: 32007143; PMCID: PMC7135076.
6. Varatharaj A, Thomas N, Ellul MA, Davies NWS, Pollak TA, Tenorio EL, Sultan M, Easton A, Breen G, Zandi M, Coles JP, Manji H, Al-Shahi Salman R, Menon DK, Nicholson TR, Benjamin LA, Carson A, Smith C, Turner MR, Solomon T, Kneen R, Pett SL, Galea I, Thomas RH, Michael BD; CoroNerve Study Group. Neurological and neuropsychiatric complications of COVID-19 in 153 patients: a UK-wide surveillance study. Lancet Psychiatry. 2020 Oct;7(10):875–882. doi: 10.1016/S2215-0366(20)30287-X. Epub 2020 Jun 25. Erratum in: Lancet Psychiatry. 2020 Jul 14; PMID: 32593341; PMCID: PMC7316461.
7. Moriguchi T, Harii N, Goto J, Harada D, Sugawara H, Takamino J, Ueno M, Sakata H, Kondo K, Myose N, Nakao A, Takeda M, Haro H, Inoue O, Suzuki-Inoue K, Kubokawa K, Ogihara S, Sasaki T, Kinouchi H, Kojin H, Ito M, Onishi H, Shimizu T, Sasaki Y, Enomoto N, Ishihara H, Furuya S, Yamamoto T, Shimada S. A first case of meningitis/encephalitis associated with SARS-Coronavirus-2. Int J Infect Dis. 2020 May;94:55–58. doi: 10.1016/j.ijid.2020.03.062. Epub 2020 Apr 3. PMID: 32251791; PMCID: PMC7195378.
8. Siow I, Lee KS, Zhang JJY, Saffari SE, Ng A. Encephalitis as a neurological complication of COVID-19: A systematic review and meta-analysis of incidence, outcomes, and predictors. Eur J Neurol. 2021 Oct;28(10):3491–3502. doi: 10.1111/ene.14913. Epub 2021 Jun 2. PMID: 33982853; PMCID: PMC8239820.
9. Hernández-Fernández F, Sandoval Valencia H, Barbella-Aponte RA, Collado-Jiménez R, Ayo-Martín Ó, Barrena C, Molina-Nuevo JD, García-García J, Lozano-Setién E, Alcahut-Rodriguez C, Martínez-Martín Á, Sánchez-López A, Segura T. Cerebrovascular disease in patients with COVID-19: neuroimaging, histological and clinical description. Brain. 2020 Oct 1;143(10):3089–3103. doi: 10.1093/brain/awaa239. PMID: 32645151; PMCID: PMC7454411.
10. Deng J, Zhou F, Hou W, Silver Z, Wong CY, Chang O, Huang E, Zuo QK. The prevalence of depression, anxiety, and sleep disturbances in COVID-19 patients: a meta-analysis. Ann N Y Acad Sci. 2021 Feb;1486(1):90–111. doi: 10.1111/nyas.14506. Epub 2020 Oct 2. PMID: 33009668; PMCID: PMC7675607.
11. Sorokin MY, Palchikova EI, Kibitov AA, Kasyanov ED, Khobeysh MA, Zubova EY. Mental State of Inpatients With COVID-19: A Computational Psychiatry Approach. Front Psychiatry. 2022 Apr 7;13:801135. doi: 10.3389/fpsyt.2022.801135. PMID: 35463517; PMCID: PMC9021726.
12. Amalakanti S, Arepalli KVR, Jillella JP. Cognitive assessment in asymptomatic COVID-19 subjects. Virusdisease. 2021 Mar;32(1):146–149. doi: 10.1007/s13337-021-00663-w. Epub 2021 Feb 15. PMID: 33614860; PMCID: PMC7883942.
13. Negrini F, Ferrario I, Mazziotti D, Berchicci M, Bonazzi M, de Sire A, Negrini S, Zapparoli L. Neuropsychological Features of Severe Hospitalized Coronavirus Disease 2019 Patients at Clinical Stability and Clues for Postacute Rehabilitation. Arch Phys Med Rehabil. 2021 Jan;102(1):155–158. doi: 10.1016/j.apmr.2020.09.376. Epub 2020 Sep 28. PMID: 32991870; PMCID: PMC7521874.
14. Sommer IE, Bakker PR. What can psychiatrists learn from SARS and MERS outbreaks? Lancet Psychiatry. 2020 Jul;7(7):565–566. doi: 10.1016/S2215-0366(20)30219-4. Epub 2020 May 18. PMID: 32437680; PMCID: PMC7234779.
15. Beaud V, Crottaz-Herbette S, Dunet V, Vaucher J, Bernard-Valnet R, Du Pasquier R, Bart PA, Clarke S. Pattern of cognitive deficits in severe COVID-19. J Neurol Neurosurg Psychiatry. 2021 May; 92(5):567–568. doi: 10.1136/jnnp-2020-325173. Epub 2020 Nov 20. PMID: 33219042; PMCID: PMC8053331.
16. Mak IW, Chu CM, Pan PC, Yiu MG, Ho SC, Chan VL. Risk factors for chronic post-traumatic stress disorder (PTSD) in SARS survivors. Gen Hosp Psychiatry. 2010 Nov-Dec;32(6):590–8. doi: 10.1016/j.genhosppsych.2010.07.007. Epub 2010 Sep 15. PMID: 21112450; PMCID: PMC7132390.
17. Miskowiak KW, Johnsen S, Sattler SM, Nielsen S, Kunalan K, Rungby J, Lapperre T, Porsberg CM. Cognitive impairments four months after COVID-19 hospital discharge: Pattern, severity and association with illness variables. Eur Neuropsychopharmacol. 2021 May;46:39–48. doi: 10.1016/j.euroneuro.2021.03.019. Epub 2021 Mar 29. PMID: 33823427; PMCID: PMC8006192.
18. Sorokin M, Lutova N, Mazo G, Kasyanov E, Rukavishnikov G, Makarevich O, Khobeysh M. Prerequisites of willingness to accept a COVID-19 vaccine among the Russian population. Psychiatry and Narcology: Bulletin of Medical Science. 2021 Dec;24(4):95–103. (In Russ). doi: 10.31684/25418475-2021-4-95

19. Inui S, Fujikawa A, Jitsu M, Kunishima N, Watanabe S, Suzuki Y, Umeda S, Uwabe Y. Chest CT Findings in Cases from the Cruise Ship Diamond Princess with Coronavirus Disease (COVID-19). Radiol Cardiothorac Imaging. 2020 Mar 17;2(2):e200110. doi: 10.1148/ryct.2020200110. Erratum in: Radiol Cardiothorac Imaging. 2020 Apr 07;2(2):e204002. PMID: 33778566; PMCID: PMC7233452.
20. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand. 1983 Jun;67(6):361–70. doi: 10.1111/j.1600-0447.1983.tb09716.x. PMID: 6880820.
21. Freud T, Vostrikov A, Dwolatzky T, Punchik B, Press Y. Validation of the Russian Version of the MoCA Test as a Cognitive Screening Instrument in Cognitively Asymptomatic Older Individuals and Those With Mild Cognitive Impairment. Front Med (Lausanne). 2020 Aug 13;7:447. doi: 10.3389/fmed.2020.00447. PMID: 32903556; PMCID: PMC7438442.
22. Nasreddine ZS, Phillips NA, Bédirian V, Charbonneau S, Whitehead V, Collin I, Cummings JL, Chertkow H. The Montreal Cognitive Assessment, MoCA: a brief screening tool for mild cognitive impairment. J Am Geriatr Soc. 2005 Apr;53(4):695–9. doi: 10.1111/j.1532-5415.2005.53221.x. Erratum in: J Am Geriatr Soc. 2019 Sep;67(9):1991. PMID: 15817019.
23. Kibitov AA, Rakitko AS, Kasyanov ED, Rukavishnikov GV, Kozlova KA, Ilinsky VV, Neznanov NG, Mazo GE, Kibitov AO. Screening of Depressive Symptoms in a Russian General Population Sample: A Web-based Cross-sectional Study. Clin Pract Epidemiol Ment Health. 2021 Dec 22;17:205–211. doi: 10.2174/1745017902117010205. PMID: 35173789; PMCID: PMC8728561.
24. Bonizzato S, Ghiggia A, Ferraro F, Galante E. Cognitive, behavioral, and psychological manifestations of COVID-19 in post-acute rehabilitation setting: preliminary data of an observational study. Neurol Sci. 2022 Jan;43(1):51–58. doi: 10.1007/s10072-021-05653-w. Epub 2021 Oct 12. PMID: 34642823; PMCID: PMC8510572.
25. Prevention, diagnosis and treatment of new coronavirus infection (COVID-19). Version 10 (08.02.2021). [Internet]. Ministry of Health of Russia. [cited 2022Sep.22] https://static-0.minzdrav.gov.ru/system/attachments/attaches/000/054/662/original/Временные_MP_COVID-19_(v.10).pdf (In Russ).
26. Rass V, Beer R, Schiefecker AJ, Kofler M, Lindner A, Mahlknecht P, Heim B, Limmert V, Sahanic S, Pizzini A, Sonnweber T, Tancevski I, Scherfler C, Zamarian L, Bellmann-Weiler R, Weiss G, Djamshidian A, Kiechl S, Seppi K, Loeffler-Ragg J, Pfausler B, Helbok R. Neurological outcome and quality of life 3 months after COVID-19: A prospective observational cohort study. Eur J Neurol. 2021 Oct;28(10):3348–3359. doi: 10.1111/ene.14803. Epub 2021 May 3. PMID: 33682276; PMCID: PMC8250725.
27. Matos AMB, Dahy FE, de Moura JVL, Marcusso RMN, Gomes ABF, Carvalho FMM, Fernandes GBP, Felix AC, Smid J, Vidal JE, Frota NAF, Casseb J, Easton A, Solomon T, Witkin SS, Malta Romano C, de Oliveira ACP; NeuroCovBR Study Group. Subacute Cognitive Impairment in Individuals With Mild and Moderate COVID-19: A Case Series. Front Neurol. 2021 Aug 4;12:678924. doi: 10.3389/fneur.2021.678924. PMID: 34421788; PMCID: PMC8371908.
28. Cristofori I, Cohen-Zimerman S, Grafman J. Executive functions. Handb Clin Neurol. 2019;163:197–219. doi: 10.1016/B978-0-12-804281-6.00011-2. PMID: 31590731.
29. Ardila A, Lahiri D. Executive dysfunction in COVID-19 patients. Diabetes Metab Syndr. 2020 Sep-Oct;14(5):1377–1378. doi: 10.1016/j.dsx.2020.07.032. Epub 2020 Jul 22. PMID: 32755837; PMCID: PMC7373676.
30. Helms J, Kremer S, Merdji H, Clere-Jehl R, Schenck M, Kummerlen C, Collange O, Boulay C, Fafi-Kremer S, Ohana M, Anheim M, Meziani F. Neurologic Features in Severe SARS-CoV-2 Infection. N Engl J Med. 2020 Jun 4;382(23):2268–2270. doi: 10.1056/NEJMc2008597. Epub 2020 Apr 15. PMID: 32294339; PMCID: PMC7179967.
31. Jessen F, Amariglio RE, van Boxtel M, Breteler M, Ceccaldi M, Chételat G, Dubois B, Dufouil C, Ellis KA, van der Flier WM, Glodzik L, van Harten AC, de Leon MJ, McHugh P, Mielke MM, Molinuevo JL, Mosconi L, Osorio RS, Perrotin A, Petersen RC, Rabin LA, Rami L, Reisberg B, Rentz DM, Sachdev PS, de la Sayette V, Saykin AJ, Scheltens P, Shulman MB, Slavin MJ, Sperling RA, Stewart R, Uspenskaya O, Vellas B, Visser PJ, Wagner M; Subjective Cognitive Decline Initiative (SCD-I) Working Group. A conceptual framework for research on subjective cognitive decline in preclinical Alzheimer's disease. Alzheimers Dement. 2014 Nov;10(6):844–52. doi: 10.1016/j.jalz.2014.01.001. Epub 2014 May 3. PMID: 24798886; PMCID: PMC4317324.
32. Jensen JH, Støttrup MM, Nayberg E, Knorr U, Ullum H, Purdon SE, Kessing LV, Miskowiak KW. Optimising screening for cognitive dysfunction in bipolar disorder: Validation and evaluation of objective and subjective tools. J Affect Disord. 2015 Nov 15; 187:10–9. doi: 10.1016/j.jad.2015.07.039. Epub 2015 Aug 1. PMID: 26301477.
33. Miskowiak KW, Petersen JZ, Ott CV, Knorr U, Kessing LV, Gallagher P, Robinson L. Predictors of the discrepancy between objective and subjective cognition in bipolar disorder: a novel methodology. Acta Psychiatr Scand. 2016 Dec;134(6):511–521. doi: 10.1111/acps.12649. Epub 2016 Sep 20. PMID: 27644707.
34. Ott CV, Bjertrup AJ, Jensen JH, Ullum H, Sjælland R, Purdon SE, Vieta E, Kessing LV, Miskowiak KW. Screening for cognitive dysfunction in unipolar depression: Validation and evaluation of objective and subjective tools. J Affect Disord. 2016 Jan 15; 190:607–615. doi: 10.1016/j.jad.2015.10.059. Epub 2015 Nov 10. PMID: 26583350.
35. van Harten AC, Mielke MM, Swenson-Dravis DM, Hagen CE, Edwards KK, Roberts RO, Geda YE, Knopman DS, Petersen RC. Subjective cognitive decline and risk of MCI: The Mayo Clinic Study of Aging. Neurology. 2018 Jul 24;91(4):e300–e312. doi: 10.1212/WNL.0000000000005863. Epub 2018 Jun 29. PMID: 29959257; PMCID: PMC6070384.
36. Taquet M, Geddes JR, Husain M, Luciano S, Harrison PJ. 6-month neurological and psychiatric outcomes in 236 379 survivors of COVID-19: a retrospective cohort study using electronic health records. Lancet Psychiatry. 2021 May;8(5):416–427. doi: 10.1016/S2215-0366(21)00084-5. Epub 2021 Apr 6. PMID: 33836148; PMCID: PMC8023694.
37. Svendsen AM, Kessing LV, Munkholm K, Vinberg M, Miskowiak KW. Is there an association between subjective and objective measures of cognitive function in patients with affective disorders? Nord J Psychiatry. 2012 Sep;66(4):248–53. doi: 10.3109/08039488.2011.626870. Epub 2011 Nov 10. PMID: 22070515.
38. Hill NL, Mogle J, Wion R, Munoz E, DePasquale N, Yevchak AM, Parisi JM. Subjective Cognitive Impairment and Affective Symptoms: A Systematic Review. Gerontologist. 2016 Dec;56(6):e109–e127. doi: 10.1093/geront/gnw091. Epub 2016 Jun 23. PMID: 27342440; PMCID: PMC5181393.
39. Ghafar MZAA, Miptah HN, O'Caoimh R. Cognitive screening instruments to identify vascular cognitive impairment: A systematic review. Int J Geriatr Psychiatry. 2019 Aug;34(8):1114–1127. doi: 10.1002/gps.5136. Epub 2019 May 16. PMID: 31050033.

Clinical Effectiveness of Lurasidone Monotherapy in Patients with Acute Episodes of Schizophrenia and Associated Symptoms of Depression

Клиническая эффективность монотерапии Луразидоном у пациентов с острым эпизодом шизофрении и сопутствующими симптомами депрессии

doi: 10.17816/CP172

Original research

Aleksandr Reznik[1,2,3], Timur Syunyakov[1,4], Inessa Akhmerova[5,6], Daniil Butylin[7,8], Anastasia Vasilenko[9], Anton Gvozdetckii[10], Tagir Gizatullin[5,6], Galina Gilmanshina[5], Egor Golosov[11], Sergey Kolchev[10], Lidiya Linova[11], Daniil Miron[8], Aleksandr Mudrak[1], Igor Oleichik[12], Stepan Sizov[12], Elena Tarakanova[13], Olga Chesnokova[7,8]

[1] Mental-health Clinic No. 1 named after N.A. Alexeev, Moscow, Russia

[2] Moscow State University of Food Production, Moscow, Russia

[3] Moscow Regional Psychiatric Hospital No. 5, Khotkovo, Russia

[4] Research Zakusov Institute of Pharmacology, Moscow, Russia

[5] Republican Clinical Psychiatric Hospital of the Republic of Bashkortostan, Ufa, Russia

[6] Bashkir State University, Ufa, Russia

[7] Pavlov First State Medical University of Saint Petersburg, Saint Petersburg, Russia

[8] City Psychiatric Hospital No. 6 (a hospital with a dispensary), Saint Petersburg, Russia

[9] Medical Center «Moy doctor», Stavropol, Russia

Александр Резник[1,2,3], Тимур Сюняков[1,4], Инесса Ахмерова[5,6], Даниил Бутылин[7,8], Анастасия Василенко[9], Антон Гвоздецкий[10], Тагир Гизатуллин[5,6], Галина Гильмашина[5], Егор Голосов[11], Сергей Колчев[10], Лидия Линова[11], Даниил Мирон[8], Александр Мудрак[1], Игорь Олейчик[12], Степан Сизов[12], Елена Тараканова[13], Ольга Чеснокова[7,8]

[1] ГБУЗ «Психиатрическая клиническая больница № 1 им. Н.А. Алексеева Департамента здравоохранения города Москвы», Москва, Россия

[2] ФГБОУ ВО «Московский государственный университет пищевых производств», Москва, Россия

[3] ГБУЗ Московской области «Психиатрическая больница № 5», Хотьково, Россия

[4] ФГБНУ «Научно-исследовательский институт фармакологии имени В.В. Закусова», Москва, Россия

[5] ГБУЗ Республики Башкортостан «Республиканская клиническая психиатрическая больница», Уфа, Россия

[6] ФГБОУ ВО «Башкирский государственный университет», Уфа, Россия

[7] ФГБОУ ВО «Первый Санкт-Петербургский государственный медицинский университет имени академика И.П. Павлова» Минздрава России, Санкт-Петербург, Россия

[8] Санкт-Петербургское государственное казенное учреждение здравоохранения «Городская психиатрическая больница № 6 (стационар с диспансером)», Санкт-Петербург, Россия

[9] ООО Медицинский центр «Мой Доктор», Ставрополь, Россия

[10] *North-Western State Medical University named after I.I. Mechnikov, Saint Petersburg, Russia*
[11] *Psychiatric Hospital No. 1 named after P.P. Kaschenko, Saint Petersburg, Russia*
[12] *Mental Health Research Centre, Moscow, Russia*
[13] *The Volgograd Medical State University, Volgograd, Russia*

[10] *ФГБОУ ВО «Северо-Западный государственный медицинский университет имени И.И. Мечникова» Минздрава России, Санкт-Петербург, Россия*
[11] *Санкт-Петербургское государственное бюджетное учреждение здравоохранения «Психиатрическая больница № 1 им. П.П. Кащенко», Санкт-Петербург, Россия*
[12] *ФГБНУ «Научный центр психического здоровья», Москва, Россия*
[13] *ФГБОУ ВО «Волгоградский государственный медицинский университет», Волгоград, Россия*

ABSTRACT

AIM: We endeavored to evaluate the efficacy of Lurasidone at doses of 40–160 mg per day on symptoms of schizophrenia associated with symptoms of depression in real clinical practice in a Russian patient population.

METHODS: One hundred sixty eight patients aged 18–65 years old, who at the time of the start of the observation were being treated in a hospital or day hospital due to an exacerbation of paranoid schizophrenia accompanied by symptoms of depression, were prescribed lurasidone. Treatment with lurasidone and other concomitant drugs, their prescription, withdrawal, selection, and dose modifications were determined based on the indications for the use of those drugs and the recommended doses in the instructions, clinical need, and patient interests, rather than by the goals of the study. During the observation period, the severity of depressive symptoms according to the Calgary Depression Scale (CDSS) and that of psychotic symptoms according to the Positive and Negative Syndrome Scale (PANSS) were assessed six times (before the start of treatment and then on the 4th, 7th, 14th, 28th, and 42nd days).

RESULTS: A statistically significant reduction in the severity of the symptoms was observed with the use of lurasidone in doses ranging from 40 mg to 160 mg per day. The fastest and most significant (p <0.001) reductions in the total PANSS and CDSS scores were observed with lurasidone 120 mg. A somewhat lower efficacy of lurasidone was observed at a dose of 160 mg. The largest reductions in the total PANSS and CDSS scores with lurasidone 120 mg were associated with the highest survival rate and the longest median time from treatment initiation to discontinuation or follow-up. The most commonly reported side effects with lurasidone in this study (nausea, akathisia, tremor and drowsiness) were consistent with the known safety profile of the drug. Adverse events in most cases were assessed as mild, or occasionally moderate.

CONCLUSION: A six-week prospective observational study of the real-world clinical effectiveness of lurasidone in doses ranging from 40 mg to 160 mg per day established statistically and clinically significant improvements in both psychotic and depressive symptoms in patients with acute exacerbation of schizophrenia and associated symptoms of depression.

АННОТАЦИЯ

ЦЕЛЬ: Оценка клинического эффекта Луразидона в дозах от 40 до 160 мг в сутки в отношении симптомов шизофрении, сочетающихся с симптомами депрессии, в условиях реальной клинической практики в популяции пациентов РФ.

МЕТОДЫ: Включены 168 пациентов в возрасте от 18 до 65 лет включительно, которые на момент начала наблюдения получали лечение в стационаре или дневном стационаре в связи с обострением параноидной шизофрении, сопровождавшимся симптомами депрессии. Лечение луразидоном и другими сопутствующими

препаратами, их назначение, отмена, выбор и изменение дозы определялось показаниями к применению этих препаратов и рекомендованными в инструкциях дозами, клинической необходимостью и интересами пациентов, а не целями исследования. В период наблюдения шесть раз (до начала лечения и далее на 4-й, 7-й, 14-й, 28-й и 42-й дни) проводилась оценка выраженности депрессивной симптоматики по шкале депрессии Калгари у больных шизофренией (CDSS) и психотической симптоматики по шкале оценки позитивных и негативных синдромов (PANSS).

РЕЗУЛЬТАТЫ: Улучшение со статистически значимым уменьшением выраженности симптомов прослеживалось при использовании луразидона в дозах от 40 до 160 мг в сутки. Самое быстрое и значимое (p <0,001) снижение общего балла PANSS и суммарного балла CDSS отмечено при использовании луразидона в дозе 120 мг. Несколько меньшая эффективность луразидона отмечалась в дозе 160 мг. Максимальное снижение общего балла PANSS и суммарного балла CDSS при назначении луразидона в дозе 120 мг сочеталось с наибольшим средним временем с момента начала лечения до его прекращения или остановки наблюдения за пациентом. Побочные эффекты, наиболее часто возникавшие при приеме луразидона в этом исследовании (тошнота, акатизия, тремор и сонливость), соответствовали известному профилю безопасности препарата. Нежелательные явления в большинстве случаев оценивались как легкие, изредка — умеренные.

ЗАКЛЮЧЕНИЕ: В 6-недельном наблюдательном проспективном исследовании клинической эффективности в отношении острых симптомов шизофрении, сочетающихся с симптомами депрессии, в условиях реальной клинической практики луразидон в гибких дозах от 40 до 160 мг в сутки обеспечивал статистически значимое и клинически существенное улучшение как психотических симптомов, так и симптомов депрессии. Луразидон хорошо переносился, мало влиял на вес, метаболические параметры и неврологический статус пациентов.

Keywords: *lurasidone; schizophrenia; depression; exacerbation of schizophrenia; second-generation antipsychotic; psychopharmacotherapy*
Ключевые слова: *луразидон; шизофрения; депрессия; обострение шизофрении; антипсихотик второго поколения; психофармакотерапия*

INTRODUCTION

A significant number of patients with schizophrenia experience symptoms of depression [1–5]. Depression has been observed in 20% of patients with schizophrenia during remission, while its incidence increases to 60% during acute episodes. The incidence of depression can reach 80% based on medical history, particularly in the early stages of schizophrenia [6]. Depression is one of the main symptoms of schizophrenia and one of the diagnostic signs of schizophrenia spectrum disorders [5–7]. This does not contradict the traditional division drawn between affective disorders and schizophrenia. An intermediate diagnostic category of schizoaffective psychosis defines the concept of phenotypes with a different representation of psychotic and affective disorders, or a multidimensional phenomenological continuum from conditionally "pure" schizophrenia to "pure" bipolar disorder [8–10]. The remaining challenge is determining the key features that allow one to distinguish between intermediate forms of psychotic and affective disorders. For example, symptoms of depression in patients with schizophrenia are associated with cognitive impairment. These symptoms are difficult to distinguish from the typical negative symptoms of schizophrenia in real-world clinical practice. Differential diagnosis is difficult, because signs of irreversible negative symptoms are similar to signs of depression, even in definite and long-term schizophrenia [1, 5, 11, 12]. Difficulties in the differential diagnosis between affective disorders or negative symptoms are common in the presence of symptoms such as anhedonia, mental anesthesia, emotional indifference, loss of motivation, anergy, flat affect, social withdrawal, ideational retardation, and impoverished thinking [1, 6, 11, 13]. Sometimes it is difficult to immediately distinguish between depression and catatonia [14, 15]. Notably,

severe depression might be associated with psychotic features, such as delusions, hallucinations, and conceptual disorganization [1]. Sometimes, symptoms of depression are obvious signs of established schizophrenia. Even in such cases, there is the problem of determining the role of depression in the structure of the psychopathological syndrome, determining its influence on the course of the disease, its role as a target of therapy, and the complications [13, 16]. Treatment for depression associated with schizophrenia usually includes various combinations of antipsychotics, mood stabilizers, and antidepressants. However, this approach is controversial and associated with polypharmacy [13, 16–22]. This combined treatment has both desirable and adverse effects [19, 22]. The combination and severity of both affective and psychotic symptoms in a patient with schizophrenia should inform the selection of pharmacological treatment. An ideal treatment should affect depressive, positive, and negative symptoms, and it should carry minimal risk of complications. Drugs that combine the properties of antipsychotics and antidepressants due to the polyvalence of neurochemical activity appear promising [4, 13, 21, 23]. Lurasidone (Latuda®) demonstrates such properties, and it possesses selectivity for and high affinity to dopamine D_2 receptors [24–26], partial agonism to 5-HT_{1A}, antagonism to 5-$HT_{2A,}$ and antagonism to the 5-HT_7 subtype of serotonin receptors [24, 27]. It also demonstrates selective antagonism to the α_{2C} subtype adrenergic receptors in the prefrontal cortex [27]. Strong selective D_2 receptor antagonism provides a reliable antipsychotic effect with minimal involvement of dopamine transmission in the prefrontal cortex and associated minimal effects on cognitive functions, while a complex effect on the serotonergic system provides much more diverse clinical effects of the drug. Thus, partial agonism to 5-HT_{1A} and blockade of 5-HT_{2A} increase the dopamine level in the prefrontal cortex and reduce the cognitive and negative impairments associated with schizophrenia. Lurasidone also normalizes the dopamine levels in the nigrostriatal and tuberoinfundibular pathways, which reduces the risk of extrapyramidal symptoms and neuroleptic depression [25, 28]. The incidence of hyperprolactinemia was comparable to the placebo [29]. Due to the blockade of 5-HT_7 receptors, lurasidone possesses antidepressant and anxiolytic properties, normalizes circadian rhythms and sleep quality, improves memory, concentration, and cognition, reduces pain sensitivity, and even possesses an antipsychotic effect [27, 28]. Lurasidone increases the release of norepinephrine and, thereby, contributes to its antidepressant effect by blocking presynaptic and autoregulatory α_{2C} adrenergic receptors [27]. At the same time, it has no appreciable affinity for the M cholinergic, α_1 adrenergic, 5-HT_{2C} serotonin, or histamine H1 receptors, which are “undesirable” receptor targets. Thus, lurasidone rarely causes such adverse events as paresis of accommodation, urinary retention, cognitive and memory impairment, tachycardia and orthostatic hypotension, QT prolongation, metabolic disorders, drowsiness, increased appetite, and weight gain [24, 25, 27–29]. Moreover, patients previously treated with some other second-generation antipsychotics have experienced weight loss within a year of switching to lurasidone therapy [30, 31]. In general, a positive impact on body weight, metabolism, and prolactin levels has been noted after a switch to lurasidone. It possesses a very low probability of drug-drug interaction [32]. Lurasidone is overall well-tolerated by patients, and it could be used in the presence of various comorbid mental conditions. Lurasidone has been established as a drug of choice in patients with metabolic disorders and cardiovascular risks [32].

Lurasidone is effective in the treatment of acute psychotic symptoms, as has been demonstrated by a number of RCTs. Its efficacy is similar to that of other second-generation antipsychotics [29, 33–36]. Lurasidone robustly reduces the scores of Marder PANSS factors [37] of positive symptoms and arousal/aggression. At the same time, significant improvement is also evident on all other PANSS parameters, including anxiety/depression, as well as cognitive impairment/disorganization [38]. While on lurasidone, patients have reported greater awareness of their illness and have been more compliant with treatment [39]. The effectiveness of the drug at reducing symptoms of depression was also confirmed using MADRS [35] and HDRS-21 [40]. Lurasidone has demonstrated a long-term relapse-prevention antidepressant effect [36]. Patients taking lurasidone have a higher level of compliance and lower discontinuation rates compared to patients taking other atypical antipsychotics [32, 41]. Lurasidone has demonstrated efficacy in acute bipolar depression, both as monotherapy [42] and in combination with mood stabilizers [43]. Studies showed relief of depression and anxiety, as well as cognitive and quality-of-life improvement. It is important that the incidence of affective phase inversion of bipolar disorder was the same as with the placebo.

Therefore, lurasidone presents valuable treatment options for bipolar disorder [42, 43]. Lurasidone proved superior to placebo in terms of the effects on depressive symptoms during the acute phase of schizophrenia according to the pooled RCT analysis. Moreover, the antidepressant effect does not depend on the antipsychotic effect [35, 40, 44]. The data support the inclusion of lurasidone in the treatment of depressive symptoms in patients with schizophrenia [44]. Thus, lurasidone possesses a wide range of non-dopamine receptor activities, which determine its antidepressant and pro-cognitive effect, along with its impact on negative symptoms. Lurasidone represents an alternative to routine treatment where patients with schizophrenia and depressive symptoms are given an antipsychotic along with an antidepressant. However, the effectiveness of lurasidone in exacerbations of schizophrenia, including psychotic and depressive symptoms in a real-world setting, requires additional research.

The objective of this study was to evaluate the effectiveness of lurasidone 40–160 mg per day for the treatment of an acute episode of schizophrenia associated with depressive symptoms in real-world clinical practice in the Russian patient population.

The objectives of the observational program included:

- assessing symptoms of schizophrenia using the Positive and Negative Syndrome Scale (PANSS);
- assessing depressive symptoms using the Calgary Depression Symptoms Scale (CDSS); and
- evaluating lurasidone safety and tolerability.

The primary endpoint was to achieve a decrease in depressive symptoms consistent with the Minimum Clinically Important Difference (MCID), characterized by a decline of at least 1.3 points according to the CDSS [45]. A secondary endpoint was a reduction in the severity of schizophrenia symptoms, as measured by PANSS and its subscales (positive and negative symptoms and general psychopathology).

METHODS

Study design

A prospective observational cohort study of patients with acute exacerbation of schizophrenia, concomitant with depressive symptoms, was conducted in Russian specialized research institutes and health care facilities: Mental Health Research Center and Psychiatric Hospital No. 1 named after N.A. Alexeev (Moscow), Psychiatric Hospital No. 1 named after P.P. Kashchenko, City Psychiatric Hospital No. 3 named after I.I. Skvortsov-Stepanov and City Psychiatric Hospital No. 6 (St. Petersburg), Republican Clinical Psychiatric Hospital, Republic of Bashkortostan (Ufa), Stavropol Regional Clinical Psychiatric Hospital No. 1 (Stavropol), and the Volgograd Regional Psychiatric Hospital (Volgograd). The study sample consisted of men and women with confirmed diagnoses of schizophrenia (per DSM-V-TR) and concomitant depressive symptoms who were prescribed lurasidone at a dose of 40–160 mg per day.

Inclusion criteria:

- written informed consent for the collection and anonymized processing of socio-demographic, medical, and psychometric data;
- paranoid schizophrenia (F20) diagnosed according to ICD-10, including F20.00 — continuous course; F20.01 — episodic course with a progressive defect; F20.02 — episodic course with a stable defect; F20.03 — episodic relapsing (recurrent) current F20.09 — follow-up period of less than a year;
- schizophrenia exacerbation which required a change in a health care setting (treatment in psychiatric hospital or outpatient hospital), changes in antipsychotic therapy, and second-generation antipsychotics prescription; exacerbation included psychotic symptoms and the onset or worsening of depressive symptoms requiring pharmacological intervention as judged by the treating physician;
- moderate or severe exacerbation: a total PANSS score of at least 70 and a total CDSS score of at least 6;
- lurasidone prescription (treating physician prescribes lurasidone regardless of the program design and the objective of the study); and
- aged between 18 and 65 years old.

Exclusion criteria:

- refusal or lack of capacity to comply with study evaluation;
- participation in another clinical study;
- lurasidone contraindications which were determined by the physician according to the clinical signs of the disease, concomitant diseases, and other individual risks, as well as contraindications specified in the instructions for use approved by the Ministry of Health of the Russian Federation.

All patients received lurasidone orally once or twice daily as clinically appropriate and indicated by current clinical guidelines in the Russian Federation. The primary treating physicians determined the treatment regimen based on the individual needs of each patient; the physicians were not influenced by the objectives of the study. Patients could receive concomitant medications (i.e., mood stabilizers, sedatives, hypnotics, etc.) as clinically indicated.

Premature cessation of follow-up occurred after discontinuation of lurasidone for any reason, such as when the physician changed the antipsychotic or prescribed a second antipsychotic with a strong selective antipsychotic effect, when lurasidone was not effective against depressive symptoms and an antidepressant had to be prescribed, or when the physician or patient had decided to discontinue follow-up in the best interests of the patient.

The study was conducted from December 2020 to September 2021. Study evaluations were done before the start of treatment, on Day 1 and then on Days 4, 7, 14, 28, and 42 with an allowable interval of ±1 day. The maximum follow-up period for each patient was six weeks. We developed a special individual registration card that included anonymous data on the age, locality, diagnosis, additional therapies, the presence or absence of adverse events, and predominant symptoms and their severity. We recorded the onset, completion, or discontinuation of the study, indicating the reasons for the latter.

Evaluation tools

Psychotic and depressive symptoms were quantified using special scales, such as:

1) The Calgary Depression Scale for Schizophrenia (CDSS) [46], which is a nine-item scale where each item is scored from 0 to 3. The scale showed high internal and interrater reliability in assessing the depressive symptoms associated with schizophrenia [46].
2) Positive and Negative Syndrome Scale (PANSS), which typologically and multidimensionally evaluates psychopathological symptoms [47].

The study group included 168 patients aged 18 to 65 with a diagnosis of paranoid schizophrenia according to ICD-10. All of them were treated in an inpatient facility or day hospital for schizophrenia exacerbation, accompanied by depressive symptoms at the time of the study onset. One hundred forty one patients (83.9%) completed the observational program and made seven visits.

Statistical analysis

The general characteristics of the population are processed using descriptive statistics. Continuous variables are presented as mean values, standard deviations (SD), medians, and first and third quartiles (Q1 and Q3). Qualitative variables are presented as frequencies and percentages. Mean values were compared between the groups using a one-way analysis of variance (One-way ANOVA), and the distribution of categorical variables using Fisher's exact test. Data were analyzed according to the PANSS positive (P1–P7), negative symptoms (N1–N7), and general psychopathology (G1–G16) subscale scores, PANSS total score, CDSS total score, and time to study completion. The significance of score changes on the scales was assessed via a dispersion analysis for repeated measurements (single-factor or multi-factor, depending on the comparison type). We also assessed changes in scale scores during each visit between groups. The study calculated the differences between Visit 1 and Visit n, which were then entered into a two-way ANOVA to compare groups. Post-hoc comparisons took into account the appropriate correction for multiple comparisons according to Dunnett's test for duplicate values and Tukey's test for between-group contrasts, when necessary.

We calculated the average and total doses of lurasidone for each patient and then determined the total drug exposure and the individual dose range (40–80, 120, or 160 mg per day).

Time to study completion was evaluated using the Kaplan-Meier survival analysis.

All analyses were performed using the GraphPad software (GraphPad Prism version 9.3.1 for Windows, GraphPad Software, San Diego, California USA, www.graphpad.com), except for the survival analysis, which was done using the NCSS software (NCSS 2021 Statistical Software (2021). NCSS, LLC. Kaysville, Utah, USA, ncss.com/software/ncss.)

The analysis included all patients, even those who dropped out of the study prematurely. The last-observation-carried-forward (LOCF) approach was used for the patients who dropped out of the study prematurely.

RESULTS

All study patients displayed various forms of paranoid schizophrenia at the start of the treatment for their then-exacerbation in a psychiatric hospital. The mean age of the men and women did not differ significantly. The main psychopathological syndromes at the start of the follow-up were affective-delusional, including depressive-paranoid (*n*=95), hallucinatory-paranoid (*n*=44), depressive or anxious-depressive (*n*=28), and catatonic (*n*=1). All patients experienced depressive symptoms of varying severities.

Table 1 shows descriptive sample statistics.

Primary and secondary lurasidone effectiveness endpoints

The primary lurasidone effectiveness endpoint in the study was the comparison of the changes in the total CDSS score over the study period. Secondary endpoints were the changes in the total PANSS and positive, negative, and general psychopathology subscale scores in the comparison. Table 2 shows the ANOVA results for repeated measurement of the evaluation parameters; the independent factor is the visit number. Table 3 and Figure 1 show details of the means compared to Visit 1 according to a post-hoc analysis with Dunnett's test correction.

Table 1. Clinical and demographic characteristics of the studied group of patients

Gender	Females (N=112)	Males (N=56)	Total (N=168)	Test statistics
Age [1]				F=0.095, df=1, *p*=0.758
Mean (SD)	31.667 (11.168)	31.125 (9.701)	31.485 (10.672)	
Median (Q1, Q3)	30 (23, 37)	31 (25, 38.25)	31 (23, 37.5)	
First psychotic episode [2]				*p*=0.032
No	58 (51.8%)	33 (58.9%)	91 (54.2%)	
Yes	19 (17.0%)	3 (5.4%)	22 (13.1%)	
Missed	35 (31.2%)	20 (35.7%)	55 (32.7%)	
Age of first psychotic episode [1]				F=3.831, df=1, *p*=0.053
Missed	35	20	55	
Mean (SD)	18.260 (12.444)	22.750 (8.554)	19.690 (11.505)	
Median (Q1, Q3)	20 (15, 24)	21.5 (18.75, 26.25)	20 (18, 25)	
Hospitalization Number [1]				F=4.235, df=1, *p*=0.041
Missed	2	1	3	
Mean (SD)	2.600 (1.978)	3.327 (2.435)	2.842 (2.161)	
Median (Q1, Q3)	2 (1, 3)	3 (2, 4)	2 (1, 4)	

Note: [1] One-way ANOVA, [2] Fisher exact test. Statistical test are provided for non-missed comparisons between males and females.

Table 2. Primary (CDSS total score) and secondary (PANSS positive subscale, negative subscale, general psychopathology subscale, PANSS total score) outcome variables for Repeated Measures ANOVA Results

Scale / subscale	df	Sum of Squares	Mean Square	F	F (DFn, DFd)	*p*	η_p^2
CDSS total score	4	6324.73	1581.18	154.36	F (1,463, 244,3)=156,7	<0.001	0.48
PANSS, positive subscale	4	8672.64	2168.16	200.88	F (1,491, 249,0)=195,5	<0.001	0.55
PANSS, negative subscale	4	6728.98	1682.25	185.99	F (1,582, 264,2)=171,9	<0.001	0.53
PANSS, general psychopathology subscale	4	37098.85	9274.71	107.56	F (1,593, 266,0)=103,7	<0.001	0.39
PANSS total score	4	150164.85	37541.21	242.39	F (1,455, 243,0)=218,6	<0.001	0.59

Table 3. Primary (CDSS total score) and secondary (PANSS positive subscale, negative subscale, general psychopathology subscale, PANSS total score) outcome variables means and mean changes from the background (repeated-measures ANOVA, LOCF)

Variable	Day	Mean	S.D.	CI 95% of the mean	Mean change	CI 95% of the mean change	t	df	Dunnett's *p*
CDSS total score	1	16.81	7.19	15.71–17.91					
	7	14.51	6.95	13.45–15.57	2.304	1.58–3.02	7.883	167	<0.001
	14	10.75	6.46	9.76–11.74	6.060	4.95–7.17	13.42	167	<0.001
	28	10.19	6.49	9.19–11.18	6.625	5.43–7.82	13.62	167	<0.001
	42	9.81	6.65	8.79–10.83	7.000	5.72–8.28	13.49	167	<0.001
PANSS Positive Subscale score	1	22.11	5.20	21.31–22.90					
	7	19.69	5.25	18.89–20.49	2.42	1.76–3.08	9.03	167	<0.001
	14	16.96	5.58	16.11–17.82	5.14	4.12–6.16	12.45	167	<0.001
	28	14.76	5.92	13.85–15.66	7.35	6.11–8.60	14.57	167	<0.001
	42	13.08	6.34	12.12–14.05	9.02	7.61–10.44	15.74	167	<0.001
PANSS Negative Subscale score	1	26.65	5.60	25.79–27.50					
	7	24.54	5.19	23.75–25.34	2.11	1.40–2.82	7.34	167	<0.001
	14	22.33	5.08	21.55–23.10	4.32	3.41–5.24	11.66	167	<0.001
	28	20.09	5.45	19.26–20.92	6.56	5.40–7.72	13.90	167	<0.001
	42	18.67	6.02	17.75–19.59	7.98	6.62–9.33	14.54	167	<0.001
	1	55.60	12.72	53.65–57.54					
	7	49.42	10.18	47.87–50.98	0.71	4.41–7.93	8.65	167	<0.001
	14	43.98	9.63	42.51–45.45	0.96	9.25–14.00	12.11	167	<0.001
	28	38.71	10.54	37.10–40.32	1.16	14.02–19.76	14.51	167	<0.001
PANSS General psychopathology Subscale score	42	37.24	16.01	34.79–39.68	1.77	14.00–22.71	10.40	167	<0.001
PANSS total score	1	104.35	20.12	101.28–107.42					
	7	93.61	17.55	90.93–96.30	10.74	7.71–13.77	8.74	167	<0.001
	14	83.23	17.90	80.50–85.97	21.12	17.02–25.22	12.71	167	<0.001
	28	73.49	20.17	70.41–76.57	30.86	25.83–35.90	15.10	167	<0.001
	42	66.21	23.12	62.68–69.75	38.14	32.32–43.95	16.16	167	<0.001

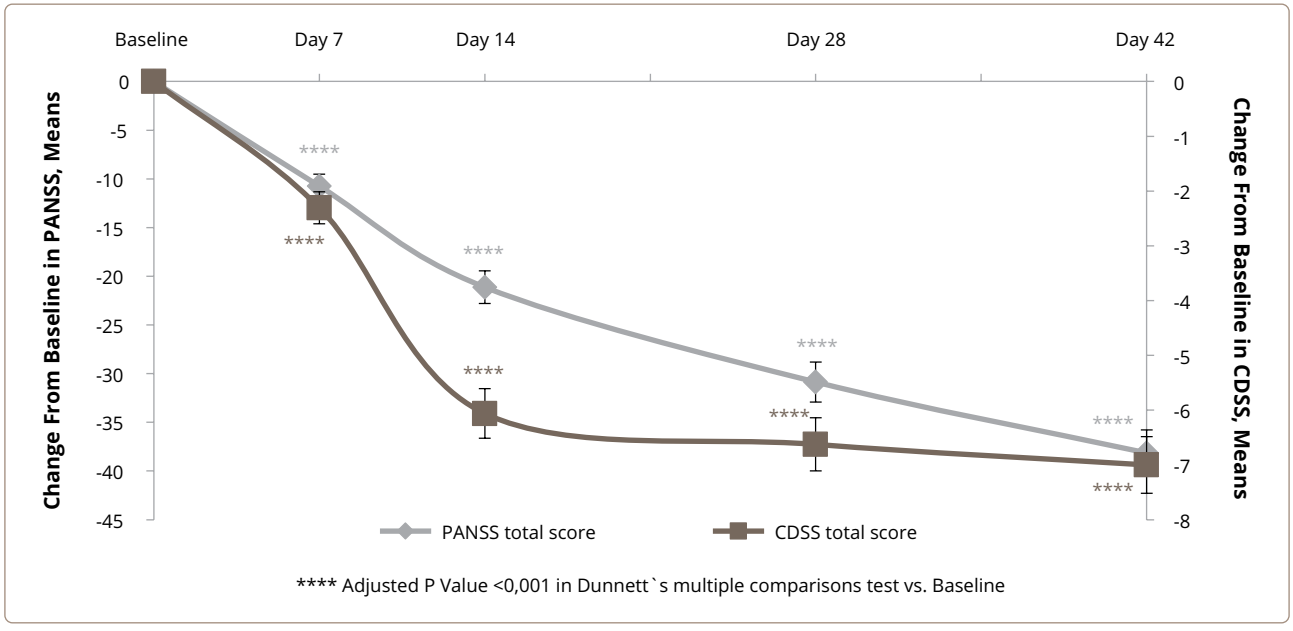


Figure 1. Changes in the total PANSS and CDSS scores.

All effectiveness parameters demonstrated a significant visit effect, according to partial eta-squared values ranging from 0.39 to 0.59, reflecting the large impact of size (CDSS η_p^2=0.48, PANSS, positive subscale η_p^2=0.55, PANSS, negative subscale η_p^2=0.53, PANSS, general psychopathology subscale η_p^2=0.39, PANSS total score η_p^2=0.59) (Table 2). The mean (95% CI) reduction in the total CDSS score at Visit 5 compared to Visit 1 was 7.000 [5.72–8.28] points (t(167)=13.49, p <0.001). Mean changes in the positive, negative, and general psychopathology subscales, as well as the total PANSS score, were 9.02 [7.61–10.44] (t(167)=15.74, p <0.001), 7.98 [6.62–9.33] (t(167)=14.54, p <0.001), 1.77 [14.00–22.71] (t(167)=10.40, p <0.001) and 38.14 [32.32–43.95] (t(167)=16.16, p <0.001), respectively (Table 3). Each effectiveness parameter at Visit 1 showed statistical differences starting from Visit 2.

We assessed the rate of symptom reduction according to the PANSS and CDSS and found a significant difference in favor of depressive symptom reduction by Week 2.

Correlation between the mean dose of lurasidone and the mental status

Some 13 (8%) patients took the drug at a dose of 40 to 80 mg, 87 patients (53.7%) — over 80 mg and up to 120 mg; and 62 (38.3 %) — over 120 mg and up to 160 mg. Repeated measures ANOVA showed no significant interaction effect between the lurasidone dose and treatment duration on the total CDSS score (F (8,660)=1.383, p=0.200).

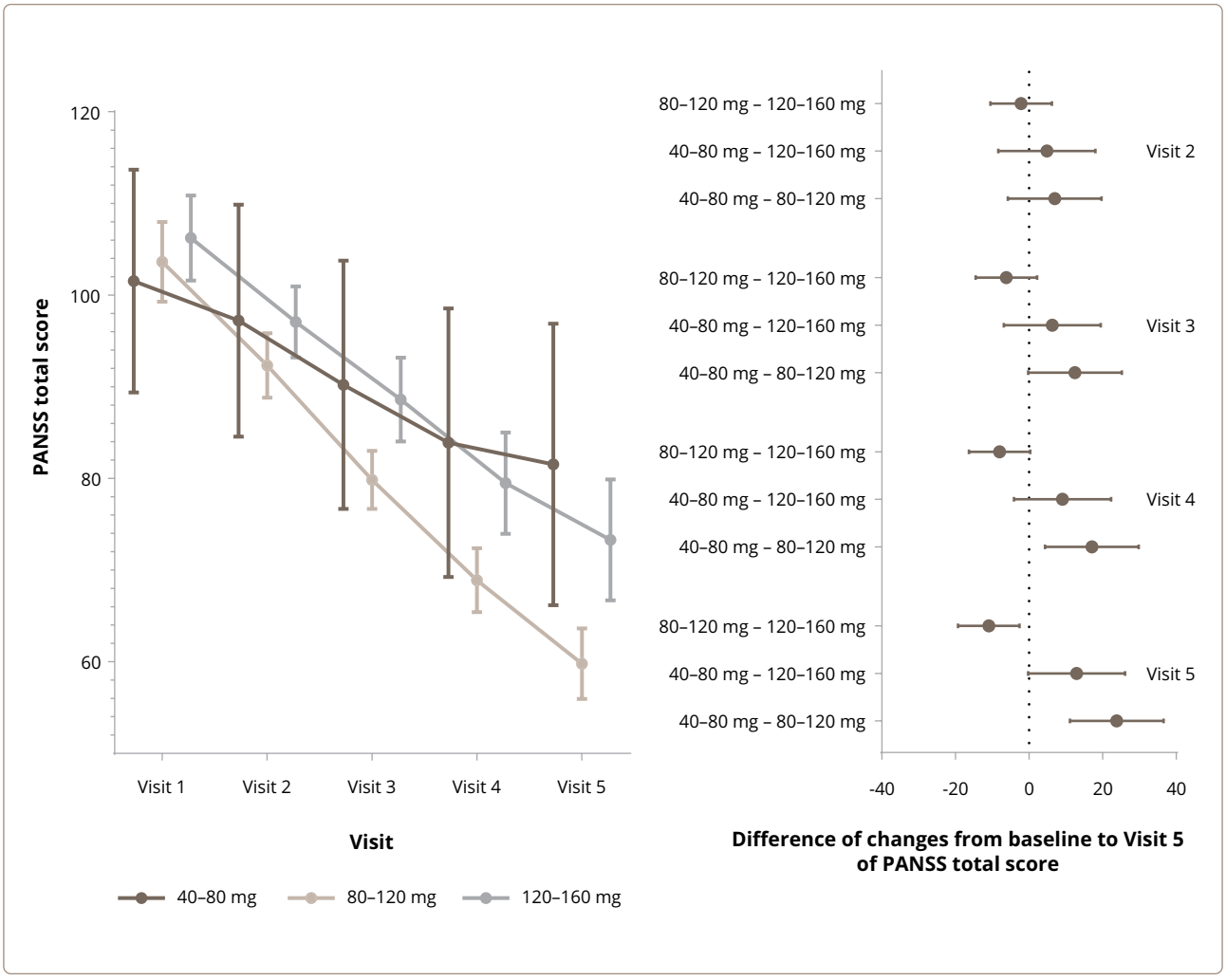


Figure 2. Changes in the total score (left) and mean differences compared to Visit 1 (right) according to the PANSS and the average daily doses of lurasidone: from 40 mg to 80 mg, over 80 and up to 120 mg, and over 120 mg and up to 160 mg.

Note: lurasidone doses are prescribed individually depending on the patient's condition.

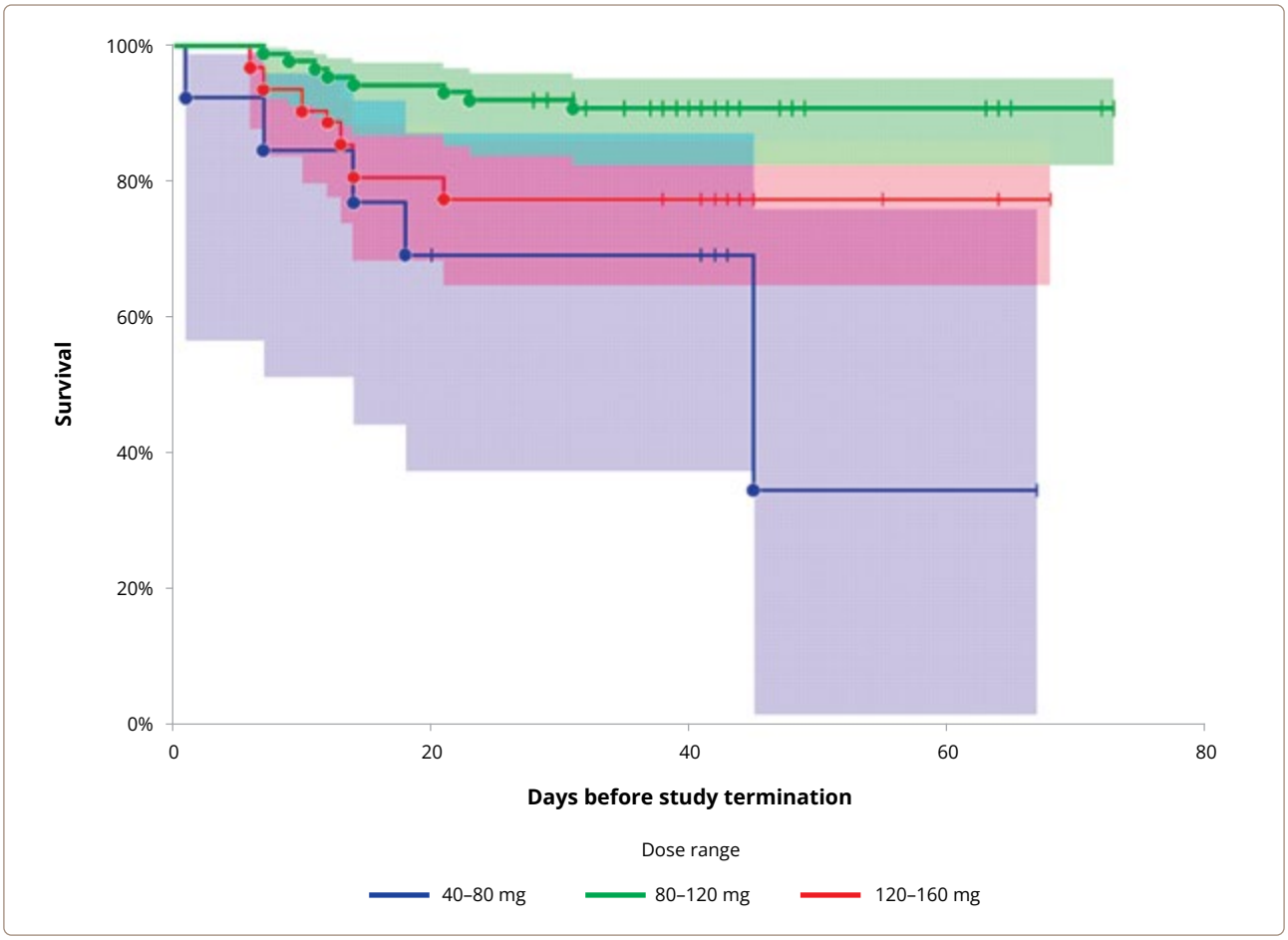


Figure 3. The Kaplan-Meier survival analysis of dosage: from 40 mg to 80 mg, over 80 mg and up to 120 mg, and over 120 mg and up to 160 mg.

Assessment of the total PANSS score revealed a statistical interaction between the average lurasidone dose and the treatment duration ($F(8, 660)=5.479$, p <0.001, $\eta_p^2=0.06$). Figure 2 shows the changes and mean differences in the PANSS total score compared to Visit 1, depending on the dosage. A pairwise comparison of the changes in baseline values at Visit 5 revealed significant differences between doses of over 80 mg and up to 120 mg per day, doses from 40 to 80 mg per day, and over 120 to 160 mg per day (mean difference [95% CI]: 23.85 [11.12, 36.58], t=4.484, p <0.001 and 10.92 [2.56, 19.27], t=3.127, p=0.006, respectively). Doses over 80 mg and up to 120 mg per day were found to be superior.

Twenty-seven patients completed the study ahead of schedule. Among them, five patients (38.5% of all the patients taking lurasidone in this dose range) took the drug at a daily dose of 40–80 mg, eight (9.2%) patients at 80–120 mg, and 14 (22.6%) patients at 120–160 mg. The median [95% CI] duration of participation was 31.79 [21.328–42.244], 60.48 [57.248–63.710], and 52.26 [46.613–57.903] among patients taking lurasidone at a dose of 40–80 mg per day, 80–120 mg per day, and 120–160 mg per day, respectively. Figure 3 shows the results of a Kaplan-Meier survival analysis among patients treated with lurasidone at daily doses of 40–80 mg, 80–120 mg, and 120–160 mg, respectively. A dose range of 80–120 mg was associated with a statistically longer use of lurasidone compared to the dose ranges (i.e., 40–80 mg) (Restricted Mean Survival Time (RMST) Difference [95% CI]: 20 [4–37] days, z=1.488, p=0.01) and 120–160 mg (mean [95% CI] difference: 8 [1–14] days, z=2.31, p=0.02).

Tolerability analysis

Total lurasidone exposure was 657,120 mg, and the total treatment duration was 6,207 person-days.

The study recorded 143 adverse events (AEs) among 85 patients. A complete list of the AEs is given in the Appendix. The most common (in >5% of patients) AEs

were: akathisia, in 22 patients (13%); nausea, in 19 patients (11%); tremor, in 14 patients (8%); drowsiness, in 12 patients (7%); headache, in 11 patients (7%); and sleep disruption, in 8 patients (5%). Among 143 AEs, 71 (49.7%) were mild; 60 (42.0%), moderate; and 12 (8.4%), severe. Ten cases of AEs led to premature study termination: two cases of acute dystonia, two cases of tremor, two cases of night sleep disturbance, increased drowsiness, akathisia, pneumonia, and seizures. Overall, the majority of AEs (131 (91.6%) cases) occurred within the first week of therapy, with 22 (17.8%) cases lasting more than one week.

We found a correlation between the mean number of AEs and the average daily dose (F=3.41, p=0.035, one-way ANOVA). The mean daily dose of 40–80 mg corresponded to 0.37 AEs, 80–120 mg per day corresponded to 0.8 AEs, and 120–160 mg per day corresponded to 1.06 AEs. A pairwise post-hoc analysis uncovered statistical differences in mean AE rates between the 40–80 mg per day and 120–160 mg per day dose ranges (mean difference 0.7 [0.03–1.37], t=2.54, p=0.012). A table of the AE incidence and average daily dose is given in the Appendix.

DISCUSSION

This short-duration prospective observational study of the effectiveness of lurasidone in a dose ranging from 40 mg to 160 mg per day has established statistically and clinically significant improvement in both psychotic and depressive symptoms for patients with acute exacerbation of schizophrenia and depressive symptoms. Significant reductions in the PANSS and CDSS scores were noted at all lurasidone dosages (from 40 mg to 160 mg daily) starting with Week 1 of the follow-up period. There is extensive data on lurasidone effectiveness in a situation of acute exacerbations and long-term maintenance of schizophrenia [25, 36, 38, 41], as well as in the treatment of depression [35, 40, 44]. The antipsychotic activity of the drug established in this study was comparable to the results achieved in short-term randomized controlled trials (RCTs) [36, 38]. This study demonstrated the reality of a statistical reduction in the severity of psychotic and depressive symptoms for patients treated with lurasidone at doses of 40 mg to 160 mg per day. However, lurasidone at a daily dose of 120 mg reduced the total PANSS score considerably more than at doses of 40 mg to 80 mg, and over 120 mg (mean difference 23.85 [11.12, 36.58], t=4.484, p <0.001 and 10.92 [2.56, 19.27], t=3.127, p=0.006, respectively). In our opinion, the lower effectiveness of lurasidone at a dose of 160 mg in this study has to do with potential resistance to the treatment among those who were advanced to that dose after insufficient improvement at a 80–120 mg dose level. Also, it is possible that a longer observation period of treatment at 160 mg could yield different results [48]. However, a statistical decrease in the total PANSS and CDSS scores was observed at the end of Week 1 for a dose of lurasidone of 80 mg per day. This suggests that treatment for exacerbations of schizophrenia, associated with depression, should be started at 80 mg per day; the dose should then be gradually increased based on effectiveness, safety, and tolerability. The largest reduction in the total PANSS and CDSS scores with lurasidone at 120 mg per day was associated with the best survival rate and the longest median time from treatment or follow-up initiation to discontinuation.

Our results confirm that lurasidone carries a low risk of weight gain, metabolic disorders, movement or serotonergic disorders. The most commonly reported side effects (e.g., nausea, akathisia, tremor, and drowsiness) in our study were consistent with the known drug safety profile. For example, the frequency of akathisia was 13%; nausea — 11%; tremor — 8%; and drowsiness and headache — 7%. All adverse events were mild or moderate. At the same time, lurasidone at a dose of 120 mg per day was not associated with a higher frequency or severity of adverse events compared to a dose of 80 mg per day. The lurasidone safety profile is consistent with previously published RCT data [38, 41, 49].

Study limitations

To date, there exist a variety of views on the combination of depression and schizophrenia and their clinical signs. This leads to possible clinical and psychopathological diversity amongst study results. It may be related to the individual variability in the effect of lurasidone. This study was not blinded and did not include a control group. We suspect that the improvement in depression was the result of the positive effect deriving from participation in the observational study itself or the expectation of a positive result by the physician, rather than as a direct effect of the drug. At the same time, patients continued to receive their standard psychiatric

care and management without any additional research interventions. Limitations also include the relatively short duration of the follow-up period. Then, further studies on the long-term effectiveness of lurasidone in patients with schizophrenia and depressive symptoms are needed.

Implementation into practice

We report on the results of the first Russian multicenter observational study of the effectiveness of lurasidone in patients with acute episodes of schizophrenia and associated symptoms of depression. This study showed that six weeks of lurasidone therapy at doses of 40 to 160 mg per day provided a significant improvement in the CDSS (primary effectiveness endpoint) and PANSS (key secondary effectiveness endpoint) total scores and other secondary effectiveness endpoints (positive and negative symptom scores). We documented side effects of lurasidone such as nausea, akathisia, drowsiness, and minimal effect on body weight and metabolic parameters. These side effects are consistent with the safety profile reported in randomized controlled trials. The study confirmed that lurasidone is effective and well-tolerated in the treatment of acute episodes of schizophrenia and associated symptoms of depression.

CONCLUSION

A six-week prospective observational study of the real-world clinical effectiveness of lurasidone in doses ranging from 40 mg to 160 mg per day established statistically and clinically significant improvements in both psychotic and depressive symptoms in patients with acute exacerbation of schizophrenia and associated symptoms of depression. Lurasidone proved overall safe and well-tolerated, with little effect on weight, metabolic, or endocrine parameters, and even on the neurological status of the patients.

Article history:

Submitted: 30.03.2022
Accepted: 20.06.2022
Published: 22.09.2022

Authors' contribution:

A.M. Reznik and T.S. Syunyakov designed the project; A.M. Reznik also acted as the chief coordinator for the data collection from 10 sites; A.M. Reznik, I.Yu. Akhmerova, D.Y. Butylin, A.O. Vasilenko, A.N. Gvozdetckii, T.R. Gizatullin, G.V. Gilmanshina, E.A. Golosov, S.A. Kolchev, L.P. Linova, D.V. Miron, A.V. Mudrak, I.V. Oleichik, S.V. Sizov, E.A. Tarakanova, O.I. Chesnokova collected the data; T.S. Syunyakov analyzed the data; T.S. Syunyakov and A.M. Reznik wrote the first draft of the manuscript, which has been revised by AM Reznik and upon input from the other co-authors.

Funding: The observational study was sponsored by *OAO Angelini Pharma Rus* (open joint-stock company). The authors developed the study design, data collection and analysis, and interpretation of the results. The authors independently decided to publish this study in the journal *Consortium Psychiatricum*.

Conflict of interest: The authors declare no conflicts of interest.

Compliance with principles of bioethics: The data presented in this publication are a part of the Molecular and Neurophysiological Markers of Endogenous Diseases Research Program, conducted at the SBHI Psychiatric Clinical Hospital No.1 of the Moscow Healthcare Department and approved by the Independent Interdisciplinary Ethics Committee on Ethical Review for Clinical Studies on July 14, 2017 (protocol No. 12).

Supplementary data

Supplementary material related to this article can be found, in the online version, at doi: 10.17816/CP172

For citation:

Reznik AM, Syunyakov TS, Akhmerova IYu, Butylin DY, Vasilenko AO, Gvozdetckii AN, Gizatullin TR, Gilmanshina GV, Golosov EA, Kolchev SA, Linova LP, Miron DV, Mudrak AV, Oleichik IV, Sizov SV, Tarakanova EA, Chesnokova OI. Clinical effectiveness of lurasidone monotherapy in patients with acute episodes of schizophrenia and associated symptoms of depression. Consortium Psychiatricum 2022;3(3): 58–72. doi: 10.17816/CP172

Information about the authors

***Aleksandr Mikhailovich Reznik**, MD, PhD, Assistant Professor, psychiatrist, Medical Institute of Continuing Education of Moscow State University of Food Production; ORCID: https://orcid.org/0000-0002-7076-5901, e-Library SPIN-code: 4955-8297
E-mail: a.m.reznik1969@gmail.com

Timur Sergeevich Syunyakov, MD, PhD, Senior researcher, Research Zakusov Institute of Pharmacology, Moscow, Russia; Mental-health Clinic No. 1 named after N.A. Alexeev;
ORCID: https://orcid.org/0000-0002-4334-1601, e-Library SPIN-code: 7629-5309
Inessa Yurievna Akhmerova, PhD, Department of General Psychology, Bashkir State University, Republican Clinical Psychiatric Hospital of the Republic of Bashkortostan; ORCID: https://orcid.org/0000-0001-5720-1610
Daniil Yurievich Butylin, PhD, Pavlov First State Medical University of St. Petersburg; ORCID: https://orcid.org/0000-0001-7055-0065
Anastasia Olegovna Vasilenko, MD, PhD; Medical Center "Moy doctor"; ORCID: https://orcid.org/0000-0001-6103-8529
Anton Nikolaevich Gvozdetckii, PhD, Chair of Psychiatry and Addiction Medicine North-Western State Medical University named after I.I. Mechnikov; ORCID: https://orcid.org/0000-0001-8045-1220
Tagir Rafailovich Gizatullin, Dr. of Sci. (Med.), Department of General Psychology, Bashkir State University;
ORCID: https://orcid.org/0000-0002-1075-5648
Galina Vadimovna Gilmanshina, MD, Head of the Department of Internal Quality Control and Safety of Medical Activities, Republican Clinical Psychiatric Hospital of the Republic of Bashkortostan; ORCID: https://orcid.org/0000-0002-9755-8750
Egor Aleksandrovich Golosov, Head of the Department, Psychiatric Hospital No. 1 named after P.P. Kaschenko;
ORCID: https://orcid.org/0000-0003-4548-8225
Sergey Aleksandrovich Kolchev, PhD, Chair of Psychiatry and Addiction Medicine, North-Western State Medical University named after I.I. Mechnikov; ORCID: https://orcid.org/0000-0002-9108-2317
Lidiya Pavlovna Linova, MD, psychiatrist, Psychiatric Hospital No. 1 named after P.P. Kaschenko; ORCID: https://orcid.org/0000-0003-2712-3724
Daniil Vasilievich Miron, MD, psychiatrist, intensive care unit for psychiatric care, City Psychiatric Hospital No. 6 (a hospital with a dispensary); ORCID: https://orcid.org/0000-0003-4675-5743
Alexander Vladimirovich Mudrak, MD, psychiatrist, Mental-health Clinic No. 1 Named after N.A. Alexeev;
ORCID: https://orcid.org/0000-0003-1315-516X
Igor Valentinovich Oleichik, MD, PhD, Dr. Sci. (Med.), principal researcher, Department of Endogenous Mental Disorders and Affective Conditions, Mental Health Research Center;
ORCID: https://orcid.org/0000-0002-8344-0620
Stepan Vladimirovich Sizov, researcher, Department of Endogenous Mental Disorders and Affective Conditions, Mental Health Research Center; ORCID: https://orcid.org/0000-0002-8213-5122
Elena Aleksandrovna Tarakanova, MD, PhD, Dr. Sci. (Med.), The Volgograd Medical State University;
ORCID: https://orcid.org/0000-0002-8725-522X
Olga Ivanovna Chesnokova, MD, City Psychiatric Hospital No. 6 (a hospital with a dispensary), Psychiatric Hospital no. 1 Named after N.A. Alexeev of the Department of Health of Moscow;
ORCID: https://orcid.org/0000-0002-5993-6626

*corresponding author

References

1. Lindenmayer JP, Grochowski S, Kay SR. Schizophrenic patients with depression: psychopathological profiles and relationship with negative symptoms. Compr Psychiatry. 1991 Nov-Dec;32(6):528–533. doi: 10.1016/0010-440x(91)90032-8
2. Siris SG. Depression in schizophrenia: perspective in the era of "Atypical" antipsychotic agents. Am J Psychiatry. 2000 Sep;157(9):1379–1389. doi: 10.1176/appi.ajp.157.9.1379
3. Majadas S, Olivares J, Galan J, Diez T. Prevalence of depression and its relationship with other clinical characteristics in a sample of patients with stable schizophrenia. Compr Psychiatry. 2012 Feb;53(2):145–151. doi: 10.1016/j.comppsych.2011.03.009
4. Miura I, Nosaka T, Yabe H, Hagi K. Antidepressive Effect of Antipsychotics in the Treatment of Schizophrenia: Meta-Regression Analysis of Randomized Placebo-Controlled Trials. Int J Neuropsychopharmacol. 2021 Mar 17;24(3):200–215. doi: 10.1093/ijnp/pyaa082
5. Liu R, Fang X, Yu L, Wang D, Wu Z, Guo C, Teng X, Ren J, Zhang C. Gender Differences of Schizophrenia Patients With and Without Depressive Symptoms in Clinical Characteristics. Front Psychiatry. 2021;12:792019. doi: 10.3389/fpsyt.2021.792019
6. Upthegrove R, Marwaha S, Birchwood M. Depression and Schizophrenia: Cause, Consequence, or Trans-diagnostic Issue? Schizophr Bull. 2017 Mar 1;43(2):240–244. doi: 10.1093/schbul/sbw097
7. Tandon R, Gaebel W, Barch DM, Bustillo J, Gur RE, Heckers S, Malaspina D, Owen MJ, Schultz S, Tsuang M, et al. Definition and description of schizophrenia in the DSM-5. Schizophr Res. 2013 Oct;150(1):3–10. doi: 10.1016/j.schres.2013.05.028
8. Reininghaus U, Bohnke JR, Hosang G, Farmer A, Burns T, McGuffin P, Bentall RP. Evaluation of the validity and utility of a transdiagnostic psychosis dimension encompassing schizophrenia and bipolar disorder. Br J Psychiatry. 2016 Aug;209(2):107–113. doi: 10.1192/bjp.bp.115.167882
9. Reininghaus U, Bohnke JR, Chavez-Baldini U, Gibbons R, Ivleva E, Clementz BA, Pearlson GD, Keshavan MS, Sweeney JA, Tamminga CA. Transdiagnostic dimensions of psychosis in the Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP). World Psychiatry. 2019 Feb;18(1):67–76. doi: 10.1002/wps.20607
10. Tamminga CA, Ivleva EI, Keshavan MS, Pearlson GD, Clementz BA, Witte B, Morris DW, Bishop J, Thaker GK, Sweeney JA. Clinical phenotypes of psychosis in the Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP). Am J Psychiatry. 2013 Nov; 170(11):1263–1274. doi: 10.1176/appi.ajp.2013.12101339
11. Krynicki CR, Upthegrove R, Deakin JFW, Barnes TRE. The relationship between negative symptoms and depression in schizophrenia: a systematic review. Acta Psychiatr Scand. 2018 May;137(5):380–390. doi: 10.1111/acps.12873
12. An der Heiden W, Leber A, Hafner H. Negative symptoms and their association with depressive symptoms in the long-term course of schizophrenia. Eur Arch Psychiatry Clin Neurosci. 2016 Aug;266(5):387–396. doi: 10.1007/s00406-016-0697-2
13. Felmet K, Zisook S, Kasckow JW. Elderly patients with schizophrenia and depression: diagnosis and treatment. Clin Schizophr Relat Psychoses. 2011 Jan;4(4):239–250. doi: 10.3371/CSRP.4.4.4
14. Jhawer H, Sidhu M, Patel RS. Missed Diagnosis of Major Depressive Disorder with Catatonia Features. Brain Sci. 2019 Feb 2;9(2):31. doi: 10.3390/brainsci9020031
15. Borisova PO. Nosological Dilemma and Clinical Polymorphism of the Catatonia Phenomenon. Psychiatry. 2020;18(2):61–70. doi: 10.30629/2618-6667-2020-18-2-61-70

16. Mazo GE, Gorbachyov SE. [Depression in schizophrenia: experiences and approaches to diagnosis and treatment in psychiatric practice]. Socialnaja i klinicheskaja psihiatrija. 2009;19(4):5–14. Russian.
17. Helfer B, Samara MT, Huhn M, Klupp E, Leucht C, Zhu Y, Engel RR, Leucht S. Efficacy and Safety of Antidepressants Added to Antipsychotics for Schizophrenia: A Systematic Review and Meta-Analysis. Am J Psychiatry. 2016 Sep 1;173(9):876–886. doi: 10.1176/appi.ajp.2016.15081035
18. Gregory A, Mallikarjun P, Upthegrove R. Treatment of depression in schizophrenia: systematic review and meta-analysis. Br J Psychiatry. 2017 Oct;211(4):198–204. doi: 10.1192/bjp.bp.116.190520
19. Dorofeikova MV, Petrova NN. [Personalised approach to therapy of depression of schizophrenia]. Modern therapy of mental disorders. 2021;(3):32–44. Russian. doi: 10.21265/PSYPH.2021.99.14.004
20. psychiatr.ru site of the Russian Society of Psychiatrists [Internet]. Federal clinical guidelines for the diagnosis and treatment of schizophrenia [cited 22 June 2022]. Available from: http://psychiatr.ru/download/1269.
21. Whitehead C, Moss S, Cardno A, Lewis G. Antidepressants for the treatment of depression in people with schizophrenia: a systematic review. Psychol Med. 2003 May;33(4):589–599. doi: 10.1017/s0033291703007645
22. Bosanac P, Castle DJ. Schizophrenia and depression. Med J Aust. 2013 Sep 16;199(S6):S36–39. doi: 10.5694/mja12.10516
23. Tapp A, Kilzieh N, Wood AE, Raskind M, Tandon R. Depression in patients with schizophrenia during an acute psychotic episode. Compr Psychiatry. 2001 Jul-Aug;42(4):314–318. doi: 10.1053/comp.2001.24577
24. Ishibashi T, Horisawa T, Tokuda K, Ishiyama T, Ogasa M, Tagashira R, Matsumoto K, Nishikawa H, Ueda Y, Toma S, et al. Pharmacological profile of lurasidone, a novel antipsychotic agent with potent 5-hydroxytryptamine 7 (5-HT7) and 5-HT1A receptor activity. J Pharmacol Exp Ther. 2010 Jul;334(1):171–181. doi: 10.1124/jpet.110.167346
25. Citrome L. Schizophrenia relapse, patient considerations, and potential role of lurasidone. Patient Prefer Adherence. 2016;10:1529–1537. doi: 10.2147/PPA.S45401
26. Murai T, Nakako T, Ikeda K, Ikejiri M, Ishiyama T, Taiji M. Lack of dopamine D4 receptor affinity contributes to the procognitive effect of lurasidone. Behav Brain Res. 2014 Mar 15;261:26–30. doi: 10.1016/j.bbr.2013.11.036
27. Caccia S, Pasina L, Nobili A. Critical appraisal of lurasidone in the management of schizophrenia. Neuropsychiatr Dis Treat. 2012;8:155–168. doi: 10.2147/NDT.S18059
28. Mauri MC, Paletta S, Maffini M, Colasanti A, Dragogna F, Di Pace C, Altamura AC. Clinical pharmacology of atypical antipsychotics: an update. EXCLI J. 2014;13:1163–1191.
29. Huhn M, Nikolakopoulou A, Schneider-Thoma J, Krause M, Samara M, Peter N, Arndt T, Backers L, Rothe P, Cipriani A, et al. Comparative efficacy and tolerability of 32 oral antipsychotics for the acute treatment of adults with multi-episode schizophrenia: a systematic review and network meta-analysis. Lancet. 2019 Sep 14;394(10202):939–951. doi: 10.1016/S0140-6736(19)31135-3
30. Meyer JM, Mao Y, Pikalov A, Cucchiaro J, Loebel A. Weight change during long-term treatment with lurasidone: pooled analysis of studies in patients with schizophrenia. Int Clin Psychopharmacol. 2015 Nov;30(6):342–350. doi: 10.1097/YIC.0000000000000091
31. Meyer JM, Ng-Mak DS, Chuang CC, Rajagopalan K, Loebel A. Weight changes before and after lurasidone treatment: a real-world analysis using electronic health records. Ann Gen Psychiatry. 2017;16:36. doi: 10.1186/s12991-017-0159-x
32. Riva MA, Albert U, de Filippis S, Vita A, De Berardis D. Identification of clinical phenotypes in schizophrenia: the role of lurasidone. Ther Adv Psychopharmacol. 2021;11:20451253211012250. doi: 10.1177/20451253211012250
33. Nakamura M, Ogasa M, Guarino J, Phillips D, Severs J, Cucchiaro J, Loebel A. Lurasidone in the treatment of acute schizophrenia: a double-blind, placebo-controlled trial. J Clin Psychiatry. 2009 Jun;70(6):829–836. doi: 10.4088/JCP.08m04905
34. Meltzer HY, Cucchiaro J, Silva R, Ogasa M, Phillips D, Xu J, Kalali AH, Schweizer E, Pikalov A, Loebel A. Lurasidone in the treatment of schizophrenia: a randomized, double-blind, placebo- and olanzapine-controlled study. Am J Psychiatry. 2011 Sep;168(9):957–967. doi: 10.1176/appi.ajp.2011.10060907
35. Nasrallah HA, Cucchiaro JB, Mao Y, Pikalov AA, Loebel AD. Lurasidone for the treatment of depressive symptoms in schizophrenia: analysis of 4 pooled, 6-week, placebo-controlled studies. CNS Spectr. 2015 Apr;20(2):140–147. doi: 10.1017/S1092852914000285
36. Loebel A, Cucchiaro J, Xu J, Sarma K, Pikalov A, Kane JM. Effectiveness of lurasidone vs. quetiapine XR for relapse prevention in schizophrenia: a 12-month, double-blind, noninferiority study. Schizophr Res. 2013 Jun;147(1):95–102. doi: 10.1016/j.schres.2013.03.013
37. Marder SR, Davis JM, Chouinard G. The effects of risperidone on the five dimensions of schizophrenia derived by factor analysis: combined results of the North American trials. J Clin Psychiatry. 1997 Dec;58(12):538–546. doi: 10.4088/jcp.v58n1205
38. Hopkins SC, Ogirala A, Loebel A, Koblan KS. Transformed PANSS Factors Intended to Reduce Pseudospecificity Among Symptom Domains and Enhance Understanding of Symptom Change in Antipsychotic-Treated Patients With Schizophrenia. Schizophr Bull. 2018 Apr 6;44(3):593–602. doi: 10.1093/schbul/sbx101
39. Harvey PD, Siu CO, Loebel AD. Insight and Treatment Outcomes in Schizophrenia: Post-hoc Analysis of a Long-term, Double-blind Study Comparing Lurasidone and Quetiapine XR. Innov Clin Neurosci. 2017 Dec 1;14(11–12):23–29.
40. Oleichik IV, Baranov PA, Shishkovskaia TI, Sizov SV. Efficacy and Safety of the Third-Generation Atypical Antipsychotic Lurazidone in the Treatment of Depression in Schizophrenia. Current Therapy of Mental Disorders. 2021;(2):28–35. Russian. doi: 10.21265/PSYPH.2021.57.2.004
41. Rajagopalan K, Wade S, Meyer N, Loebel A. Real-world adherence assessment of lurasidone and other oral atypical antipsychotics among patients with schizophrenia: an administrative claims analysis. Curr Med Res Opin. 2017 May;33(5):813–820. doi: 10.1080/03007995.2017.1284656
42. Loebel A, Cucchiaro J, Silva R, Kroger H, Hsu J, Sarma K, Sachs G. Lurasidone monotherapy in the treatment of bipolar I depression: a randomized, double-blind, placebo-controlled study. Am J Psychiatry. 2014 Feb;171(2):160–168. doi: 10.1176/appi.ajp.2013.13070984
43. Loebel A, Cucchiaro J, Silva R, Kroger H, Sarma K, Xu J, Calabrese JR. Lurasidone as adjunctive therapy with lithium or valproate for the treatment of bipolar I depression: a randomized, double-blind, placebo-controlled study. Am J Psychiatry. 2014 Feb;171(2):169–177. doi: 10.1176/appi.ajp.2013.13070985

44. Maslennikov NV, Cukarzi EE, Mosolov SN. Algorithm for biological therapy of depression in schizophrenia. Current therapy of mental disorders. 2019;(2):31–40. Russian. doi: 10.21265/PSYPH.2019.34.92.005
45. Amri I, Millier A, Toumi M. Minimum Clinically Important Difference in the Calgary Depression Scale for Schizophrenia. Value Health. 2014 Nov;17(7):A766. doi: 10.1016/j.jval.2014.08.288
46. Addington J, Shah H, Liu L, Addington D. Reliability and validity of the Calgary Depression Scale for Schizophrenia (CDSS) in youth at clinical high risk for psychosis. Schizophr Res. 2014 Mar;153(1–3):64–67. doi: 10.1016/j.schres.2013.12.014
47. Ivanova E, Khan A, Liharska L, Reznik A, Kuzmin S, Kushnir O, Agarkov A, Bokhan N, Pogorelova T, Khomenko O, et al. Validation of the Russian Version of the Positive and Negative Syndrome Scale (PANSS-Ru) and Normative Data. Innov Clin Neurosci. 2018 Oct 1;15(9–10):32–48.
48. Loebel A, Silva R, Goldman R, Watabe K, Cucchiaro J, Citrome L, Kane JM. Lurasidone Dose Escalation in Early Nonresponding Patients With Schizophrenia: A Randomized, Placebo-Controlled Study. J Clin Psychiatry. 2016 Dec;77(12):1672–1680. doi: 10.4088/JCP.16m10698
49. Goldman R, Loebel A, Cucchiaro J, Deng L, Findling RL. Efficacy and Safety of Lurasidone in Adolescents with Schizophrenia: A 6-Week, Randomized Placebo-Controlled Study. J Child Adolesc Psychopharmacol. 2017 Aug;27(6):516–525. doi: 10.1089/cap.2016.0189

Alcohol Addiction in War Veterans Treated in a In-patient Psychiatric Facility: Incidence, Comorbidity with PTSD Symptoms, Association with Combat Stressors

Алкогольная зависимость у ветеранов войн, получающих лечение в психиатрическом стационаре: встречаемость, коморбидность с симптомами ПТСР, связь с боевыми стрессорами

doi: 10.17816/CP188

Original research

Aleksandr Reznik[1,2,3], Timur Syunyakov[1,4], Aleksandr Arbuzov[2]

[1] Mental-health Clinic No. 1 named after N.A. Alexeev, Moscow, Russia

[2] Moscow State University of Food Production, Moscow, Russian Federation

[3] Moscow Regional Psychiatric Hospital No. 5, Khotkovo, Russia

[4] Research Zakusov Institute of Pharmacology, Moscow, Russia

Александр Резник[1,2,3], Тимур Сюняков[1,4], Александр Арбузов[2]

[1] ГБУЗ «Психиатрическая клиническая больница № 1 им. Н.А. Алексеева Департамента здравоохранения города Москвы», Москва, Россия

[2] ФГБОУ ВО «Московский государственный университет пищевых производств», Москва, Россия

[3] ГБУЗ Московской области «Психиатрическая больница № 5», Хотьково, Российская Федерация

[4] ФГБНУ «Научно-исследовательский институт фармакологии имени В.В. Закусова», Москва, Россия

ABSTRACT

BACKGROUND: The dearth of and inconsistency in the data on the prevalence, risks of occurrence, comorbidity, and causation of stress-related disorders and alcohol use disorders in Russian veterans of local wars constituted the background for this study.

AIM: To study the psychopathological structure, clinical changes, and the reasons for the mental disorders suffered by Russian veterans of local wars; in particular, to study the prevalence, pathogenic factors, comorbidity of alcohol addiction and alcohol abuse, together with symptoms of stress disorders, in Russian veterans undergoing inpatient treatment.

METHODS: Our observational case-control study included 685 patients who were undergoing treatment in the psychiatric department of a military hospital: *the Main group* (veterans) consisted of 264 veterans of armed conflicts who had undergone inpatient treatment from 1992 to 2010; *the Control group, 1*, 296 patients, all servicemen and military pensioners who had undergone inpatient treatment during a calendar year and had never taken part in combat operations in the past; *Control group 2*, 125 military personnel (regular and reserve) who had not taken part in combat operations and corresponded to the patients of the main group in terms of the mean age and age distribution curve. We performed a clinical and psychopathological analysis of the symptoms identified in patients from the compared samples and, then, compared them with the ICD-10 criteria of post-traumatic stress disorder (PTSD) and alcohol-related disorders. This allowed us to establish the significance of the difference in their frequency and degree of association at the stage of the data analysis.

RESULTS: We uncovered no difference in the prevalence of symptoms of alcohol addiction and alcohol abuse among veterans and other servicemen and military pensioners who had not taken part in combat operations. However, there was a tendency to underdiagnose alcohol addiction in veterans in general and those with symptoms of PTSD, in particular. That is, alcohol addiction was not diagnosed in most cases when the veterans displayed symptoms of stress or other mental disorders, in addition to the signs of alcohol addiction. In most such cases, a stress-related mental disorder or another mental disorder with identified signs was diagnosed and alcohol abuse was described as a concomitant disorder or a complication. There was no significant association between any form of alcohol addiction or abuse and the presence of stress disorder symptoms in our sample of veterans; on the contrary, symptoms of re-experience of trauma were more often observed in veterans who were not prone to frequent drinking. The incidence of combat stressors traced in the medical history did not differ in veterans with any form of alcohol abuse and veterans who were not prone to frequent drinking. However, the main group subjects with alcohol addiction more often displayed cases of addictive behavior during combat operations. Therefore, alcohol abuse during combat operations requires additional research to better establish its prognostic significance.

CONCLUSION: This Study found no difference in the incidence of alcohol dependence and alcohol abuse among veterans and other officers. In the sample of veterans, there was no significant association between alcoholism and the presence of PTSD symptoms or a history of combat stressors. It is possible that the same risk of alcohol addiction in different categories of military officers is due to a compact of social stressors that equally had a more significant adverse effect on the entire population of Russian military personnel in the 90s of the last century and the first years of this century, as well as the massive abuse of alcohol, which could also equalize the risks of developing alcohol dependence in all groups of militaries.

АННОТАЦИЯ

ВВЕДЕНИЕ: Недостаток и противоречивость данных о распространенности, рисках возникновения, характере коморбидности и каузальной атрибуции расстройств, связанных со стрессом, и расстройств, вызванных употреблением алкоголя, у российских ветеранов локальных войн стали предпосылкой данного исследования.

ЦЕЛЬ: Изучение психопатологической структуры, клинической динамики, предпосылок возникновения психических расстройств у российских ветеранов локальных войн, и, в частности, изучение распространенности, патогенных факторов, коморбидности алкогольной зависимости и злоупотребления алкоголем с симптомами стрессовых расстройств у российских ветеранов, проходивших стационарное лечение.

МАТЕРИАЛ И МЕТОДЫ: В обсервационное исследование «случай-контроль» включены 685 пациентов, которые проходили лечение в психиатрических отделениях военного госпиталя: основная группа (ветераны) — 264 ветерана вооруженных конфликтов, которые получали стационарное лечение в госпитале с 1992 до 2010 год; 1-я группа сравнения, включала 296 человек — всех военнослужащих и военных пенсионеров, получавших лечение в госпитале в течение одного календарного года, никогда в прошлом не принимавшие участия в боевых действиях; 2-я группа сравнения — 125 военнослужащих (кадровые и запаса), которые не принимали участия в боевых действиях и соответствовали по среднему возрасту и кривой распределения возраста пациентам основной группы. В сравниваемых выборках проведен клинико-психопатологический анализ выявленных у пациентов симптомов с последующим соотнесением их с критериями МКБ-10 для диагностики посттравматического стрессового расстройства (ПТСР) и расстройств, вызванных употреблением алкоголя, что позволило на этапе анализа данных установить значимость различия их частоты и степени сопряженности.

РЕЗУЛЬТАТЫ: Выявлено отсутствие разницы распространенности симптомов алкогольной зависимости и злоупотребления алкоголем у ветеранов и других военнослужащих и военных пенсионеров, не принимавших участия в боевых действиях. Вместе с тем отмечена тенденция к гиподиагностике алкогольной зависимости

у ветеранов вообще и имеющих симптомы ПТСР в частности. То есть, диагноз алкогольной зависимости не ставили в большинстве случае, когда у ветеранов наряду с ее признаками, имелись симптомы стрессовых или других психических расстройств. В таких случаях чаще устанавливали диагноз психического расстройства, связанного со стрессом или другого психического расстройства, признаки которого были выявлены, а злоупотребление алкоголем характеризовали как сопутствующее или осложняющее. В выборке ветеранов не выявлено значимой связи между какими-либо формами зависимости или злоупотребления алкоголем и наличием симптомов стрессовых расстройств, напротив, симптомы повторного переживания травмы чаще отмечались у ветеранов, которые не были склонны к частому употреблению спиртного. Боевые стрессоры, которые прослеживаются в анамнезе, по встречаемости не имели разницы у ветеранов с любыми формами злоупотребления алкоголем и ветеранов, которые не склонны к частому употреблению спиртных напитков. Вместе с тем, у участников исследования основной группы, имеющих алкогольную зависимость, отмечено, что в период участия в боевых действиях у них чаще были случаи аддиктивного поведения. В связи с этим злоупотребление алкоголем во время боевых действий требует дополнительной проверки на предмет его прогностического значения.

ЗАКЛЮЧЕНИЕ: Исследование не выявило разницы частоты алкогольной зависимости и злоупотребления алкоголем у ветеранов и других военнослужащих. В выборке ветеранов не выявлено значимой связи между алкоголизмом и наличием симптомов ПТСР или боевыми стрессорами в анамнезе. Возможно, одинаковый риск алкогольной аддикции у разных категорий военнослужащих обусловлен комплексом социальных стрессоров, которые в равной мере оказывали более существенное неблагоприятное влияние на всю популяцию российских военнослужащих в 90-е годы прошлого века и первые годы текущего столетия, а также массовым в тот период времени злоупотреблением алкоголем, что также могло уровнять риски развития алкогольной зависимости во всех группах военнослужащих.

Keywords: *alcohol addiction; alcoholism; alcohol abuse; combat mental trauma; combat stress disorder; post-traumatic stress disorder; combat stress*

Ключевые слова: *алкогольная зависимость; алкоголизм; злоупотребление алкоголем; боевая психическая травма; боевое стрессовое расстройство; посттравматическое стрессовое расстройство; боевой стресс*

INTRODUCTION

The accumulated experience in military psychiatry shows that alcohol and drug abuse, as well as addiction, is a huge issue affecting mental health among veterans of armed conflict and wars [1–6]. According to S.V. Litvintsev (1994), up to 22.7% of the professional servicemen who were admitted to the psychiatric departments of Central Army Military Hospital 650 in Kabul (MH 650) between 1981 and 1989 for treatment were diagnosed with alcohol addiction or with alcoholic psychoses. Cases of alcohol addiction or alcohol abuse were rare among military conscripts, but drug addiction was diagnosed more often: it accounted for 13.3% of all the junior enlisted personnel admitted for treatment to the psychiatric departments of MH 650. In addition, for the entire period of combat operations involving the Limited Contingent of Soviet Forces in Afghanistan (1979–1989), cases of alcoholism accounted for just 8.6% of all the diagnosed mental disorders among officers, while drug addiction accounted for 15.6% of all diagnosed mental disorders affecting military personnel admitted to front-line medical institutions [1].

There was a high prevalence of alcohol and drug addiction, as well as psychoactive substance (PAS) abuse, among combat veterans. High levels of PAS abuse among soldiers serving in military units deployed in the combat zone in the Persian Gulf in 1993 persisted and even continued to grow after the soldiers had returned home [7, 8]. A similar trend was observed among American servicemen returning from Iraq [9]. An increase in the frequency of PAS and alcohol abuse and addiction over time has been documented regarding veterans of many other local wars [10], and, according to some researchers, this occurs in 60–80% of such veterans [11]. According to the electronic medical records of the U.S. Department of Veterans Affairs, up to 10% of former participants in the counter-terrorism “Operation Enduring Freedom”

in Afghanistan and "Operation Iraqi Freedom" have been diagnosed with an alcohol-related disorder [12]. According to the U.S. Department of Defense, 33% of respondents in a survey of military veterans admitted to drinking in the month preceding the survey [6]. However, there is an opinion holding that even massive alcohol consumption and the frequent use of drugs in war do not always result in the development of addiction. For example, the number of men who abuse alcohol turns out to be three times higher and that of women with the same affliction seven times higher among military reporters embedded in "hot spots" than among their counterparts employed in other areas of journalism. At the same time, the prevalence of alcohol addiction among military reporters does not exceed that of the American population [13]. A similar trend was observed amongst Soviet troops who abused alcohol in Afghanistan in 1979–1989 [2].

The prevailing view in the scientific literature is that psychiatric disorders caused by PAS abuse and post-traumatic stress disorder (PTSD) are highly comorbid and occur in the same person at a much higher frequency than would be randomly predicted given the respective prevalence of each disorder [4]. The correlation between post-stress disorder and alcoholism is corroborated by the fact that alcohol abuse is observed twice as often among veterans with symptoms of PTSD as among veterans who do not display signs of stress disorders [14]. According to various sources, 33% [12, 15] to 75% of combat veterans exhibit signs of a drug or alcohol-related psychiatric disorder along with PTSD [15–18]. Conversely, according to the U.S. Department of Veterans Affairs, 63% of veterans with alcohol abuse disorders and 76% with alcohol and other substance abuse disorders are diagnosed with PTSD [12]. Structured interviews reveal PTSD in 42.5% of patients enrolled in inpatient substance abuse treatment programs [19]. An increase in the incidence of alcohol consumption in a sample of Vietnam combat veterans was tied to an increase in PTSD symptoms severity [20].

However, some researchers question the assumption that the abuse of alcohol and other substances increases the likelihood of developing other mental disorders [21]. A number of publications refute the existence of a substantive association between the presence and severity of PTSD symptoms and alcohol craving intensity, withdrawal syndrome severity, or alcoholism relapse frequency [22, 23]. A correlation between the very fact of mental trauma and the development of alcohol addiction is also refuted in [24]. It has been suggested that the presence of alcohol addiction is characterized by the lowest level of stress compared with PTSD patients and patients with both symptoms of PTSD and alcohol addiction [25]. In a prospective long-term study of Gulf War veterans, PTSD proved not to be a clear predictor of heavy drinking, although it often preceded illicit drug use [26].

According to a number of researchers, the use of PSA in extreme conditions occurs as a secondary symptom to neurotic and affective disorders. It is regarded as coping behavior, and the PSA itself plays the role of a stress protector or a means of alleviating anxiety and helping to "escape from reality," thereby determining the motivation for its use [3, 27]. Alcohol and drug use may have contributed to the relatively low incidence of mental illness in the U.S. Army during the first three years of the Vietnam War (1964–1973) [1, 2]. However, the price of such "self-treatment" by the servicemen themselves was the gradual moral decay of individual servicemen and entire units witnessed then. The low frequency of reports of stress-induced reactions and neurotic disorders is very soon "compensated" by an increase in the number of reports of violations of military discipline, and even crimes [1]. By the end of the 1970s, the rate of instances of mental disorder amongst American troops in Vietnam had exploded from 3% to 60% of all hospitalized military personnel through the spread of drug addiction [1]. According to information by the former Head of Intelligence at the headquarters of U.S. Military Assistance Command, South Vietnam, about 65,000 soldiers and officers i.e., approximately one in eight military personnel of the U.S. military contingent used illicit drugs episodically or regularly in 1970 [28].

Alcohol and drug abuse during combat operations are often referred to by Russian specialists as variants of psychogenic disorders and are designated as "addictive behavior," which can be a type of pathological characterological reaction [1–3]. Following this hypothesis, drunkenness and illicit drug use in a war zone can be considered a specific type of adjustment disorder with behavioral distorsion [1, 2]. Moreover, both the alcohol problem and PTSD symptoms are more likely to occur in veterans who had been exposed to combat stressors at a younger age [12, 29].

In the American scientific literature, the combination of combat PTSD with alcohol and PAS-related disorders is often explained in terms of the concept of "self-medication" [5, 20, 26]. In that regard, the use of alcohol and other PAS after war is associated with anxiety and other manifestations of mental distress [30]. It is remarkable that the abuse of alcohol and of other PAS combines with the already existing symptoms of stress disorders, especially after the onset of increased excitability, when the increase in addiction occurs in parallel with an increase in the symptoms of the underlying disease [20]. This hypothesis is supported by the fact that the majority of patients who abuse alcohol or have an addiction problem use alcohol and PAS as a way of addressing emotional distress and symptoms of PTSD [20, 26, 31, 32]. Longitudinal studies of veterans support the self-medication hypothesis, which may explain why PTSD symptoms often recur after PAS abuse treatment [33]. Another explanation for the comorbidity of stress and alcohol-related psychiatric disorders may be the incidence of alcohol abuse on the likelihood of exposure to psychic trauma or the fact that it increases an individual's susceptibility to psychic stressors [34]. It may also be that the correlation between alcohol-related disorders and stress disorders does not have a causal basis, but that it is due to the presence of common risk factors or overlapping pathogenetic mechanisms [5]. This version is supported by the analysis of the mental health of twins, one of whom participated in the Vietnam War. The authors of the study substantiate the fact that genetic factors play a significant role in alcohol addiction development [24].

The study of the correlation between addictive pathology and stress-related mental disorders is further complicated by the fact that alcohol consumption is part of military culture: a means of group cohesion, relaxation, and stress relief [6].

The combination of PTSD and alcohol addiction often exacerbates the course of both disorders [5]. Alcohol addiction, especially after severe psychic trauma or during acute PTSD manifestation, increases the risk of maladaptive and aggressive behavior in veterans [35, 36], including severe violence [37], interference with the provision of medical care, thereby worsening the results of any real treatment of the mental and physical disorders [2, 23, 33].

The conflicting views on risk of occurrence, patterns of comorbidity, and causal attribution reflect the complexity of the relationship between the impact of mental stress and its consequences and alcohol use disorders, and they highlight the need to consider both the risk mechanisms and deterrents. Some researchers believe that the functional relationship between PTSD and alcohol abuse depends on the form of traumatic impact and type of disorder associated with the use of psychoactive substances [5].

Unfortunately, there isn't currently enough scientific evidence and there is very little agreement on the issue of how stress, alcohol, and PAS abuse in a combat environment relate to the subsequent development of mental disorders. Alcohol use among veterans of the Great Patriotic War is barely mentioned in the scientific work of Soviet psychiatrists based on that period. It is hardly mentioned in modern Russian scientific literature that addresses the issues of combat mental trauma. We do not have scientific data on the effect of alcohol on combat effectiveness or on the experience of stress; neither in our military personnel nor in the soldiers of foreign armies. Determining the true state of affairs among Russian war veterans is extremely difficult due to the lack of real continuity in their treatment and rehabilitation and, sometimes, the inability to follow up a serviceman who has received psychiatric or drug treatment at one of the stages of his medical evacuation [1–3].

Contradictions in views on the frequency and nature of the mutual influence of addictive disorders and post-stress disorders in war veterans, as well as a lack of data on their prevalence in our war veterans created the basis for *this study*: to assess the frequency, clinical, and psychopathological features of alcohol abuse and alcohol addiction in armed-conflict veterans and their correlation to adverse wartime factors.

METHODS

Study design

The observational case-control study included 685 servicemen and retired military personnel who had been treated in the psychiatric department of the Main Military Clinical Hospital named after. N.N. Burdenko from 1992 to 2010 (Figure 1).

The *inclusion criteria* for patients were as follows: male sex, military service under contract at the time of the examination or in the past, single or repeated examination and treatment in a psychiatric department of the military hospital. The included patients comprised 3 groups (Table 1).

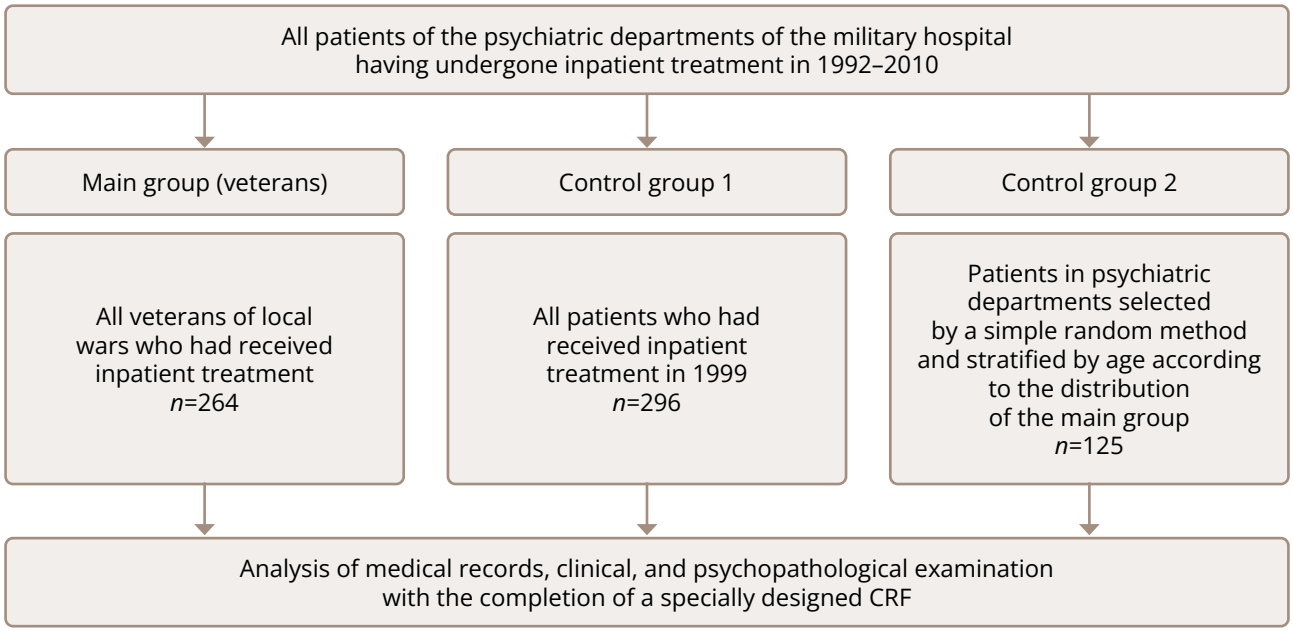


Figure 1. Study Design.

Table 1. Groups of examined military personnel (regular and reserve) who were hospitalized in the psychiatric departments of the military hospital

	Main group (veterans) (A)	Control group 1 (B)	Control group 2 (C)	Total	Test statistic (ANOVA)	Pairwise comparisons using Tukey's Method		
	(N=264)	(N=296)	(N=125)	(N=685)		AB	AC	BC
Age at the time of assessment	40.3 (sd 10.1)	47.6 (sd 16.2)	40.0 (sd 10.3)	43.4 (sd 13.6)	F (2.682)=26.95, *p* <0.001	t=-6.61 df=682 *p* <0.001	t=0.190 df=682 *p*=0.980	t=5.438 df=682 *p* <0.001
Mean age at the time of the 1st hospitalization in a psychiatric hospital	38.7 (sd 10.3)	44.8 (sd 15.4)	38.2 (sd 9.9)	41.2 (sd 13.0)	F (2.682)=19.95, *p* <0.001	t=-5.60 df=682 *p* <0.001	t=0.362 df=682 *p*=0.930	t=4.809 df=682 *p* <0.001

Note: sd — standard deviation; df — degrees of freedom; *p* — p-signifi cance level (p-value); F — the value of F-test.

The main group included 264 veterans that had participated in armed conflicts (hereinafter referred to as veterans) in which the Soviet or Russian military had been involved in 1979–2007. All surveyed veterans at the time of participation in combat operations were contract servicemen. The mean age of the patients in this group was 40 (sd 10.1) years.

Two control groups were created to compare the clinical features of alcohol abuse and addiction in war veterans with patients who had never seen combat operations. The first control group (a sample of patients treated in the psychiatric departments during one calendar year) was supposed to reflect the general structure of mental disorders in all the patients admitted for treatment. The other control group was a model that was fully equivalent to the main group in terms of age, which excludes the influence of age on psychopathology, the symptoms of mental disorders, and the social adaptation of patients.

Control group 1 included all 296 servicemen (regular and reserve) with no combat experience who had been treated in the hospital in 1999. The mean age of the patients in this group was 47.6 (sd 16.2) years, which, based on the Tukey's test, was significantly different from the age of the veterans of the Main group (p <0.001) (Table 1).

Control group 2 included 125 servicemen who had undergone treatment in the psychiatric departments of the hospital from 1992 to 2009. They were included by random selection (randomization), with subsequent age stratification at the time of the first request for psychiatric help and with subsequent re-randomization. The mean

age of the patients was 40.0 (sd 10.3) years. The patients in Control group 2 were comparable (had no significant differences) in terms of mean age and the age distribution curve with the patients in the Main group (p=0.980).

A clinical and psychopathological study of each patient was carried out with a detailed description of the identified symptoms and syndromes. The source data were structured using a specially designed clinical and epidemiological map in which the identified symptoms were correlated, among other things, with the ICD-10 criteria for diagnosing stress-related disorders and alcohol abuse disorders. When analyzing the obtained material, we compared the established diagnoses, leading syndromes, and symptoms of mental disorders in their interconnection and we also studied the changes in the disease over time and the association of mental disorders with adverse wartime factors (history of combat wounds, injuries, handicaps, reactions associated with combat stress, captivity) and with some parameters of social adaptation (fitness for military service, employment after leaving the army, and the presence of a disability).

The clinical and demographic variables were analyzed using descriptive statistics with mean and standard deviations. Differences in continuous variables between different groups were assessed using univariate ANOVA, followed by an assessment of the significance of between-group contrasts, corrected for multiple comparisons using Tukey's method. The differences between groups in the frequency of occurrence of the trait were assessed by compiling contingency tables and assessing the significance of the differences using the χ^2-test, followed by a pairwise comparison of frequencies between groups using the Wald test. The assessment of the reliability of the statistical tests was carried out with two-sided values at p <0.05. The NCSS 2022 software package (NCSS 2022 Statistical Software (2022) was used for statistical processing. NCSS, LLC. Kaysville, Utah, USA, ncss.com/software/ncss).

Ethical approval

Our non-interventional study of patients, which is routinely applied in medical practice, clinical and psychopathological studies, was carried out in the Main Military Clinical Hospital named after. N.N. Burdenko from 1992 to 2010 in accordance with the principles of the Declaration of Helsinki of the World Medical Association. The medical data of patients who had undergone examination and treatment at the Burdenko Main Military Clinical Hospital from 1992 to 2010 were entered into the medical records of the inpatient. The case report form and the non-interventional observational study protocol developed in 2010 were approved by the Independent Ethics Committee of the Main Military Clinical Hospital named after. N.N. Burdenko (Extract from protocol No. 5 dated Feb 16, 2011).

RESULTS

The diagnosis of alcohol addiction syndrome (alcohol addiction, chronic alcoholism, alcohol withdrawal state, alcoholic delirium, alcoholic psychosis or alcoholic amnestic syndrome [F10.6]) or alcohol abuse was confirmed for 56 of the surveyed veterans (21.2%). In all cases where mental disorders associated with alcohol use were included in the main diagnosis, patients showed signs of addiction consistent with the ICD-10 diagnostic guidelines. In one case, the diagnosis was alcohol abuse, whose manifestations, however, corresponded to the first stage of addiction, since there were signs of all the addiction syndromes, except for the vegetative-neurological manifestations of the alcohol withdrawal syndrome.

Along with this, 80 veterans (30.3%) were diagnosed with cases of addiction and alcohol abuse, which became comorbidities or complicated the course of the other major diagnosed mental disorders. Moreover, 47 veterans (17.8%) displayed signs of alcohol addiction, although the latter was not considered the main diagnosis or was not included in the diagnosis at all. In the Main group, 33 subjects (12.5%) had a history of alcohol abuse but there were no convincing clinical signs of addiction. In all these cases, addictive disorders were accompanied by other mental disorders that dominated the clinical picture.

A comparison of the incidence of diagnosed alcohol addiction with other cases of alcohol addiction and abuse is presented in Table 2. Control group 1 included 105 subjects diagnosed with alcohol addiction (35.5%), while in Control group 2 the condition was diagnosed in only 37 subjects (29.8%). There were 27 patients (9.1%) in Control group 1 and 7 patients (5.6%) in control group 2 with identified but not diagnosed addiction; also, there were 24 patients (8.1%) in Control group 1 and 18 patients (14.4%) in Control group 2 who were known to abuse alcohol but did not display a clearly discernible addiction. The overall composition of the patients suffering from alcohol abuse is more clearly presented in Figure 2.

Table 2. Structure of addiction and alcohol abuse in the compared groups

Diagnosis	Veterans (A) *n*=264		Control group 1 (B) *n*=296		Control group 2 (C) *n*=125		χ^2-test (all df=2)	Pairwise comparisons using Wald test		
	f	%	f	%	f	%		A vs B	A vs C	B vs C
Total number of patients with signs of alcohol addiction or abuse	136	51.5%	156	52.7%	62	49.6%	χ^2=0.343; *p*=0.842	Q=0.396; *p*=0.934	Q=0.498; *p*=0.911	Q=0.822; *p*=0.819
Including those with diagnosed alcohol addiction	56	21.2%	105	35.5%	37	29.6%	χ^2=13.846; *p*=0.001	Q=5.341; *p*=0.001	Q=2.513; *p*=0.177	Q=1.624; *p*=0.484
Including those with comorbid alcohol addiction	47	17.8%	27	9.1%	7	5.6%	χ^2=15.769; *p*=0.001	Q=4.216; *p*=0.008	Q=5.199; *p*=0.001	Q=1.599; *p*=0.495
Including those with comorbid alcohol abuse	33	12.5%	24	8.1%	18	14.4%	χ^2=4.628; *p*=0.099	Q=2.388; *p*=0.210	Q=0.817; *p*=0.821	Q=2.618; *p*=0.153
Total number of subjects with signs of alcohol addiction	103	39.0%	132	44.6%	44	35.2%	χ^2=3.736; *p*=0.154	Q=1.884; *p*=0.377	Q=0.998; *p*=0.755	Q=2.536; *p*=0.172
Total number of subjects with comorbid alcohol addiction and abuse	80	30.3%	51	17.2%	25	20.0%	χ^2=14.229; *p*=0.001	Q=5.140; *p*=0.001	Q=3.096; *p*=0.073	Q=1.017; *p*=0.747

Note: n — sample size; f — sign frequency; % — relative sign frequency in sample n; χ^2 — the value of Pearson's χ^2 test; df — degrees of freedom; Q — Tukey test value; *p* — p-value (p-significance level).

All three diagrams in the Figure show the following ratio: 1) patients with no signs of alcohol abuse; 2) patients with an established main diagnosis of "alcohol addiction"; 3) patients with alcohol addiction indicated in the diagnosis as concomitant to the underlying mental disorder, or with addiction indicated in the medical records or in the description of the withdrawal syndrome; 4) with alcohol abuse as comorbidity with other diagnosed mental disorders and without signs of addiction. The first pie chart shows the data of the group of veterans, the second one shows Control group 1, and the third one shows Control group 2.

Our statistical analysis of the differences in the relative frequency values proves, and Figure 2 clearly demonstrates, that there are hardly any significant differences between the samples of veterans and the control groups: 1) the ratio of the total number of patients with alcohol addiction or abuse diagnosed but not included in the primary diagnosis, and patients in whom frequent alcohol use was not identified; 2) all patients with signs of alcohol addiction (established in the diagnosis and not diagnosed); and 3) the proportion of patients suffering from alcohol abuse without signs of addiction (Table 3). Thus, there were no differences in the incidence of signs of alcohol addiction and abuse in military personnel with past experience of participating in combat operations and those who did not have combat experience, and no data have been obtained that would provide grounds to suggest a relationship between any forms of alcohol abuse and participation in combat operations. At the same time, it follows from the presented data that the diagnosis of alcohol addiction in veterans was less common, while cases of addiction comorbid with other mental disorders were more common than in other military personnel and military pensioners. A statistically significant (Q=5.341; p <0.001) difference in the probability of a diagnosis of alcohol addiction was uncovered between the sample of veterans and the sample of Control group 1, which included all patients who had received treatment in the psychiatric departments of the Main Military Clinical Hospital named after. N.N. Burdenko in 1999 and who were, on average, older. At the same time, undiagnosed alcohol addiction comorbid with other mental disorders occurred in veterans twice as often as in Control group 1 (Q=4.216; p=0.008) and more than three times more often than in Control group 2 (Q=5.199; p <0.001).

The relationships between the symptoms of stress disorders and alcohol addiction (diagnosed and concomitant with other disorders) and alcohol abuse are presented in Table 3 and Figure 3A and 3B. As expected, considering the features of a diagnosis of alcoholism stated above, a diagnosis of alcohol addiction among all veterans who displayed any symptoms of any PTSD diagnostic clusters was three times less common than it was among veterans who did not display PTSD symptoms (χ^2=16.532; p <0,001), while comorbid variants of addiction and alcohol abuse in veterans with and without PTSD symptoms were observed with almost equal frequency.

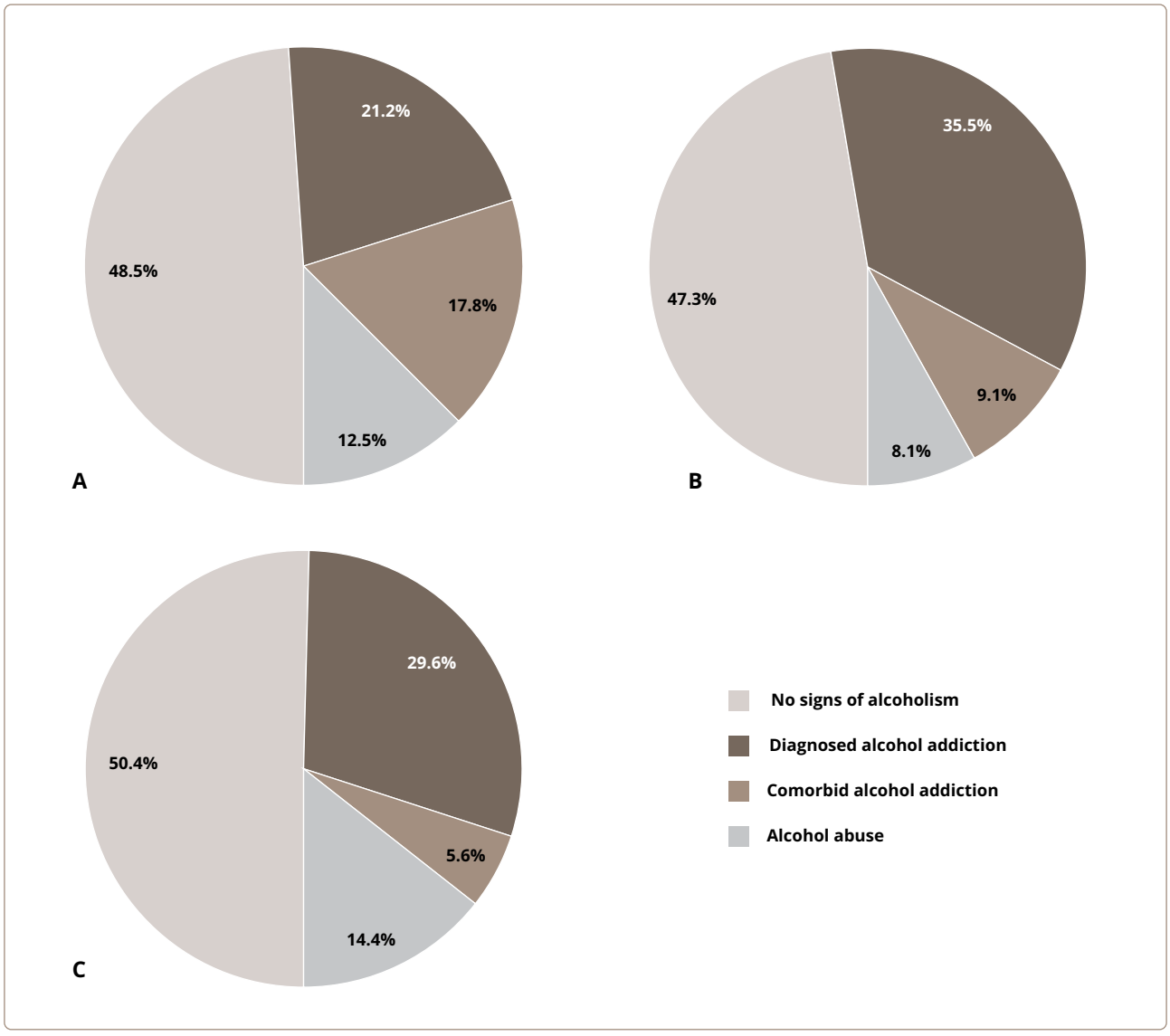


Figure 2. Structure of forms of chronic alcohol intoxication in groups: A, main group (*n*=264); B, group 1 (*n*=296); C, group 2 (*n*=125).

However, alcohol addiction was generally less common among veterans with manifestations of PTSD (χ^2=7.344; *p*=0.007). Consequently, the differences in the prevalence of the issue of alcohol in groups of veterans with and without PTSD symptoms were determined mainly by the difference in the number of patients with glaring signs of alcoholism. Moreover, the identification of PTSD symptoms in veterans reduced the likelihood of diagnosing them with alcoholism. Thus, PTSD symptoms were observed twice as rarely in veterans diagnosed with alcohol addiction as they were in veterans with alcohol addiction which was not stated in the diagnosis but was comorbid with other diagnosed mental disorders (Q=4.883; *p*=0.003), as well as in veterans with alcohol abuse (Q=4.516; *p*=0.008) and veterans without alcohol abuse (Q=5.991; *p* <0.0001). Moreover, there was no statistical difference in the incidence of PTSD symptoms between other groups of veterans with or without alcohol abuse. The ratio of individual symptoms of PTSD (intrusion and personality changes) turned out to be similar (Table 4). In general, when comparing PTSD symptoms in the entire sample of veterans with addictive disorders with all veterans without signs of alcohol abuse, significant differences were found only in the prevalence of intrusion symptoms (χ^2=4.256; *p*=0.039) while PTSD symptoms in general did not differ (Table 5).

Table 3. Clinical variants of alcohol abuse and addiction in veterans with PTSD symptoms and veterans without PTSD symptoms

Diagnosis	Veterans with PTSD symptoms *n*=139		Veterans without PTSD symptoms *n*=125		χ^2 test (all df=1)
	f	%	f	%	
Total number of patients with signs of alcohol addiction or abuse	61	43.9%	73	58.4%	χ^2=5.013; *p*=0.025
Including those with diagnosed alcohol addiction	16	11.5%	40	32.0%	χ^2=16.532; *p*=0.001
Comorbid alcohol addiction	27	19.4%	19	15.2%	χ^2=0.816; *p*=0.366
Comorbid alcohol abuse	19	13.7%	14	11.2%	χ^2=0.367; *p*=0.545
Total number of subjects with signs of alcohol addiction	43	30.9%	59	47.2%	χ^2=7.344; *p*=0.007
Total number of subjects with comorbid alcohol addiction and abuse	46	33.1%	33	26.4%	χ^2=1.406; *p*=0.236

Note: n — sample size; f — sign frequency; % — relative sign frequency in sample n; χ^2 — the value of Pearson's χ^2 test; df — degrees of freedom; *p* — p-value (p-significance level).

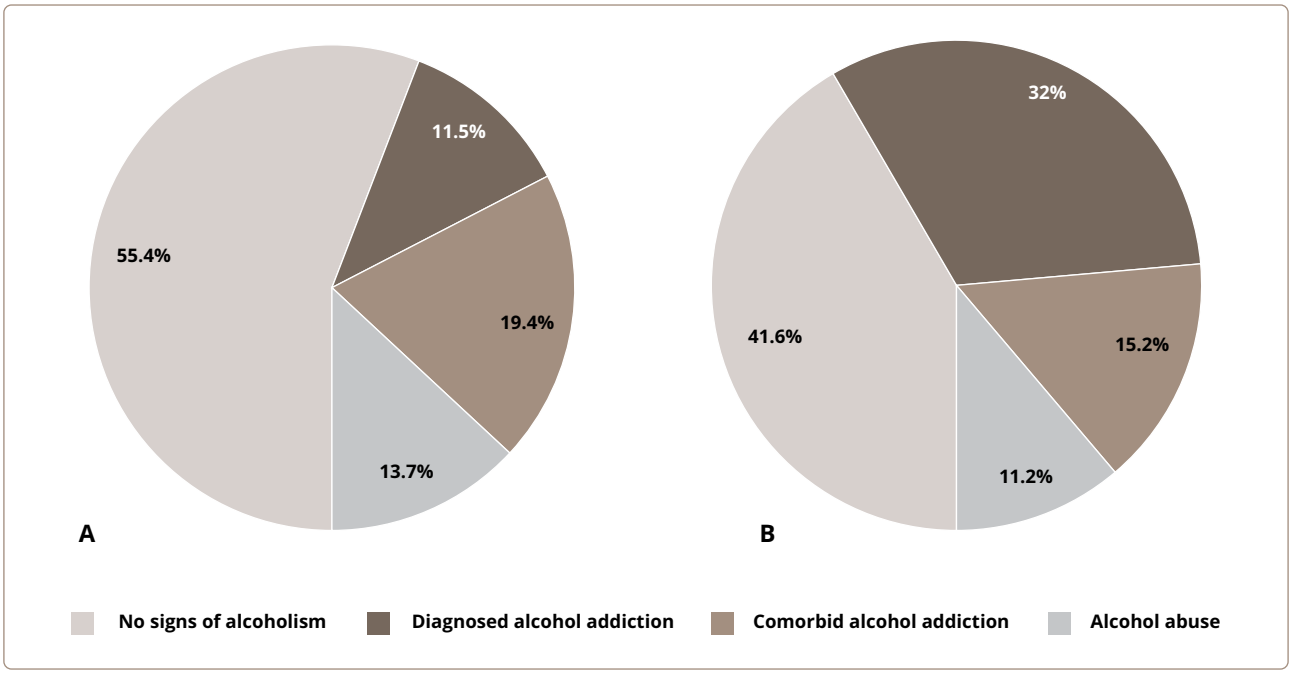


Figure 3. Structure of forms of chronic alcohol intoxication in groups: A, veterans with PTSD symptoms (*n*=139); B, veterans without PTSD symptoms (*n*=125).

Our analysis of the association between the diagnosis of alcohol addiction and PTSD symptoms (the results are presented in Table 6) showed that the absence of a diagnosis of alcoholism is associated with the detection of PTSD symptoms in general (χ^2=19.075, df=1, *p*=0.000), and in particular the symptoms of re-experiencing the trauma (χ^2=13.235, df=1, *p*=0.000) and personality changes (χ^2=12.508, df=1, *p*=0.000), while the association of any manifestations of addictive behavior with PTSD symptoms showed only an association between the absence of signs of alcohol abuse and symptoms of re-experiencing trauma (χ^2=4.256, df=1, *p*=0.039).

Table 4. PTSD symptoms in veterans with different forms of alcohol use

Symptom	(A) *n*=56 f(%)	(B) *n*=47 f(%)	(C) *n*=33 f(%)	(D) *n*=128 f(%)	χ^2 (p)	Pairwise comparisons using Wald test					
						A vs B Q (p)	A vs C Q (p)	A vs D Q (p)	B vs C Q (p)	B vs D Q (p)	C vs D Q (p)
Symptoms of re-experiencing (intrusions)	2 (3.6%)	14 (29.8%)	6 (18.2%)	34 (26.6%)	14.869 (0.002)	4.998 (0.002)	2.849 (0.183)	6.333 (0.000)	1.590 (0.671)	0.682 (0.923)	1.255 (0.793)
Avoidance symptoms	3 (5.4%)	8 (17.0%)	4 (12.1%)	15 (11.7%)	3.534 (0.316)	2.513 (0.284)	1.540 (0.692)	1.739 (0.608)	0.713 (0.918)	1.374 (0.754)	0.425 (0.958)
Symptoms of hyperexcitability	10 (17.9%)	23 (48.9%)	16 (48.5%)	60 (46.9%)	16.170 (0.001)	4.822 (0.004)	4.232 (0.015)	5.852 (0.000)	0.052 (0.996)	0.347 (0.967)	0.245 (0.978)
Personality changes	6 (10.7%)	21 (44.7%)	14 (42.4%)	38 (29.7%)	17.198 (0.001)	5.598 (0.000)	4.634 (0.006)	4.320 (0.012)	0.263 (0.976)	2.581 (0.262)	1.959 (0.509)
Any PTSD symptom	15 (26.8%)	28 (59.6%)	20 (60.6%)	75 (58.6%)	18.554 (0.001)	4.883 (0.003)	4.516 (0.008)	5.991 (0.000)	0.106 (0.991)	0.124 (0.990)	0.233 (0.979)
Symptoms of PTSD cluster 1 and 2 (intrusions or avoidance)	3 (5.4%)	15 (31.9%)	8 (24.2%)	38 (29.7%)	14.448 (0.002)	4.870 (0.003)	3.285 (0.093)	6.262 (0.000)	0.984 (0.866)	0.480 (0.952)	0.721 (0.917)

Note: (A) — Veterans diagnosed with alcohol addiction; (B) — Veterans with comorbid alcohol addiction; (C) — Veterans with comorbid alcohol abuse; (D) — Veterans without alcohol addiction and abuse; *n* — sample size; f — sign frequency; % — relative sign frequency in sample n; χ^2 — the value of Pearson's χ^2 test; Q — Tukey test value; *p* — p-value (p-significance level).

Table 5. PTSD symptoms in veterans with signs of alcohol addiction and abuse and those without alcohol abuse

Symptom	All veterans with alcohol addiction and abuse *n*=136		Veterans without alcohol abuse *n*=128		χ^2 test p-value
	f	%	f	%	
Symptoms of re-experiencing (intrusions)	22	16.2%	34	26.6%	χ^2=4.256; *p*=0.039
Avoidance symptoms	15	11.0%	15	11.7%	χ^2=0.031; *p*=0.860
Symptoms of hyperexcitability	49	36.0%	60	46.9%	χ^2=3.200; *p*=0.074
Personality changes	41	30.1%	38	29.7%	χ^2=0.007; *p*=0.935
Any PTSD symptom	64	47.1%	75	58.6%	χ^2=3.519; *p*=0.061
Symptoms of PTSD cluster 1 and 2 (intrusions or avoidance)	26	19.1%	38	29.7%	χ^2=4.011; *p*=0.045

Note: n — sample size; f — sign frequency; % — relative sign frequency in sample n; χ^2 — the value of Pearson's χ^2 test; *p* — p-value (p-significance level).

The results of our study of the medical history of veterans, with a comparison of the pathogenic factors of combat in the past and the presence or absence of signs of alcohol abuse or addiction in their current status, are presented in Table 7. The most significant determinants of the development of delayed stress disorders, such as direct participation in combat clashes with the enemy, enemy captivity, wounds or shell shock received in the war, psychopathological reactions suffered in the combat zone, were the least likely (with a statistical significance of differences) to be identified in veterans with an established diagnosis of alcohol addiction. In other subgroups of veterans, the same unfavorable factors in the medical history were detected almost with the same frequency. Veterans diagnosed with alcohol addiction suffered combat stress five times less frequently than veterans suffering from alcohol abuse, and eight times less often than veterans with no frequent drinking habit (Q=7.078; p <0.001).

Table 6. Correlation of various forms of alcohol abuse with PTSD symptoms

Symptom	Diagnosed alcohol addiction *n*=56		No diagnosed alcohol addiction *n*=208		χ^2 *p* (all df=1)	All cases of alcohol addiction or abuse *n*=136		No signs of alcohol abuse *n*=128		χ^2 *p* (all df=1)
	f	%	f	%		f	%	f	%	
Symptoms of re-experiencing (intrusions)	2	3.6	54	26.0	χ^2=13.235; ***p* <0.001**	22	16.2	34	26.6	χ^2=4.256; ***p*=0.039**
Avoidance symptoms	3	5.4	27	13.0	χ^2=2.546; *p*=0.111	15	11.0	15	11.7	χ^2=0.031; *p*=0.860
Symptoms of hyperexcitability	10	17.9	99	47.6	χ^2=16.097; ***p* <0.001**	49	36.0	60	46.9	χ^2=3.2000; *p*=0.074
Personality changes	6	10.7	73	35.1	χ^2=12.508; ***p* <0.001**	41	30.1	38	29.7	χ^2=0.007; *p*=0.935
Any PTSD symptom	15	26.8	124	59.6	χ^2=19.075; ***p* <0.001**	64	47.1	75	58.6	χ^2=3.519; *p*=0.061
Symptoms of PTSD cluster 1 and 2 (intrusions or avoidance)	3	5.4	61	29.3	χ^2=13.803; ***p* <0.001**	26	19.1	38	29.7	χ^2=4.011; ***p*=0.045**

Note: n — sample size; f — sign frequency; % — relative sign frequency in sample n; df — degrees of freedom; *p* — p-value (p-significance level).

Table 7. Pathogenic factors of wartime in the medical history of veterans with various forms of alcohol consumption

Factor	(A) *n*=56 f(%)	(B) *n*=47 f(%)	(C) *n*=33 f(%)	(D) *n*=128 f(%)	χ2 (p)	Pairwise comparisons using Wald test					
						A vs B Q (p)	A vs C Q (p)	A vs D Q (p)	B vs C Q (p)	B vs D Q (p)	C vs D Q (p)
Personal participation in battles	19 (33.9%)	31 (66.0%)	21 (63.6%)	69 (53.9%)	12.886 (0.005)	4.723 (0.005)	3.904 (0.030)	3.594 (0.054)	0.326 (0.970)	2.005 (0.488)	1.376 (0.753)
Captivity	0 (0.0%)	1 (2.1%)	0 (0.0%)	4 (3.1%)	2.776 (0.428)	1.009 (0.860)	0.486 (0.951)	1.250 (0.795)	0.434 (0.957)	0.101 (0.992)	0.426 (0.958)
Combat stress reactions	2 (3.6%)	6 (12.8%)	6 (18.2%)	38 (29.7%)	18.759 (<0.001)	2.229 (0.392)	2.849 (0.183)	7.078 (0.000)	0.961 (0.871)	3.465 (0.068)	1.798 (0.581)
Wounds or injuries in war	7 (12.5%)	9 (19.1%)	6 (18.2%)	26 (20.3%)	1.635 (0.651)	1.277 (0.786)	1.079 (0.843)	1.713 (0.619)	0.065 (0.995)	0.075 (0.994)	0.142 (0.988)
Traumatic brain injury in war	14 (25.0%)	23 (48.9%)	18 (54.5%)	55 (43.0%)	9.763 (0.021)	3.566 (0.057)	3.942 (0.027)	3.379 (0.079)	0.680 (0.923)	0.999 (0.862)	1.673 (0.636)
Alcohol abuse in war	9 (16.1%)	7 (14.9%)	4 (12.1%)	7 (5.5%)	6.484 (0.090)	0.179 (0.985)	0.541 (0.944)	2.910 (0.168)	0.364 (0.965)	2.530 (0.278)	1.831 (0.566)

Note: (A) — Veterans diagnosed with alcohol addiction; (B) — Veterans with comorbid alcohol addiction; (C) — Veterans with comorbid alcohol abuse; (D) — Veterans without alcohol addiction and abuse; *n* — sample size; f — sign frequency; % — relative sign frequency in sample n; Q — Tukey test value; *p* — p-value (p-significance level).

In contrast, frequent drinking while in a combat zone was three times likely among veterans with diagnosed alcoholism than among sober veterans. Table 8 shows no significant differences in the incidence of the combat pathogenic factors identified in the medical history between the general cohort of veterans with signs of alcohol addiction or abuse and veterans with no alcohol abuse issues. In these two groups, there was also a characteristic correlation between the occurrence of combat stress in the medical history and alcohol abuse during the war: veterans who were not inclined to drinking alcohol during the war had a significantly more acute reaction to stress (χ^2=15.679; p <0.001) and fewer cases of alcohol abuse (χ^2=6.128; p=0.013).

The association analysis showed no significant correlation with the considered pathogenic factors of the combat situation, with significant feedback between current alcohol addiction or abuse and acute reaction to stress experienced during the war (χ^2=15.679, df=1, p=0.000), and a direct association with alcohol abuse during the period of participation in combat operations (χ^2=6.128, df=1, p=0.013). None of the data above support the established opinion on a causal relationship between combat mental trauma and the subsequent development of alcohol addiction.

DISCUSSION

A study of the medical history and clinical manifestations of alcohol abuse in patients in the psychiatric department of our Military Hospital showed that about half of the surveyed subjects abused alcohol in the compared samples of contract servicemen and military pensioners (veterans and the control groups consisting of servicemen who had never taken part in combat operations) (Figure 2), about half of the surveyed abused alcohol. Unexpectedly for us, the proportions of patients with signs of addiction (diagnosed and undiagnosed) and patients suffering from alcohol abuse turned out to be almost identical, especially in veterans and in Control group 2 subjects with the same age. All this information ruined our expectations and failed to confirm the of-cited hypothesis about the especially high prevalence of alcoholism and alcohol abuse among war veterans. At the same time, the difference between diagnosed and undiagnosed (comorbid with other mental disorders) alcohol addiction in the studied samples turned out to be obvious. So, the frequency of diagnosed alcohol addiction in the sample of veterans was lower than it was in other servicemen and military pensioners, although a statistically significant (p <0.001) difference was established only between the sample of veterans and the sample of Control group 1, which were, on average, older. On the contrary, undiagnosed forms of alcoholism, including alcohol abuse and alcohol addiction comorbid with other disorders, were recorded significantly more often in veterans than in both control groups (p <0.001; p <0.05). This predominance seemed to have to do with the fact that the sample of veterans had more patients with signs of addiction, which was not reflected in the diagnosis and was considered concomitant with other mental disorders (p <0.01; p <0.001).

So, the main difference in the studied samples came down to the special proportion observed in war veterans between the relatively small number of diagnosed cases of alcohol addiction and the increased frequency of alcohol addiction which accompanied other mental disorders but was not stated in the diagnosis. Considering the similarity of the total relative number of patients with signs of alcohol addiction, which in different cases was either considered as the main diagnosis, or was assessed as comorbid with other disorders, in all compared groups, it must be assumed that veterans had underdiagnosed alcohol addiction.

Table 8. Pathogenic factors of wartime in the medical history of veterans with signs of addiction and alcohol abuse and veterans who do not abuse alcohol

Factor	All veterans with alcohol addiction and abuse *n*=136		Veterans without alcohol abuse *n*=128		χ^2 test
	f	%	f	%	
Personal participation in battles	71	52.2	69	53.9	χ^2=0.077; p=0.782
Captivity	1	0.7	4	3.1	χ^2=2.027; p=0.155
Wounds or injuries in war	22	16.2	26	20.3	χ^2=0.758; p=0.384
Traumatic brain injury in war	55	40.4	55	43	χ^2=0.173; p=0.677
Combat stress reactions	14	**10.31**	38	**29.71**	χ^2=15.679; p <0.001
Alcohol abuse in war	20	**14.72**	7	**5.52**	χ^2=6.128; p=0.013

Note: n — sample size; f — sign frequency; % — relative sign frequency in sample n; χ^2 — the value of Pearson's χ^2 test; p — p-value (p-significance level).

One of the causes of the underdiagnosis may be the identification of a significant number of psychopathological disorders that do not belong to the main addiction syndromes, and considering the traumatic combat experience of veterans, in clinical practice they are unambiguously interpreted as manifestations of some other underlying mental disorder that alcohol addiction either aggravates or hides: i.e., alcohol addiction was qualified only as a complication of other diagnosed mental disorders more often in veterans than in other military personnel.

In the Main group, signs of alcohol addiction were accompanied by diagnosed organic mental disorders in 23 subjects (48.9%), neurotic and adaptation disorders in 13 subjects (27.7%), various organic mental disorders not associated with brain injury in 5 subjects (10.6%), diagnosed PTSD in 4 subjects (8.5%), and other mental disorders in 2 subjects (4.3%).

A comprehensive description of the mental disorders associated with alcohol abuse requires a separate analysis. Here, we only noted that veterans suffering from alcohol addiction comorbid with other diagnosed mental disorders showed signs of PTSD (p <0.001), including symptoms of re-experiencing trauma (p <0.001) and personality change (p <0.001) much more often compared with veterans with diagnosed alcohol addiction, even in the absence of an established diagnosis (Table 4). The association analysis between the established diagnosis of alcohol addiction and various symptoms of PTSD (Table 6) showed the presence of feedback (association with the absence of diagnosed alcohol addiction) with the presence of PTSD signs (χ^2=19.075, df=1, p=0.000), including intrusion symptoms χ^2=13.235, df=1, p=0.000) and personality changes (χ^2=12.508, df=1, p=0.000).

Based on the abovesaid, we can conclude that the underdiagnosis of alcohol addiction in war veterans is determined not only, and not so much, by the insufficient severity of the actual "addiction" syndromes, but rather by the priority of facultative psychopathological symptoms in relation to the obligatory signs of addiction. That is, when a patient shows symptoms of stress disorders or other psychiatric disorders, preference is often given to a diagnosis of a non-alcohol-related psychiatric disorder, the symptoms of which appear to be the most relevant for evaluation and treatment. In this case, the use of alcohol with harmful consequences and even obvious symptoms of addiction are thought of as concomitant or as complicating the course of the disease. It should be noted that all of the veterans who were not diagnosed with alcoholism (those with undiagnosed alcohol addiction or abuse and those who did not reveal excessive drinking) showed no significant differences in the frequency of any of the PTSD symptoms. As a result, when comparing the general group of veterans with signs of addiction or alcohol abuse (including diagnosed and undiagnosed cases) and veterans who did not show signs of alcohol abuse, in general, no differences were found in the presentation of all PTSD symptoms, while significant differences were found only in relation to the frequency of re-experiencing trauma (p <0.05). Our contingency analysis showed a significant association between just the absence of alcohol addiction and abuse and symptoms of intrusion in veterans (χ^2=4.256, df=1, p=0.039). An inverse comparison of the representation of alcohol abuse and addiction in veterans with and without symptoms of PTSD showed that the number of patients with various forms of alcoholism among those with symptoms of PTSD turned out to be a quarter lower (p <0.05), while the number of cases of diagnosis of addiction was almost three times lower (p <0.001) than the one among those who had PTSD symptoms (Figure 3, Table 3).

All these findings, in our opinion, at minimum do not give grounds for the conclusion that the onset of PTSD symptoms creates any particular risk of developing alcohol addiction and certainly does not confirm the widespread thesis about the exceptional comorbidity of stress disorders and alcoholism. However, considering the conducted retrospective analysis, we do not exclude the possibility that the discovered relationship between PTSD symptoms and alcohol addiction can be influenced to some extent by the underestimation of symptoms of combat stress consequences in patients with alcohol addiction.

In order to clarify the relationship between alcohol abuse and alcohol addiction in veterans with combat mental trauma, we performed an analysis of the presence of significant combat pathogenic factors in their medical histories. Most of them (direct participation in shooting battles with the enemy, enemy captivity, wounds or concussions sustained in war, psychopathological reactions suffered in the combat zone) were observed in veterans with an established diagnosis of alcohol addiction much less frequently than in other veterans (Table 7). On the contrary, alcohol abuse during the war in patients with a subsequent diagnosis of alcohol

addiction was observed significantly more often than in veterans who were not prone to excessive alcohol consumption (p <0.05). Most likely, the obvious clinical sings of alcohol addiction in the absence of pronounced signs of alternative mental disorder determines the direction of the clinical search by the psychiatrist and the selectivity in medical history collection, when signs consistent with it are identified in favor of the obvious diagnostic version, and optional ones are sometimes found only by chance and not as a result of active questioning. However, it is certainly not in the favor of the pathogenic role of combat stressors in the development of alcoholism that they are found with approximately equal frequency in veterans with undiagnosed addiction, in veterans with alcohol abuse, and in veterans who do not drink alcohol (Table 7).

A comparison of the general sample of veterans with signs of alcohol addiction or alcohol abuse and the sample of all veterans without signs of alcohol abuse did not show significant differences in the frequency of their exposure to combat stress factors in the past (Table 8). But, at the same time, there were significant differences in the frequency of combat stress reaction experienced during participation in combat operations and alcohol abuse during war: veterans suffering from alcohol addiction and abuse displayed less combat stress reaction (p <0.001) and more alcoholism (p <0.05). The contingency table showed no significant associations between the presence of any form of alcohol abuse and the combat pathogenic factors considered in the study (Table 9). At the same time, the presence of alcohol addiction or alcohol abuse showed a significant inverse correlation with the combat stress reaction experienced during war (χ^2=15.679, df=1, p=0.000) and a direct association with alcoholism during wartime (χ^2=6.128, df=1, p=0.013). Thus, the hypothesis of a significant correlation between alcoholism among veterans and adverse wartime experiences, according to our data, is not borne out.

CONCLUSION

In their most general terms, the results of our study show no difference in the frequency of symptoms of alcohol addiction or abuse among veterans of wars and other servicemen and military pensioners who have never taken part in combat operations. However, there is a tendency to underdiagnose alcohol addiction in veterans in general, and in those with symptoms of PTSD, in particular. That is, alcohol addiction is not diagnosed in most cases when the veterans show symptoms of stress or other mental disorders in addition to the sings of alcoholism. There was no significant association between any form of addictive behavior and the presence of stress disorder symptoms in our sample of veterans; on the contrary, symptoms of re-experiencing trauma were more often observed in veterans who were not prone to frequent drinking. The incidence of combat stressors traced in the medical history did not differ in veterans with forms of alcohol abuse and in veterans not prone to frequent drinking.

Table 9. Correlation between various forms of alcohol abuse and considered wartime pathogenic factors

Factor	Diagnosed alcohol addiction *n*=56		No diagnosed alcohol addiction *n*=208		χ^2-test (all df=1)	All cases of alcohol addiction or abuse *n*=136		No signs of alcohol abuse *n*=128		χ^2-test (all df=1)
	f	%	f	%		f	%	f	%	
Participation in battles	**19**	**33.9**	121	**58.2**	χ^2=10.412; ***p* <0.001**	71	52.2	69	53.9	χ^2=0.077; p=0.782
Captivity	-	-	5	2.4	χ^2=1.372; p=0.241	1	0.7	4	3.1	χ^2=2.027; p=0.155
Wounds or injuries in war	7	12.5	41	19.7	χ^2=1.542; p=0.214	22	16.2	26	20.3	χ^2=0.758; p=0.384
Traumatic brain injury in war	**14**	**25.0**	96	**46.2**	χ^2=8.123; p=0.004	55	40.4	55	43.0	χ^2=0.173; p=0.677
Combat stress reactions	**2**	**3.6**	50	**24.0**	χ^2=11.685; ***p* <0.001**	14	**10.3**	38	**29.7**	χ^2=15.679; ***p* <0.000**
Alcohol abuse in war	9	16.1	18	8.7	χ^2=2.644; p=0.104	20	**14.7**	7	**5.5**	χ^2=6.128; ***p*=0.013**

Note: n — sample size; f — sign frequency; % — relative sign frequency in sample n; df — degrees of freedom; χ^2 — the value of Pearson's χ^2 test; p — p-value (p-significance level).

There was only a slight difference in that among the pathological reactions in a combat situation, addictive behavior was more often observed among veterans abusing alcohol and, therefore, the phenomenon of alcohol abuse in war requires additional testing to determine its prognostic value.

Alcohol abuse and the development of addiction in veterans seem to have mechanisms common to all other patients, and in this regard, we should recall the thought once expressed by T.A. Mellman et al. (1992) that persistent disease states associated with PTSD progress over time to symptoms that are increasingly autochthonous in their pattern of occurrence [38]. Perhaps, the same frequency of alcohol addiction in the compared categories of military personnel, as well as its weak correlation in veterans with PTSD symptoms and a history of combat pathogenic factors, could partly be explained by the action of powerful social stressors. The latter equally had a significant adverse effect on the entire population of Russian military personnel in the 1990s and the first years of the current century, and their long-term effect may have outweighed the effects of wartime mental trauma. It also seems of importance to us that the massive alcohol abuse at that time affected all segments of the Russian population, which could also equalize the risks of developing alcohol addiction in the various groups of military personnel. The similarity of the results in different groups is partly due to the fact that all the examined subjects were in military service under contract, while it is quite possible that different data can be collected amongst conscripted military personnel. Finally, it must be acknowledged that a much more accurate assessment of the involvement of various adverse factors in the development of stress and addictive disorders is achievable in prospective studies that reduce the contribution of subjective components.

Article history:
Submitted: 21.03.2022
Accepted: 26.08.2022
Published: 21.09.2022

Authors' contributions:
A.M. Reznik designed the project; A.M. Reznik and A.L. Arbuzov collected the data; T.S. Syunyakov and A.M. Reznik analyzed the data; T.S. Syunyakov and A.M. Reznik wrote the first draft of the manuscript, which has been revised by A.M. Reznik.

Funding: The research was carried out without additional funding.

Conflict of interest: The authors declare no conflicts of interest.

For citation:
Reznik AM, Syunyakov TS, Arbuzov AL. Alcohol addiction in war veterans treated in a in-patient psychiatric facility: incidence, comorbidity with PTSD symptoms, association with combat stressors. Consortium Psychiatricum 2022; 3(3):73–89. doi: 10.17816/CP188

Information about the authors

***Aleksandr Mikhailovich Reznik**, MD, PhD, assistant professor, doctor-psychiatrist, Medical Institute of Continuing Education of Moscow State University of Food Production;
ORCID: https://orcid.org/0000-0002-7076-5901, e-Library SPIN-code: 4955-8297
E-mail: a.m.reznik1969@gmail.com

Timur Sergeevich Syunyakov, MD, PhD, Senior researcher, Research Zakusov Institute of Pharmacology; Mental-health Clinic No. 1 named after N.A. Alexeev; ORCID: https://orcid.org/0000-0002-4334-1601, e-Library SPIN-code: 7629-5309

Aleksandr Leonidovich Arbuzov, MD, PhD, assistant professor, doctor-psychiatrist, Medical Institute of Continuing Education of Moscow National University of Food Production;
ORCID: https://orcid.org/0000-0001-8940-9299

*corresponding author

References

1. Litvintsev SV, Snedkov EV, Reznik AM. Combat mental trauma: A guide for doctors. Moscow: Meditsina; 2005. (In Russ).
2. Snedkov EV, Litvintsev SV, Reznik AM, Truschelev SA. Combat stress reactions: A textbook for the system of postgraduate professional education of doctors. Moscow: Medkniga; 2007. (In Russ).
3. Sofronov AG. Is it possible to prevent drug addiction among veterans of local wars? In: Yu.L. Shevchenko, editor. Topical issues of military and environmental psychiatry: Textbook. Saint Petersburg; 1995. (In Russ).
4. Maria-Rios CE, Morrow JD. Mechanisms of shared vulnerability to post-traumatic stress disorder and substance use disorders. Front Behav Neurosci. 2020;14:6. doi: 10.3389/fnbeh.2020.00006
5. Straus E, Haller M, Lyons RC, Norman SB. Functional and psychiatric correlates of comorbid post-traumatic stress disorder and alcohol use disorder. Alcohol Res. 2018;39(2):121–129.
6. Dworkin ER, Bergman HE, Walton TO, Walker DD, Kaysen DL. Co-Occurring post-traumatic stress disorder and alcohol use disorder in U.S. military and veteran populations. Alcohol Res. 2018;39(2):161–169.
7. Rothberg JM, Koshes RJ, Shanahan J, Christman K. Desert shield deployment and social problems on a U.S. army combat support post. Mil Med. 1994;159(3):246–248.
8. Sutker PB, Uddo M, Brailey K, Allain AN, Errera P. Psychological symptoms and psychiatric diagnoses in Operation Desert Storm troops serving Graves registration duty. J Trauma Stress. 1994;7(2):159–171. doi: 10.1007/BF02102942

9. Milliken CS, Auchterlonie JL, Hoge CW. Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. JAMA. 2007;298(18):2141–2148. doi: 10.1001/jama.298.18.2141
10. Baker DG, Heppner P, Afari N, et al. Trauma exposure, branch of service, and physical injury in relation to mental health among U.S. veterans returning from Iraq and Afghanistan. Mil Med. 2009;174(8):773–778.
11. Keane TM, Gerardi RJ, Lyons JA, Wolfe J. The interrelationship of substance abuse and posttraumatic stress disorder. Epidemiological and clinical considerations. Recent Dev Alcohol. 1988;6:27–48. doi: 10.1007/978-1-4615-7718-8_2
12. Seal KH, Cohen G, Waldrop A, Cohen BE, Maguen S, Ren L. Substance use disorders in Iraq and Afghanistan veterans in VA healthcare, 2001–2010: Implications for screening, diagnosis and treatment. Drug Alcohol Depend. 2011;116(1–3):93–101. doi: 10.1016/j.drugalcdep.2010.11.027
13. Feinstein A, Owen J, Blair N. A hazardous profession: war, journalists, and psychopathology. Am J Psychiatry. 2002;159(9):1570–1575. doi: 10.1176/appi.ajp.159.9.1570
14. Jakupcak M, Tull MT, McDermott MJ, Kaysen D, Hunt S, Simpson T. PTSD symptom clusters in relationship to alcohol misuse among Iraq and Afghanistan war veterans seeking post-deployment VA health care. Addict Behav. 2010;35(9):840–843. doi: 10.1016/j.addbeh.2010.03.023
15. Blanco C, Xu Y, Brady K, Perez-Fuentes G, Okuda M, Wang S. Comorbidity of posttraumatic stress disorder with alcohol dependence among US adults: results from national epidemiological survey on alcohol and related conditions. Drug Alcohol Depend. 2013;132(3):630–638. doi: 10.1016/j.drugalcdep.2013.04.016
16. Kulka RA, Schlenger WE, Fairbank JA, et al. Trauma and the Vietnam war generation. Report of findings from the National Vietnam Veterans Readjustment Study. 1st edition. New York: Brunner Mazel Publishers; 1990.
17. Smith SM, Goldstein RB, Grant BF. The association between post-traumatic stress disorder and lifetime DSM-5 psychiatric disorders among veterans: Data from the National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC-III). J Psychiatr Res. 2016;82:16–22. doi: 10.1016/j.jpsychires.2016.06.022
18. Wisco BE, Marx BP, Wolf EJ, Miller MW, Southwick SM, Pietrzak RH. Posttraumatic stress disorder in the US veteran population: results from the National Health and Resilience in Veterans Study. J Clin Psychiatry. 2014;75(12):1338–1346. doi: 10.4088/JCP.14m09328
19. Cottler LB, Compton WM, Mager D, Spitznagel EL, Janca A. Posttraumatic stress disorder among substance users from the general population. Am J Psychiatry. 1992;149(5):664–670. doi: 10.1176/ajp.149.5.664
20. Bremner JD, Southwick SM, Darnell A, Charney DS. Chronic PTSD in Vietnam combat veterans: course of illness and substance abuse. Am J Psychiatry. 1996;153(3):369–375. doi: 10.1176/ajp.153.3.369
21. Perkonigg A, Kessler RC, Storz S, Wittchen HU. Traumatic events and post-traumatic stress disorder in the community: prevalence, risk factors and comorbidity. Acta Psychiatr Scand. 2000;101(1):46–59. doi: 10.1034/j.1600-0447.2000.101001046.x
22. Freeman T, Kimbrell T. Relationship of alcohol craving to symptoms of posttraumatic stress disorder in combat veterans. J Nerv Ment Dis. 2004;192(5):389–390. doi: 10.1097/01.nmd.0000126735.46296.a4
23. Norman SB, Tate SR, Anderson KG, Brown SA. Do trauma history and PTSD symptoms influence addiction relapse context? Drug Alcohol Depend. 2007;90(1):89–96. doi: 10.1016/j.drugalcdep.2007.03.002
24. Scherrer JF, Xian H, Lyons MJ, et al. Posttraumatic stress disorder; combat exposure; and nicotine dependence, alcohol dependence, and major depression in male twins. Compr Psychiatry. 2008;49(3):297–304. doi: 10.1016/j.comppsych.2007.11.001
25. Tate SR, Norman SB, McQuaid JR, Brown SA. Health problems of substance-dependent veterans with and those without trauma history. J Subst Abuse Treat. 2007;33(1):25–32. doi: 10.1016/j.jsat.2006.11.006
26. Shipherd JC, Stafford J, Tanner LR. Predicting alcohol and drug abuse in Persian Gulf War veterans: what role do PTSD symptoms play? Addict Behav. 2005;30(3):595–599. doi: 10.1016/j.addbeh.2004.07.004
27. Kitaev-Smyk LA. The physiology of stress. Moscow: Nauka; 1983. (In Russ).
28. Davidson PB. Vietnam at war: the history (1946–1975). Novato, Calif: Presidio Press; 1988.
29. Jacobson IG, Ryan MA, Hooper TI, et al. Alcohol use and alcohol-related problems before and after military combat deployment. JAMA. 2008;300(6):663–675. doi: 10.1001/jama.300.6.663
30. Miller MW, Fogler JM, Wolf EJ, Kaloupek DG, Keane TM. The internalizing and externalizing structure of psychiatric comorbidity in combat veterans. J Trauma Stress. 2008;21(1):58–65. doi: 10.1002/jts.20303
31. Ullman SE, Relyea M, Peter-Hagene L, Vasquez AL. Trauma histories, substance use coping, PTSD, and problem substance use among sexual assault victims. Addict Behav. 2013;38(6):2219–2223. doi: 10.1016/j.addbeh.2013.01.027
32. McDevitt-Murphy ME, Fields JA, Monahan CJ, Bracken KL. Drinking motives among heavy-drinking veterans with and without posttraumatic stress disorder. Addict Res Theory. 2015;23(2):148–155. doi: 10.3109/16066359.2014.949696
33. Ouimette PC, Moos RH, Finney JW. Two-year mental health service use and course of remission in patients with substance use and posttraumatic stress disorders. J Stud Alcohol. 2000;61(2):247–253. doi: 10.15288/jsa.2000.61.247
34. Kaysen D, Atkins DC, Moore SA, Lindgren KP, Dillworth T, Simpson T. Alcohol use, problems, and the course of posttraumatic stress disorder: A prospective study of female crime victims. J Dual Diagn. 2011;7(4):262–279. doi: 10.1080/15504263.2011.620449
35. Zoricic Z, Karlovic D, Buljan D, Marusic S. Comorbid alcohol addiction increases aggression level in soldiers with combat-related post-traumatic stress disorder. Nord J Psychiatry. 2003;57(3):199–202. doi: 10.1080/08039480310001337
36. Stappenbeck CA, Hellmuth JC, Simpson T, Jakupcak M. The effects of alcohol problems, PTSD, and combat exposure on nonphysical and physical aggression among Iraq and Afghanistan war veterans. Psychol Trauma. 2014;6(1):65–72. doi: 10.1037/a0031468
37. Elbogen EB, Johnson SC, Wagner HR, Sullivan C, Taft CT, Beckham JC. Violent behaviour and post-traumatic stress disorder in US Iraq and Afghanistan veterans. Br J Psychiatry. 2014;204(5):368–375. doi: 10.1192/bjp.bp.113.134627
38. Mellman TA, Randolph CA, Brawman-Mintzer O, Flores LP, Milanes FJ. Phenomenology and course of psychiatric disorders associated with combat-related posttraumatic stress disorder. Am J Psychiatry. 1992;149(11):1568–1574. doi: 10.1176/ajp.149.11.1568

Anorexia Nervosa as a Cause of Drug-Induced Thyrotoxicosis

Нервная анорексия как причина лекарственно-индуцированного тиреотоксикоза

doi: 10.17816/CP182

Case report

Veronica Neudahina[1], Kristina Soloveva[2], Albina Khanova[5], Danetta Gubzhokova[5], Natalia Krivosheeva[3,4], Victoria Stashevskaya[3]

[1] Russian Medical Academy of Continuing Professional Education, Moscow, Russia

[2] Mental-health Clinic No. 1 named after N.A. Alexeev, Moscow, Russia

[3] Central Clinical Hospital of Civil Aviation, Moscow, Russia

[4] Russian Gerontological Scientific and Clinical Center, RNRMU named after N.I. Pirogov, Moscow, Russia

[5] Research Institute of Eye Diseases, Moscow, Russia

Вероника Неудахина[1], Кристина Соловьева[2], Альбина Ханова[5], Даннета Губжокова[5], Наталья Кривошеева[3,4], Виктория Сташевская[3]

[1] ФГБОУ ДПО «Российская медицинская академия непрерывного профессионального образования» Минздрава России, Москва, Россия

[2] ГБУЗ «Психиатрическая клиническая больница № 1 им. Н.А. Алексеева Департамента здравоохранения города Москвы», Москва, Россия

[3] ФБУ «Центральная клиническая больница гражданской авиации», Москва, Россия

[4] РНИМУ им. Н.И. Пирогова, Российский геронтологический научно-клинический центр, Москва, Россия

[5] ФГБНУ «Научно-исследовательский институт глазных болезней», Москва, Россия

ABSTRACT

The authors propose a case report analysis with a step-by-step exclusion of possible non-psychiatric medical causes of thyrotoxicosis in a young girl. The prolonged differential diagnosis eventually led to the diagnosis of drug-induced thyrotoxicosis due to anorexia nervosa in the patient. The analysis of the presented case report once again demonstrates the importance of a carefully curated medical history, including the psychiatric history, as well as a holistic and comprehensive analysis of all the clinical manifestations. We analyzed this case report of a patient with thyrotoxicosis due to anorexia nervosa in order to test the algorithm of differential diagnosis. All patient information was anonymized, and the patient gave informed consent to the submission of the case report for publication.

АННОТАЦИЯ

Авторы предлагают разбор клинического случая с поэтапным исключением возможных соматических причин синдрома тиреотоксикоза у молодой девушки. Затянувшаяся дифференциальная диагностика в итоге привела к установлению диагноза — лекарственно-индуцированного тиреотоксикоза вследствие наличия у пациентки нервной анорексии. Анализ представленного клинического случая в очередной раз демонстрирует важность тщательно собранного анамнеза, включая психиатрический анамнез, а также целостного и всестороннего анализа клинических проявлений у пациента. Проведен разбор клинического случая у больной с тиреотоксикозом, развившемся вследствие нервной анорексии, с целью демонстрации алгоритма дифференциально-диагностического поиска. Вся информация о пациенте была анонимизирована, авторы получили письменное согласие пациента на публикацию медицинских данных и фотографий.

Keywords: *anorexia nervosa; drug-induced thyrotoxicosis; case report*

Ключевые слова: *нервная анорексия; лекарственно-индуцированный тиреотоксикоз; клинический случай*

INTRODUCTION

Thyrotoxicosis is a syndrome caused by excessive levels of thyroid hormones in the blood and their toxic impact on various organs and tissues. The prevalence of thyrotoxicosis in Russia in 2001 was 18.4 cases per 100,000 [1]. According to the American Thyroid Association (ATA), the prevalence of thyrotoxicosis in the USA in 2011 was 1.2–1.6%, 0.5–0.6% for overt forms and 0.7–1.0% for subclinical forms [2]. The most common cause leading to thyrotoxicosis in regions with normal iodine intake is Graves' disease. The most common cause in iodine-deficient areas is autonomously functioning thyroid nodules [3]. Other causes of thyrotoxicosis are ectopic thyroid tissue; thyrotoxic phase of destructive thyroiditis; medication, most often amiodarone; and overdose of thyroid hormones, for example, in the treatment of hypothyroidism. Drug-induced thyrotoxicosis can also occur in the case of uncontrolled intake of hormones by patients suffering from a mental illness, including eating disorders [4].

Eating disorders (EDs) are widespread in the population. According to our estimates, the prevalence of anorexia nervosa ranges from 0.3 to 1% and the prevalence of bulimia nervosa ranges from 0.9 to 1.5% [5]. The problem cannot be underestimated, since the mortality rate among this category of patients is the highest relative to other psychiatric disorders: according to statistics, about 23 patients die daily from EDs [6] and almost 20% of patients commit suicide [7]. Studies have shown that people with eating disorders have a characteristic personality type: emotional lability, a tendency to maladaptive behaviors, a constant feeling of internal tension and discomfort, low self-esteem, and a desire for hyper-control [8, 9]. Often, eating disorders are comorbid with other psychiatric diseases, including schizophrenia spectrum disorders, as well as mood disorders [10].

The desire to lose weight by patients with EDs is often associated with maladaptive behavioral strategies, including the abuse of various drugs [11, 12]. These include diuretics and laxatives, as well as hypoglycemic and hormonal drugs. Often, these are thyroid hormone drugs that can accelerate the matabolism, and, consequently, lead to weight loss. Unfortunately, the abuse of these drugs also leads to cardiovascular, metabolic, and endocrine disorders [13]. The issue is complicated by the wide availability of these drugs, which are often classified as over-the-counter medications. At the same time, proving the fact of drug abuse may not be the easiest of tasks and may require a comprehensive clinical examination, including examining a detailed medical history, performing a wide range of investigative steps, and soliciting consultations from specialists in related fields.

The presented clinical case describes drug-induced thyrotoxicosis resulting from the self-administration of large doses of levothyroxine by a patient with anorexia nervosa in an effort to reduce body weight.

Drawing one's attention to the problem of a transnosological search taking possible mental disorders in patients with medical symptoms into account, in our opinion, will optimize the diagnostic process, accelerate it, and improve its accuracy.

PATIENT INFORMATION

A 20-year-old female patient came to an endocrinologist at the Central Clinical Hospital of Civil Aviation (CCH CA) in July 2021 to check for thyrotoxicosis before a planned thyroidectomy for diffuse toxic goiter. She complained of constant palpitations (heart rate of up to 150 bpm), periodic episodes of tachycardia of up to 200 bpm lasting up to 10 minutes and inadequately relieved by β-blockers (propranolol up to 40–50 mg), sweating, tremor, and lack of menstruations. The patient had been experiencing these symptoms since 2020.

At examination: increased heart sounds; heart rate of 180 bpm, blood pressure 130/70 mm Hg, height 160 cm, weight 49 kg, and body mass index (BMI) = 19.1 kg/m^2. The thyroid gland is not palpable; von Graefe's, Moebius, Chvostek's, and Trousseau signs are negative. The patient has trunk and limb tremor while standing.

Due to tachycardia of 180 bpm not relieved by propranolol 40–50 mg, general tremor and increasing weakness at the time of examination in the Admission Department, the patient was hospitalized in the Intensive Care Unit (ICU) in serious condition, followed by a transfer to the Endocrinology Department with a diagnosis of thyrotoxicosis.

MEDICAL HISTORY

According to the medical history, in 2017 the patient was treated in a psychiatric hospital for anorexia nervosa after a weight loss of 30 kg in a year (from 70 to 40 kg); the development of amenorrhea. After treatment in a psychiatric hospital (there is no information on the patient taking psychopharmacological drugs after discharge), the patient gradually gained weight up to 49 kg while her menstrual cycle did not resume.

Family medical history is unremarkable; the patient denies smoking, alcohol or substance abuse, injuries, or allergic reactions. There were no pregnancies. The patient is a student of the pharmacological faculty of a medical institute. The timeline of the patient seeking medical attention is presented in Figure 1.

Results of previous clinical examinations

The first thyroid function tests were performed in July 2020. They revealed a decrease in the thyroid-stimulating hormone (TSH) to 0.005 μIU/mL (normal range 0.4–4.0 μIU/mL) and an increase in free T3 (25.5 pmol/L, normal range 3.1–6.8 pmol/L) and free T4 (40.5 pmol/L, normal range 10.8–22.0 pmol/L). The level of antibodies to thyroglobulin (Ab-TG), Ab to thyroid peroxidase (Ab-TPO), and Ab to TSH receptors (TSHr) were within the reference range.

Thyroid gland (TG) ultrasound from July 2020 showed ECHO-signs of moderate diffuse changes in the thyroid gland, an emerging node of the right lobe; the total volume of the thyroid gland was 7 cm^3.

Scintigraphy of the parathyroid glands and the thyroid gland with Technetril was performed at the same time. The following conclusion was made: "No scintigraphic signs of parathyroid gland adenoma."

After 2 weeks, during repeated scintigraphy with pertechnetate, no image was obtained on the thyroid gland scintigram. The uptake of the radiopharmaceutical (RP) in the submandibular and cervical lymph nodes was within the normal limits. It was recommended to repeat the study of the thyroid gland with a more thorough preparation of the patient within 3–4 months. The following conclusion was made: "Blocked thyroid gland."

The patient was consulted by an endocrinologist who, based on investigations, diagnosed Graves' disease and recommended thiamazole at a dose of 30 mg/day, which the patient reportedly took at the prescribed dose until March 2021.

Bone densitometry was performed in July 2020. It revealed low bone mineral density for the chronological age (Z-score >-2.0 SD).

A complete gynecological examination revealed uterine hypoplasia and multifollicular ovaries. The androgenic profile included an increased level of sex-hormone-binding globulin (SHBG) up to 264 nmol/L (the normal range is 32.4–128 nmol/L). The following diagnosis was made: "Secondary normogonadotropic amenorrhea associated with thyrotoxicosis. Osteopenia without pathological fractures. Hypophosphatemia. Neutropenia. Latent iron deficiency."

In March 2021, during antithyroid therapy with thiamazole, a blood count revealed neutropenia with a decrease in absolute neutrophils to 1.36×10^9/L (the normal range is 1.5–6.3×10^9/L). The antithyroid agent was discontinued; prednisolone 15 mg/day and metoprolol 50 mg BID were prescribed.

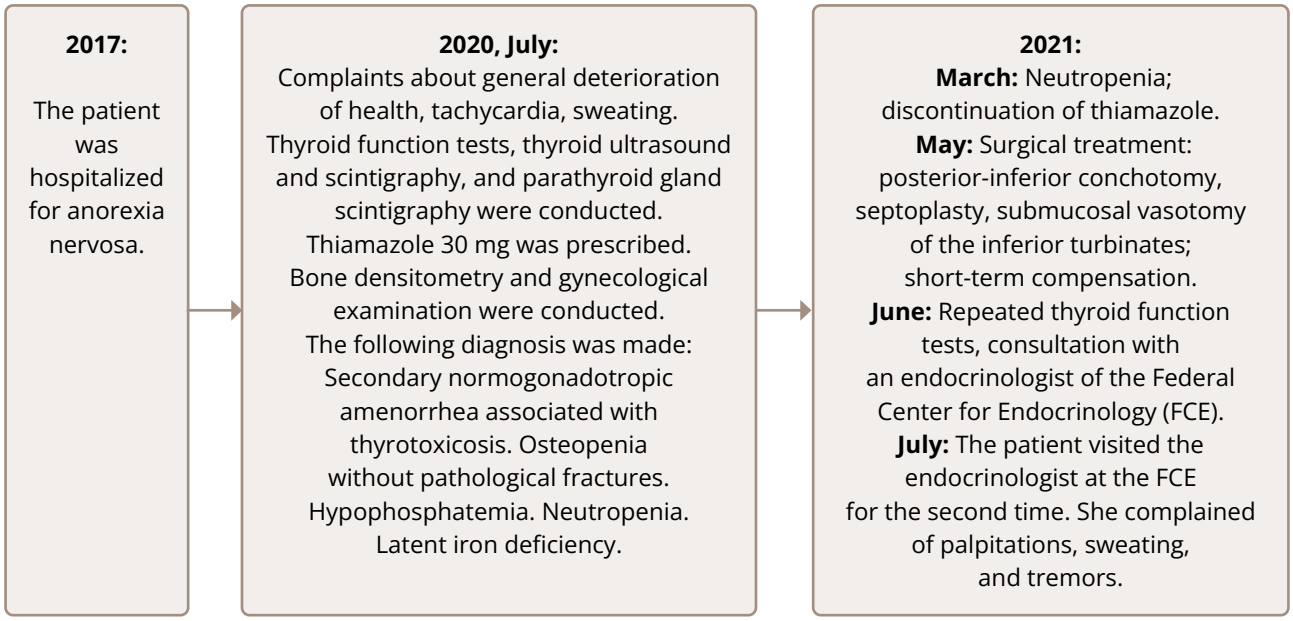


Figure 1. Timeline of the patient seeking medical attention.

In May 2021, the patient underwent surgical treatment in the Ear, Nose and Throat (ENT) Department: posterior inferior conchotomy, septoplasty, and submucosal vasotomy of the inferior turbinates. Before hospitalization for surgical treatment, all laboratory parameters were within the reference values, the ECG showed sinus arrhythmia, and there was a normal heart rate (63–85 bpm). The surgery and postoperative period proceeded without complications. The patient was discharged from the hospital in satisfactory condition. Shortly after his discharge, palpitations, sweating, and tremors resumed.

In June 2021, a second thyroid function test was carried out: TSH 0.0083 μIU/mL, free T4 63.3 pmol/L, free T3 16.3 pmol/L, Ab to TSHr 19.05 IU/L (the normal range is less than 1.75 IU/L).

A decrease in serum iron to 4 μmol/L (the normal range is 7–25 μmol/L) was also revealed. It is known that, because of the indicated changes in the laboratory parameters, the patient was consulted by an endocrinologist for an expert assessment at the Federal Center for Endocrinology (FCE); the primary diagnosis of Graves' disease was not changed. The following treatment recommendations were received: propranolol 40 mg at a heart rate of >90 bpm, iron polyisomaltose 50 mg/mL, metoprolol 50 mg 2 BID, lifelong discontinuation of antithyroid agents, and consultation with an endocrinologist-surgeon. Total thyroidectomy had been suggested as a treatment. The patient noted that the recommended therapy was not effective in relation to palpitations: propranolol at a dose of 40–50 mg reduced the heart rate for no more than 10 minutes.

DIAGNOSTICS AND THERAPY

Specialists at the Central Clinical Hospital of Civil Aviation conducted a repeated ultrasound examination of the thyroid gland, as well as ultrasound of the zones of possible ectopia of the thyroid tissue, repeated scintigraphy, complete blood count and blood chemistry tests, study of blood electrolytes and thyroid hormone profile (TSH, T3, free T4, Ab-TG, Ab-TPO, Ab to TSHr) for additional examination in order to verify the cause of thyrotoxicosis.

The following therapy was prescribed: propylthiouracil 300 mg/day, 100 mg/day from day 5, discontinuation from day 9; dexamethasone (16- to 14- to 12- to 8- to 4-mg IV), prednisolone 10 mg/day, then 7.5 mg/day; and metoprolol 50 mg/day, omeprazole 40 mg/day. Specialists at the ICU also conducted infusion therapy in a volume of up to 2 liters (0.9% sodium chloride solution, 5% glucose solution, Haemodez).

Based on the results of thyroid and whole-body scintigraphy with pertechnetate and Technetril, the following conclusion was made: "The thyroid gland is not visualized and whole-body scintigraphy showed no signs of ectopic functioning thyroid tissue" (Figure 2). The absence of Tc-99m-Technetrile in the thyroid gland may indicate a pronounced disorder of the functional state of thyrocytes (destruction?), while the absence of thyroid gland visualization during the study with Tc-99m-Pertechnetate may indicate a blocked thyroid gland.

Ultrasound of the thyroid gland provided the following data: The total volume is 5.7 cm^3. The parenchyma echogenicity is moderate. The echostructure is slightly diffusely heterogeneous. Areas of reduced echogenicity without clear contours (areas of lymphoid infiltration?): single 3 mm on the left, 3–6 mm on the right; vascularization of the parenchyma is not increased. Lymph nodes are not changed. Areas of thyroid ectopia were not reliably identified during the study of the anterior and lateral parts of the neck.

Hormonal status of the thyroid gland at the time of admission to the hospital: free T4 57.6 pmol/L, TSH 0.05 μIU/mL.

Due to the severe condition of the patient because of thyrotoxicosis, therapy with the antithyroid agent propylthiouracil with blood test monitoring, as well as glucocorticoids (dexamethasone IV, then oral prednisolone), β-blockers, was again initiated.

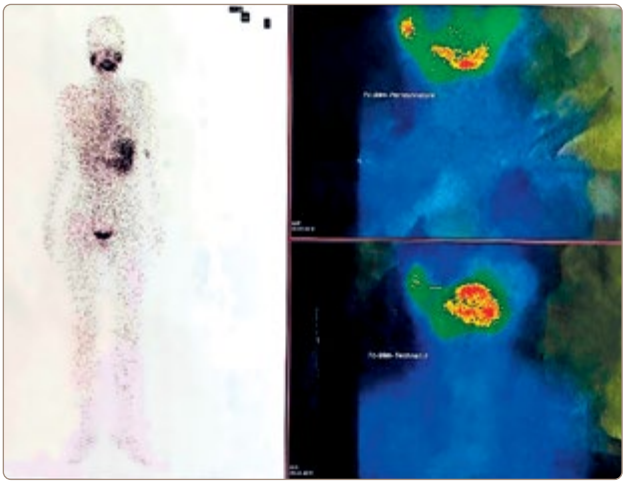


Figure 2. Scintigram with pertechnetate and Technetril.

After 10 days of hospitalization, free T4 decreased to 13.3 pmol/L, free T3 remained within the normal range, and TSH was 0.05 μIU/mL. The repeated blood test for antibodies to TSH receptors: 0.8 IU/L (the normal range is 0–1.75 IU/L), and the Ab-TPO level was within the normal range. Complete blood count showed no signs of neutropenia during therapy with antithyroid agents. Electrolytes and serum iron were within the normal range. Heart rate was within 70–76 bpm.

ANALYSIS OF DIAGNOSTIC AND THERAPY RESULTS

Given the results of our investigations at the time of hospitalization and the patient's medical history, we excluded the previously established diagnosis of diffuse toxic goiter (Graves' disease), since not a single diagnostic sign corresponded to the course of the said disease: there was no diffuse increase in thyroid volume according to ultrasound results; no increased blood flow to the thyroid gland, increased uptake of radiopharmaceuticals by the thyroid tissue according to scintigraphy; or any antibodies to TSH receptors. There was also no ectopic tissue of the thyroid gland.

Differential diagnosis was carried out with destructive diseases of the thyroid gland, which, like Graves' disease, are characterized by a decrease in the uptake of radiopharmaceuticals during scintigraphy. However, the long history of the disease in the patient contradicted this assumption: in most cases, destructive thyroiditis does resolve itself spontaneously, with complete recovery [1, 3], which did not happen in this case.

The fact that during the 2-week hospitalization the level of T4 decreased and that the symptoms of thyrotoxicosis quickly decreased speaks not so much to the effectiveness of the therapy as it does to the fact that the patient stopped taking thyroxine in the hospital (the period of elimination of exogenous levothyroxine from the body is 10 days). Given the low body weight of the patient and their history of anorexia nervosa, we made an assumption that the patient was deliberately taking thyroxine to reduce her body weight.

There was a similar case of absolute compensation of the condition in the patient in May 2021 during a hospitalization in the ENT Department, followed by the re-emergence of thyrotoxicosis symptoms after discharge. It can be speculated that back then the state of compensation for thyrotoxicosis was also a result of the inability to take thyroxine in order to reduce body weight in a hospital setting.

We also focused attention to the discrepancy between the result of the test for antibodies to TSHr from June 2021 provided by the patient's parents and the one provided by the patient herself. The result of the test provided by the parents was negative, while the patient provided results with the presence of antibodies to TSHr. It is also worth considering the fact that the test was performed in a private laboratory, where the result is sent electronically. It is possible that the patient deliberately faked the result of the test to confirm the diagnosis of Graves' disease. It is known that patients with anorexia nervosa are extremely resourceful in hiding the symptoms of the disease, especially if their intelligence and level of education are high enough [14]. Our patient, being a student of the pharmacological faculty of a medical university, undoubtedly had an idea about thyroxine and its properties, as well as about the typical clinical sings of thyrotoxicosis and its diagnosis.

It is also important to note that during the course of treatment, the attending physician and the authors repeatedly interviewed the patient to clarify the likely fact of drug abuse to maintain low weight. The patient categorically denied taking medications without a doctor's prescription, which further complicated the search for a diagnostic. The conclusion about drug-induced thyrotoxicosis was made on the basis of the changes in the results of our investigations and the clinical condition of the patient.

The patient was discharged from the Department with a diagnosis of severe iatrogenic thyrotoxicosis.

PATIENT FOLLOW-UP

A month after the patient was discharged from the Endocrinology Department, her mother contacted us; a conversation allowed us to establish that the girl confessed to her parents that she had used thyroxine without a doctor's prescription in order to lose weight. According to the mother, the patient resumed taking thyroxine due to an increase in body weight by 2 kg and categorically refused to stop the unreasonable use of the drug. The patient refused a consultation with a psychologist or psychiatrist. An explanatory conversation was held with the relatives about the need for psychiatric treatment, but they did not consider it possible to "force" the patient to undergo treatment. However, the relatives intend to contact a specialist in the relevant field privately.

DISCUSSION

The presented case report describes a diagnostic search performed by endocrinologists because of clinical symptoms of thyrotoxicosis in a patient with a history of anorexia nervosa. The peculiarity of this case report was the deliberate concealment of the fact of self-administration of thyroxine by the patient from her doctors, which led to an incorrect medical strategy for this patient at different stages of her medical care. It is known that patients with anorexia nervosa tend to dissimulate the disease, and the resulting medical complications often lead to hospitalization in general hospitals [14].

In a retrospective analysis, conclusions can be drawn regarding the possible acceleration of a correct diagnosis in this patient with an optimal algorithm for diagnostic search and interpretation of investigation results and a comprehensive record of medical history, additional examinations and the effect of drugs.

For example, after the detection of a complete blockade of the thyroid gland on scintigraphy in July 2020, the endocrinologist could have had three diagnostic assumptions:

1. The thyroid gland is blocked by iodine taken by the patient;
2. The patient has destructive thyroiditis, which is accompanied by a lack of radiopharmaceutical uptake; or
3. The thyroid gland is blocked due to the fact that the patient is taking thyroxine; i.e., the thyrotoxicosis is iatrogenic.

Also, in July 2020 when low bone mineral density for the chronological age (Z-score >-2.0 SD) was detected during bone densitometry and a gynecological examination was conducted, normogonadotropic amenorrhea due to thyrotoxicosis was diagnosed without taking the history of anorexia nervosa into account. It is well known that the combination of amenorrhea with osteopenia or osteoporosis is the most common endocrinological manifestations of anorexia nervosa [15].

Performing parathyroid scintigraphy with Technetril seems to be insufficiently justified.

When analyzing the data of previous laboratory tests, it can be concluded that the antithyroid therapy with thiamazole because of thyrotoxicosis carried out from 2020 to 2021 was ineffective. In addition, prescribing a full blocking dose of thiamazole 30 mg in conditions of a completely blocked (according to scintigraphy) thyroid gland was not justified, since there was no target for the drug. Moreover, taking the antithyroid agent at the prescribed dosage until May 2021 led to the development of neutropenia, which could potentially have led to negative consequences for the patient's health, including death.

We can assume that the presence of antibodies to the TSH receptor, a marker of the autoimmune thyroid disease, misled clinicians into issuing the diagnosis of Graves' disease. Insufficient critical analysis and rechecking of the information provided by the patient also led to an incorrect diagnosis.

Clinicians should remember that particularly careful monitoring of the behavior of patients is required in the treatment of patients with anorexia nervosa, including covert observation of relatives, medical staff, roommates, and double-checking of the information provided, correlating them with the data of objective examinations [16].

Summarizing the above, it can be concluded that omission of the history of anorexia nervosa at different stages of a patient management path led, in this case, to a number of incorrect diagnostic and therapeutic decisions.

It should be noted that a blood test for thyroglobulin should be performed for a complete differential diagnosis between destructive thyroiditis and iatrogenic thyrotoxicosis.

In our opinion, the case in this report clearly illustrates the complexity of conducting diagnostic and therapeutic work with patients suffering from eating disorders in general medicine.

Article history:
Submitted: 11.05.2022
Accepted: 13.09.2022
Published: 23.09.2022

Authors' contribution:

V.O. Neudakhina, K.P. Soloveva: writing the text of the manuscript. N.V. Krivosheeva: obtaining instrumental examination data, review of publications on the topic of the article, V.N. Stashevskaya: treatment and differential diagnosis, provision of clinical case data. A.N. Khanova, D.M. Gubzhokova: review of publications on the topic of the article, editing the text of the

manuscript, registration of the list of citations. All authors made a significant contribution to the preparation of the article, they read and approved the final version before publication.

Funding: The research was carried out without additional funding.

Conflict of interest: The authors declare no conflicts of interest.

For citation:
Neudahina VO, Soloveva KP, Khanova AN, Gubzhokova DM, Krivosheeva NV, Stashevskaya VN. Anorexia nervosa as a cause of drug-Induced thyrotoxicosis. Consortium Psychiatricum 2022;3(3):90–96. doi: 10.17816/CP182

Information about the authors

***Veronika Olegovna Neudahina,** Resident of the Department of Endocrinology, Russian Medical Academy of Continuous Professional Education; ORCID: https://orcid.org/0000-0003-0809-0429, e-Library SPIN-code: 9154-4714
E-mail: nikusya5@yandex.ru

Kristina Pavlovna Soloveva, junior research associate, Mental-health Clinic No. 1 named after N.A. Alexeev; Department of Mental Disorders in Neurodegenerative Brain Diseases;
ORCID: https://orcid.org/0000-0002-2481-3693, e-Library SPIN-code: 8980-8877

Albina Nadirovna Khanova, Resident of the Department of Ophtalmology, Scientific Research Institute of Eye Diseases;
ORCID: https://orcid.org/0000-0002-5966-873X

Danetta Maratovna Gubzhokova, Resident of the Department of Ophtalmology Scientific Research Institute of Eye Diseases; ORCID: https://orcid.org/0000-0002-5966-873X

Natalia Vladimirovna Krivosheeva, Dr. Sci. (Med.), Docent, Professor, Department of ultrasound diagnostics, Department of Ultrasound and Functional Diagnosticsns Russian Gerontological Research and Clinical Center, Ultrasound diagnostics doctor Central Clinical Hospital of Civil Aviation; ORCID: https://orcid.org/0000-0003-3740-1193

Victoria Nikolaevna Stashevskaya, Endocrinologist, Central Clinical Hospital of Civil Aviation; ORCID: https://orcid.org/0000-0003-2974-4284

*corresponding author

References

1. Bahn RS, Burch HB, Cooper DS, Garber JR, Greenlee MC, Klein I, Laurberg P, McDougall IR, Montori VM, Rivkees SA, Ross DS, Sosa JA, Stan MN; American Thyroid Association; American Association of Clinical Endocrinologists. Hyperthyroidism and other causes of thyrotoxicosis: management guidelines of the American Thyroid Association and American Association of Clinical Endocrinologists. Endocr Pract. 2011 May-Jun;17(3):456–520. doi: 10.4158/ep.17.3.456. Erratum in: Endocr Pract. 2013 Mar-Apr;19(2):384. PMID: 21700562.
2. National guidelines: Thyrotoxicosis with diffuse goiter (diffuse toxic goiter, Graves-Basedow disease), nodular/multinodular goiter. Moscow: Russian Association of Endocrinologists. 2014.
3. Ross DS, Burch HB, Cooper DS, Greenlee MC, Laurberg P, Maia AL, Rivkees SA, Samuels M, Sosa JA, Stan MN, Walter MA. 2016 American Thyroid Association Guidelines for Diagnosis and Management of Hyperthyroidism and Other Causes of Thyrotoxicosis. Thyroid. 2016 Oct;26(10):1343–1421. doi: 10.1089/thy.2016.0229. Erratum in: Thyroid. 2017 Nov;27(11):1462. PMID: 27521067.
4. Crow S, Mitchell J, Kendall D. Levothyroxine abuse and bulimia nervosa. Psychosomatics. 1997 Mar-Apr;38(2):151–3. doi: 10.1016/S0033-3182(97)71485-3. PMID: 9063047.
5. Barylnik YB, Filippova NV, Deeva MA, Guseva MA. Anorexia nervosa and bulimia nervosa: from the history to the present. Russ Psychiatric J. 2016;(3):36–45. (In Russ).
6. Sycheva TY, Sultanova AN, Slugin AV, Kustova EA. Clinical-psychological features of persons with violation of food behavior. Paper presented an: Human security in extreme climatic, ecological and social conditions, May 05–08, 2020. Novosibirsk; 2020:159–165. (In Russ). doi: 10.38163/978-5-6043858-6-9_2020_159
7. Ilich M. Scientific review of studies of anorexia nervosa in health psychology. Sci Methodological Electronic J Concept. 2019;(7):1–7. (In Russ). doi: 10.24411/2304-120X-2019-12025
8. Emelyanova M, Buttsinova D. Study of personality traits of patients with eating disorders. Skif. 2018;(11):57–60. (In Russ).
9. Matveev AA. Representation of emotions in patients with bulimia nervosa. Moscow University Bulletin. Series 14. Psychology. 2008;(4):38–53. (In Russ).
10. Artemyeva MS, Vasiliev NG. Comorbidity of anorexia nervosa. Health Education XXI Century. 2012;14(1):90–91. (In Russ).
11. Roerig JL, Steffen KJ, Mitchell JE, Zunker C. Laxative abuse: epidemiology, diagnosis and management. Drugs. 2010 Aug 20;70(12):1487–503. doi: 10.2165/11898640-000000000-00000. PMID: 20687617.
12. Eskander N, Chakrapani S, Ghani MR. The Risk of Substance Use Among Adolescents and Adults With Eating Disorders. Cureus. 2020 Sep 8;12(9):e10309. doi: 10.7759/cureus.10309. PMID: 33052271; PMCID: PMC7544549.
13. Gregorowski C, Seedat S, Jordaan GP. A clinical approach to the assessment and management of co-morbid eating disorders and substance use disorders. BMC Psychiatry. 2013 Nov 7;13:289. doi: 10.1186/1471-244X-13-289. PMID: 24200300; PMCID: PMC4226257.
14. Balakireva EE. Anorexia nervosa in children and adolescents (clinical sings, diagnosis, pathogenesis, therapy). Dissertation. Moscow; 2004. Accessed April 26, 2004. https://www.dissercat.com/content/nervnaya-anoreksiya-u-detei-i-podrostkov-klinika-diagnostika-patogenez-terapiya
15. Starostina EG. Anorexia neurosa. In: Dedov II, Melnichenko GA, ed. Endocrinology: national guidelines. 2nd ed. Moscow: GEOTAR-Media; 2016:595–603.
16. Herpertz-Dahlmann B. Intensive Treatments in Adolescent Anorexia Nervosa. Nutrients. 2021 Apr 13;13(4):1265. doi: 10.3390/nu13041265. PMID: 33924294; PMCID: PMC8068891.

SPECIAL ARTICLE

Development of Community Mental Health Infrastructure in Thailand: From the Past to the COVID-19 Pandemic

Развитие амбулаторной психиатрической службы в Таиланде: от прошлого к настоящему во время пандемии COVID-19

doi: 10.17816/CP194

Short communication

Kamonnet Wannasewok[1], Burin Suraaroonsamrit[2], Dutsadee Jeungsiragulwit[2], Pichet Udomratn[3]

[1] Department of Psychiatry, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

[2] Bureau of Mental Health Service Administration, Department of Mental Health, Ministry of Public Health, Nonthaburi, Thailand

[3] Faculty of Medicine, Prince of Songkla University, Songkhla, Thailand

Камоннет Ваннасевок[1], Бурин Сураарунсамрит[2], Дутсади Джеунсирагулвит[2], Пичет Удомратн[3]

[1] Кафедра психиатрии, медицинский факультет больницы Сирирадж, университет Махидол, Бангкок, Таиланд

[2] Бюро по управлению службами охраны психического здоровья, департамент психического здоровья, Министерство здравоохранения, Нонтхабури, Таиланд

[3] Медицинский факультет Университета принца Сонгкла, Сонгкла, Таиланд

ABSTRACT

Thailand is an upper middle-income country located in the center of mainland Southeast Asia with a population of 66.17 million as of 2021. The aim of this review article is to illustrate the development of community mental health in our country. We have divided the article into five main sections: namely, the mental health service infrastructure, the community mental health system, human resources, mental health financing, public education, and links to other sectors. Mental health care has been integrated into primary care since 1982, resulting in a major shift in focus on mental health at the community level; however, mental health problems and the mental health gap in service accessibility remain present, especially during the current COVID-19 pandemic. Community mental health care has been extended to networks outside the health care system, including the community authorities. It has been provided with psychiatric care and rehabilitation, together with the promotion of mental health and prevention of mental disorders for improving accessibility to services, especially during a pandemic situation. Finally, future challenges to face community mental health have been outlined, such as insufficient staff to develop rehabilitation service facilities for people with chronic, serious mental illnesses; identifying supporting funding from other stakeholders; and mental health care for persons with long COVID living in the community.

АННОТАЦИЯ

Таиланд — страна с уровнем дохода выше среднего, расположенная в центре материковой части Юго-Восточной Азии, с населением 66,17 млн человек в 2021 году. Цель данной обзорной статьи — проанализировать этапы развития амбулаторной психиатрической службы в нашей стране. Статья разделена на пять основных разделов, а именно: система охраны психического здоровья, система амбулаторной психиатрической службы, кадровые ресурсы, финансирование психиатрической помощи, просвещение населения и связи с другими

секторами. С 1982 года психиатрическая помощь интегрирована в первичную медико-санитарную помощь, что привело к значительному увеличению внимания к психическому здоровью на общественном уровне; однако проблемы в области психического здоровья и недостаточная доступность психиатрической помощи все еще существуют, особенно во время пандемии COVID-19. Амбулаторная психиатрическая служба охватила структуры, не входящие в систему здравоохранения, в том числе и органы местного самоуправления. Данная служба включает психиатрическую помощь и реабилитацию, а также укрепление психического здоровья и профилактику психических расстройств, ее задача заключается в повышении доступности помощи, особенно во время пандемии. Наконец, рассмотрены требующие решения проблемы амбулаторной психиатрической службы, такие как нехватка персонала для создания реабилитационной службы для людей с хроническими тяжелыми психическими заболеваниями, привлечение финансирования от других заинтересованных сторон, а также забота о психическом здоровье людей с постковидным синдромом в условиях привычной социальной среды.

Keywords: *community mental health; COVID-19 pandemic; mental health service; rehabilitation; Thailand*
Ключевые слова: *амбулаторная психиатрическая служба; пандемия COVID-19; служба охраны психического здоровья; реабилитация; Таиланд*

INTRODUCTION

Thailand is an upper middle-income country (UMIC) located in the center of mainland Southeast Asia with a population of 66.17 million as of 2021[1–6]. Like other UMICs, mental health problems are significant and the mental health gap in service accessibility remains an issue [7]. This gap proved wider during the COVID-19 pandemic, in which a strengthened community mental health service could have been key in remedying the situation.

Looking into the community mental health system of Thailand with the help of the World Health Organization Assessment Instrument for Mental Health Systems (WHO-AIMS) Version 2.2, 2005, could help provide a comprehensive overview of the system and a plausible solution as to how to reduce the gaps in mental health provision in the country. WHO-AIMS consists of a policy and legislative framework, mental health service, mental health in primary care, human resources, public education and links with other sectors, as well as monitoring and research [8].

The aim of this article is to review the development of community mental health in Thailand. This article was divided into five main sections: the mental health service system in Thailand, the community mental health system, human resources in the community mental health system, mental health financing, public education, and links to other sectors. The details of each section are illustrated below.

MENTAL HEALTH SERVICE SYSTEM IN THAILAND

Prevalence of mental disorders and mental health problems

According to the 2013 Thailand National Mental Health Survey, the lifetime rate of prevalence of mental disorders stood at 7.4% (3.9 million people) of the population. The lifetime rate of prevalence of major psychiatric diseases was 1.1% for psychosis [9], 0.2% for bipolar disorder, 1.6% for major depressive disorder, and 3.1% for anxiety disorders [7]. For any substance use disorder, lifetime prevalence was 26.5% of the population, while for alcohol use disorders, drug use disorders, and nicotine dependence stood at 18.0%, 4.1% and 14.9%, respectively [7]. In children, the prevalence of autism spectrum disorder was 0.47% in children (0–5 years) and 0.8% in school-age children (5–12 years), respectively [10]. While the prevalence of Attention Deficit Hyperactivity Disorder (ADHD) among Thai children was 8.1%, the frequency of depression among Thai adolescents stood at 17.5% [11, 12].

Not only mental disorders, but follow-up mental health problems were also placed at the center of concern in the country's community mental health system. The prevalence of suicides in 2020 was at least 7.37 per 100,000 population [13]. In the same year, the Department of Mental Health developed a passive surveillance system for mental health problems focusing on a high level of stress, reported symptoms of depression, and

risk of suicide, including burnout, called "Mental Health Check-In." This instrument served as a digital platform self-assessment tool online to detect the risk of the aforementioned mental health problems among Thais. From January 1, 2020, to April 30, 2022, there were 3,186,935 cases who assessed their mental health status through the "Mental Health Check-In" system during the COVID-19 pandemic. The results showed that the prevalence rates of a self-reported high level of stress, risk of depression, risk of suicide, and burnout were 7.48%, 8.83%, 4.87%, and 4.19%, respectively [14].

Organization of mental health care

Mental health services in Thailand were incepted in 1889, when the first psychiatric hospital began to operate, followed by many regional hospitals throughout the country [1]. In 1977–1978, the project Monitoring Mental Health Needs (in cooperation with the World Health Organization) demonstrated that community mental health services were required. Since then, mental health services have extended from the psychiatric hospital to the public health care system. Mental health care has been integrated into primary care since 1982, resulting in a major change to begin focusing on mental health at the community level [1,15].

Currently, there are 13 areas in the country where health services are available, including Bangkok [16]. The 13 regional mental health centers under the Department of Mental Health, Ministry of Public Health, play an important role in community mental health provision in the implementation of mental health policy by coordinating, facilitating, and supporting the local community mental health network that includes provincial general hospitals, community hospitals, and primary care units in each province to integrate mental health into their activities [1, 16–17]. Psychiatric hospitals also play an important role in supporting the community care provided by the local community / general hospital, and training health personnel working in mental health care [1, 16]. The role of the Thai Ministry of Public Health (regulator, service provider, integrator) is shown in Figure 1. However, mental health care services are available in university hospitals and military hospitals under other ministries, such as the Ministry of Higher Education, Science, Research and Innovation, as well as the Ministry of Defense.

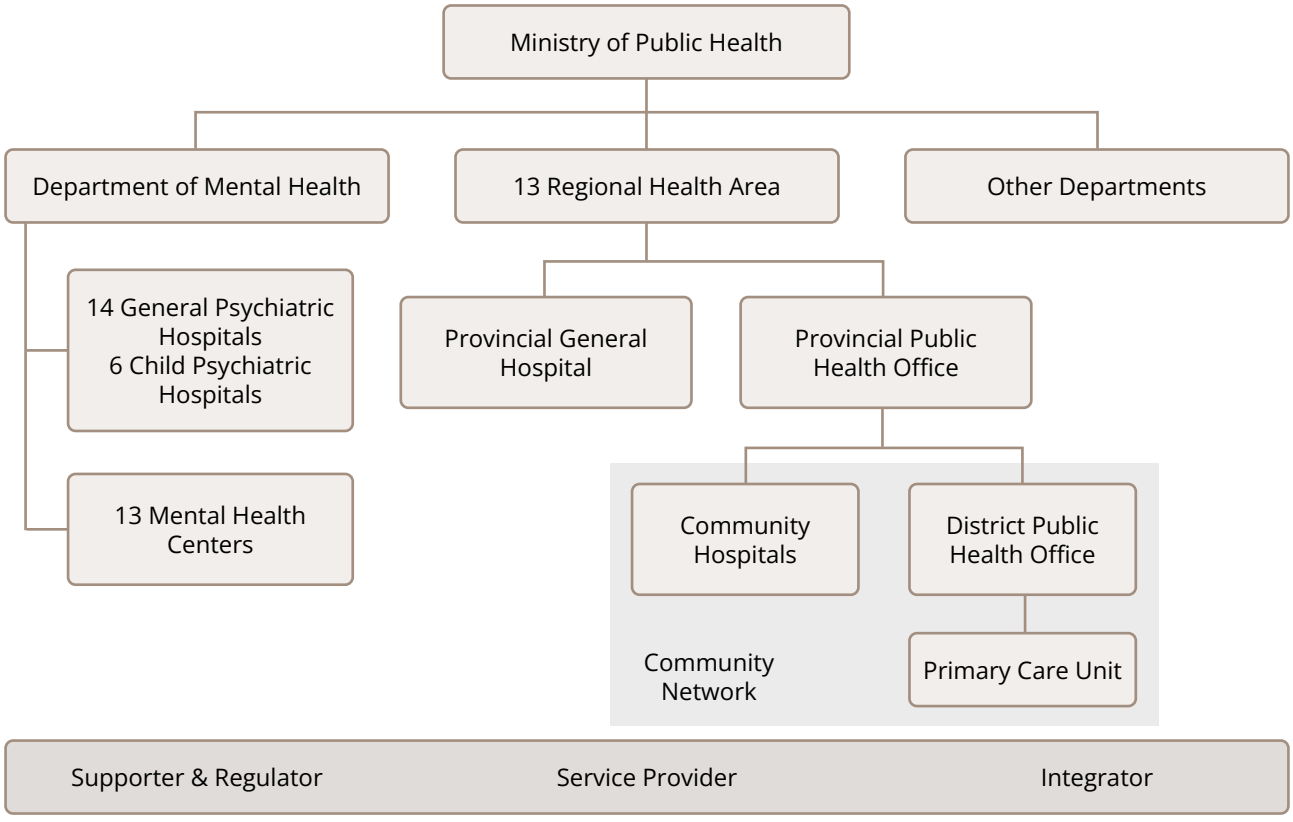


Figure 1. Functions of the Thai Ministry of Public Health (regulator, service provider, integrator) [17, 19].

Thailand has 20 mental / psychiatric hospitals, distributed throughout all the regions of the country, providing specialized psychiatric care as centers of excellence with continuous quality improvement of service. Moreover, there are 20 outpatient mental health facilities attached to mental hospitals, six of them specifically for children and adolescents [18]. There are medical school hospitals and military hospitals that also provide specialized outpatient mental health services. Details of both hospital and outpatient facilities will be described later.

Mental Health Policy and Legislative Framework

Mental health policy was initially formulated in 1995. The policy aims to promote mental health, prevent mental health problems, and provide access to quality mental health care through treatment and rehabilitation that are integrated into public health care. Strategies focus on 1) academic and technical development through research and knowledge management; 2) distribution and empowerment of integrated mental health care in the public health system and mental health network; 3) development of mental health personnel; 4) reforming the organizational management system 5); and development of community mental health services and a mental health component in primary health care, including quality improvement [1, 15]. Mental health services are organized in terms of catchment/service areas [15].

Mental health legislation has been in place since 2008. The Department of Mental Health, as an expression of the Ministry of Public Health, is responsible for the implementation and administration of the Mental Health Act (2008), and it issues regulations and notifications for the execution of the Act. The National Mental Health Board is the mechanism used to formulate policy and measures related to the protection of the rights of people with mental disorders and ensure their access to mental health services and social inclusion. The board also has the duty to inspect and monitor the standards in mental health practice [16]. Its charge thus includes ensuring access to mental health care, including access to the least restrictive type of care; protecting the rights of consumers of mental health services, the family and other care providers; ensuring competence; monitoring capacity and guardianship issues for people with mental illnesses; voluntary and involuntary treatment; law enforcement and other issues of the judicial system for people with mental illnesses; and devising the mechanisms to oversee involuntary admission and treatment practices and the mechanisms to implement the provision of mental health legislation [15, 20–21].

In 2018, the Mental Health Act Revised Version was signed into law. It authorized the National Mental Health Commission to put in place measures to promote mental health and to work on prevention in both the health and non-health sectors. In the new version, community mental health was highlighted, as it included the strengthening of actions in the field of mental health in non-health sectors [21].

According to the 20-year national mental health plan (2018–2037), approved by the National Mental Health Commission in 2018, the four strategies included in the plan were as follows: 1) promotion of mental health and prevention of mental disorders throughout peoples' lifespan; 2) strengthening of the mental health service infrastructure; 3) devising social welfare and legislation strategies; and 4) academic and technical development through research and knowledge management. The vision in this mental health plan can be captured in the statement "All Thais have good emotional intelligence, happiness, and a valuable life in society" [22].

Mental health inpatient facilities

All mental / psychiatric hospitals are organizationally integrated with mental health outpatient facilities. Some medical school hospitals and military hospitals, including some hospitals at the regional levels also provide inpatient psychiatric care [15, 17–18].

Most of the psychiatric beds in the country are provided by mental / psychiatric hospitals, with 6.26 mental hospital beds per 100,000 population and have 126.27 annual admissions per 100,000 population [18]. However, there are four hospital facilities available specifically for children and adolescents, which provide 2.98 hospital beds for children and adolescents per 100,000 population and have 106.65 annual admissions per 100,000 population [18]. In the last three years (2019–2021), the number of beds in mental hospitals has remained the same; however, the occupancy rate has decreased from 87.06% in 2019 to 75.05% in 2020 and 64.09% in 2021 due to the pandemic [19]. It has been established that 75.25% of the total number of patients have had a stay at a mental hospital of less than 1 year [18]. During 2019–2021, the

average number of days spent in mental hospitals was 26, 25, and 23, respectively. However, data on diagnoses were not available [19].

In addition, there are inpatient psychiatric units in 18 general hospitals. However, data on the number of beds in general hospital psychiatric units and annual admissions per 100,000 population were unavailable to us [18]. There are 116 community residential facilities with 1.67 community residential beds per 100,000 population [18]. In terms of treatment, all community inpatient units boast at least one psychotropic drug of each therapeutic class available in the facility throughout the year [15]. Although a growing number of government hospitals have expanded to provide mental health services in response to a growing need, such hospitals are still struggling to offer adequate inpatient psychiatric beds [16]. After discharge from the inpatient psychiatric unit, most patients will be followed up in the same hospital until they are stable enough to be referred for follow-up to their family physicians or general practitioners in their community hospitals.

Mental health outpatient facilities

As previously described, there are outpatient facilities at mental hospitals, medical school hospitals, and military hospitals in Thailand. Moreover, 720 community / nonhospital mental health outpatient facilities and 378 other outpatient facilities (for example, mental health daycare or treatment facility) are also available [18]. However, no facility has mobile mental health clinic teams. As is the case with inpatient facilities, all outpatient facilities also have at least one psychotropic drug of each therapeutic class available throughout the year [15]. The number of visits made by service users in 2020 to outpatient mental health facilities attached to a hospital and to an outpatient facility specifically catered to children and adolescents amounted to 12,838.23 and 1,113.69 visits per 100,000 population, respectively [18].

THE COMMUNITY MENTAL HEALTH SYSTEM

Community mental health provision has been a reality in Thailand since 1964, a history of more than half a century. It was started with the dispatching of mental health mobile teams to provide services in remote areas where people had no access to such services. However, coverage was limited due to a lack of resources. In 1976, in collaboration with the WHO, a project called "Monitoring Mental Health Needs" was started to provide mental health services in communities. Thus, community mental health services began to expand from psychiatric hospitals to the public health care system [1]. Today, community mental health has reached the point where it covers the needs of the population throughout their lifetime in all aspects: promotion, prevention, treatment, and rehabilitation [21].

Community mental health facilities

Community mental health care has been integrated into the public health care system under the Ministry of Public Health's infrastructure from the village level to the regional level, as demonstrated in Figure 1. Within the public health care sector, local health personnel work in the community with the support of the Department of Mental Health, the multidisciplinary mental health team in regional hospitals, the mental health team in general/ community hospitals, local health personnel in primary health care centers, and village health volunteers in the local community [1].

Due to the shortage of mental health personnel, strengthening the capacity of local people to provide quality and sustainable care in collaboration with stakeholders in the community mental health network is the most important goal [1, 16]. Additionally, community mental health has been extended to networks outside the health care system, including schools, temples, and community leaders. Cooperation with community leaders is an important factor in the success of what is done at the level of community mental health care [1]. As a result, community hospitals throughout the country have continued to strengthen their ability to provide primary and community-based mental health care, while regional and provincial hospitals have developed psychiatric clinics, inpatient units, and psychiatric supervision.

After the 2012 health care reform, the role of the Department of Mental Health expanded to include the development of mental health policy and regulation of the mental health services sector at the provincial and district levels [16].

However, compared to the WHO "pyramid" model, there are no stand-alone community mental health centers available in Thailand because our country has already integrated its mental health infrastructure up to the community level (Figure 2) [1].

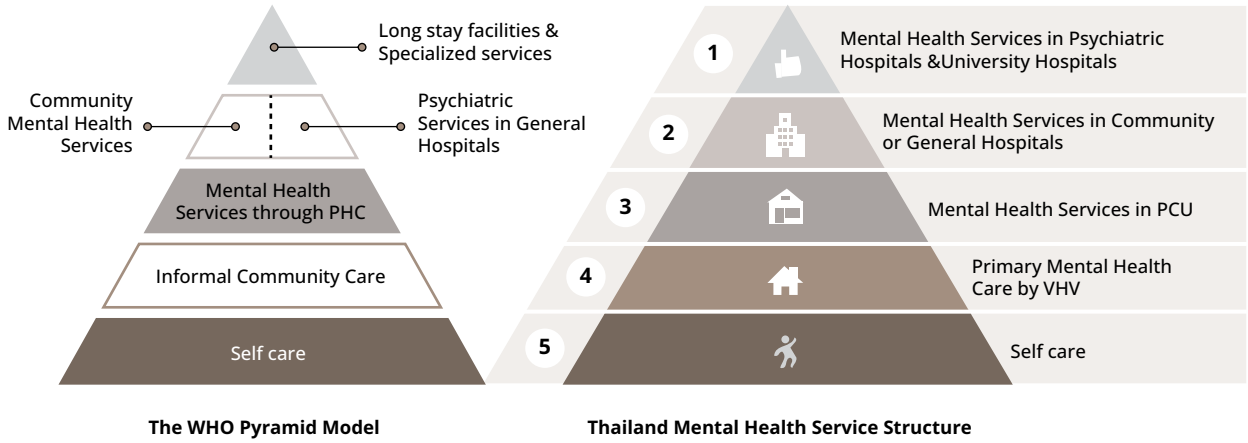


Figure 2. Structure of mental health services in Thailand compared to the WHO pyramid model [adapted from reference number 1].

Note: PHC=Primary Health Care; PCU=Primary care unit; VHV=Village Health Volunteers.

The stages of health services delivery are sorted into four levels as follows [16]:

1) *Self-care at the family level:* includes the empowerment of people's ability to provide self-care and make decisions about their own health.
2) *Primary health care level:* includes activities organized by the community to provide services related to health promotion and prevention.
    a) Primary mental health care at the village level: This level encourages participation of the community in mental health activities by village health volunteers, the central community mental health care personnel [1].
    b) Subdistrict level (Health center, community health facilities): This level provides primary medical services, including mental health screening and monitoring to ensure continuity in psychiatric care by the health personnel of the primary care units and health centers [1].
    c) District level (Community Hospital): This level provides outpatient services for common psychiatric disorders, continuity of care for chronic patients, and mental health care for general hospital patients by primary physicians [1]. These physicians are allowed to prescribe psychotropic drugs. Nonetheless, human resource capacity, especially the development of psychiatric nursing at the district level, is emphasized due to the lack of specialized mental health personnel and budget shortfall [1]. Mental health nurses can prescribe low-risk psychotropic drugs countersigned by a family physician or general physician [15].
3) *Secondary health care level (General hospitals and some regional hospitals):* Secondary health care is managed by specialized medical and health personnel. General hospitals at the provincial level provide outpatient services for common psychiatric disorders, continuity of care for chronic patients, and mental health care for general hospital patients [1].
4) *Tertiary health care (University hospitals, psychiatric hospitals or institutes, and some regional hospitals):* This level provides specialized, comprehensive psychiatric care [1].

Mental health care at each level includes not only psychiatric care and rehabilitation, but also preventive care and promotion of mental health. In the deinstitutionalization policy, the strengthening of community mental health services provision is much more emphasized than is the downsizing of psychiatric hospitals [1]. According to the Mental Health Atlas, the number of community-based mental health facilities per 100,000 population stood at1.69/100,000 in 2020 [18].

All hospitals / institutes must improve their quality of service according to the standards established by the Institute of Hospital Quality Improvement and Accreditation, which is called Hospital Accreditation (HA). Mental health is one of the domains evaluated by HA [1].

Community mental health in primary care

Based on the WHO's Health for All by the Year 2000 policy of 1978, Thailand added "mental health" to the essential components of its "basic primary health care'," which led to the integration of mental health services at the community level [1].

In 1997, the Mental Health Center was established according to regional health zones to facilitate and support the community mental health network, especially in promotion and prevention [1]. After the reform of the Department of Mental Health in 2012, several bureaus were established to effectively administer the mental health system [17]. All of these bureaus are involved at different levels of mental health care provision in primary health care units as follows.

Promoting Self-Care at the community level: The aim is to promote mental wellbeing in the general population [1]. In preschoolers, parents and families are provided with means for early-childhood-development monitoring and helped to promote their children's development at home [19]. Recently, "Mental Health Check-in" has been promoted for self-monitoring and self-care in the sphere of mental health [19]. Volunteers and healthcare personnel also collaborate to provide mental health and social support to patients with psychiatric disorders and their caregivers, both in the community and in the hospital, as well as the implementation of psychosocial support and prevention programs [16].

Mental health care in the primary care unit: Detection of mental health problems by village health volunteers plays a critical role in community mental health [1]. Due to the presence of village health volunteers in each community (one per 10 households), the mental health services in primary health care provided by trained village health volunteers and primary care staffs include mental health education; early detection of mental health problems such as psychosis, autism, depression, and suicide; provision of psychological support; and facilitating continued care or community rehabilitation [1]. They also play supporting roles for patients and caregivers in the proper use of psychotropic drugs and encourage patients to continue their medications regularly [16].

Integrating mental health care into the medical care service: The majority of patients in primary care are persons with noncommunicable diseases (NCD): eg, diabetes mellitus, hypertension, dyslipidemia, etc. Medical illnesses and mental disorders are significantly interrelated and both conditions can be found in comorbidity with each other. Therefore, holistic care for these patients needs an element of psychosocial care, especially for difficult cases of NCD. Brief advice, brief intervention, and disease-related behavioral modifications are examples of mental health care that can be provided in NCD clinics [17].

Referral to secondary health care: For complicated mental disorders, referral from the primary to secondary level of the health care system is crucial. Currently, 91.7% of community hospitals and 100% of general hospitals can provide outpatient services for the early management of common psychiatric disorders, continued care of chronic patients; crisis intervention, supervision of primary health care and primary medical care, and integration of mental health care into general medical care [1]. For inpatient services, there are 102 community/ general/ regional hospitals in many provinces in Thailand with at least one psychiatrist to provide inpatient services within the province [23].

Treatment and rehabilitation of mental disorders in the community mental health system

Treatment of and rehabilitation from mental disorders has focused on schizophrenia and depression/depressive disorders.

For schizophrenia: Regular home visits by village health volunteers or primary care staffs were effective in improving drug compliance, as proved in the "F20 project." The project has expanded to include patients with serious mental illnesses with violence (SMI-V), in which police and the community must collaborate with the community hospital staff to transfer these patients to a hospital safely [24].

For depression/ depressive disorders: High-risk persons after a 2Q/9Q screening test [25–26] have been referred to community hospitals for diagnosis and proper management. Pharmacotherapy and mental health counseling can be provided at the level of a community hospital. For people with complicated conditions, referral to general or mental hospitals can be made as part of the staggered care model [27].

Beyond normal situations, the mental health team at the community hospital is trained to be a "Mental Health Crisis Assessment and Treatment Team" (MCATT) in order to provide mental health care in natural or man-made crises. The MCATT is also a part of the public health emergency response team [19].

Mental health promotion and prevention in community mental health

Mental health promotion and prevention is undertaken according to age groups; that is, maternal and early-childhood, school-aged children and adolescents, adults, and the elderly.

For maternal and early childhood: Detection of depression during pregnancy has been integrated into antenatal care, which is performed at all levels of the health care provision [27]. Since 2015, the Early Childhood Development Monitoring and Promotion Program has been applied at the level of the vaccination clinic in primary care centers and, also, in early childhood centers. By applying the holistic approach in following the development of preschool children with the aim of increasing the awareness of parents about their child's level of development and literacy and encourage self-intervention in the lives of those children. Currently, approximately 60% of children are at risk of stunt development. They have been identified and recruited into the public health care system [19, 28].

In school-age children and adolescents: There is a link between hospitals and schools called the Health and Educational Regional Operations (HERO) program for schools, which is an intersectoral collaboration between the health and educational sectors. It is a timely and innovative platform for the monitoring, support, and care for vulnerable students. The platform serves as a tool for teachers in screening for mental health problems and for management of uncomplicated behavioral and emotional problems through behavioral modification or counseling, respectively [29]. Children who cannot be helped through school-based care are referred to a community hospital through the digital platform School Health HERO [29]. The community hospital staff who provide consultation on mental health care for such a group of children have been called "HERO consultants".

For adulthood: Lookout for depression and screening tests using 2Q/9Q questionnaires have been in place for more than a decade [25–26]. A 10-year review of the project showed that the accessibility rate for those suffering from depression has gone from less than 5% to approximately 50% [27]. During the COVID-19 pandemic, the Department of Mental Health has monitored mental health problems using Mental Health Check-In to allow the general population to check their mental health status and improve their knowledge about mental health. For those at risk of the abovementioned mental health problems (a high level of stress, reported symptoms of depression, and risk of suicide, including burnout) and who request mental health care, mental hospital and community hospital staff would call back to provide counseling. During the pandemic, 89.15% of those who have requested mental health care have received counseling services [30].

Among the elderly: Mental health promotion focusing on happiness and well-being has been blended into the health promotion package, as well as depression screening. An elderly club has been opened in almost all subdistricts, and healthy elderly people can join such a club. However, two-thirds of the elderly who are partially or totally disabled and cannot join such a club, village health volunteers or primary care personnel will visit them at home to provide health and mental health care [19].

Additionally, the National Suicide Prevention Strategic Plan and Campaign was amended in 2020 as a preventive measure and plan to tackle post-COVID mental health consequences and the suicide rate in Thailand. The campaign consists of an evaluation of suicide conditions, interventions, and referral between the multisector network and health sector [19]. In addition, it has been integrated into the National Committee on Mental Health Act to drive policy and campaign nationally.

Monitoring and Research in Community Mental Health

Mental health policy in Thailand has changed to include integration into the general health care system. This makes the delivery of services focused on accessible health care for the Thai population and the coverage of health service facilities, rather than housing all services in psychiatric hospitals as previously. Successful monitoring is the development of outpatient psychiatric units in district and provincial hospitals, inpatient psychiatric units in each provincial hospital, and the development of rehabilitation and recovery services in psychiatric hospitals [19]. The integration of data regarding most psychiatric services in our country manifests itself in a single health data center located at the Ministry of Public Health, which can be used for further research into community mental health [31].

HUMAN RESOURCES IN COMMUNITY MENTAL HEALTH

Mental health professionals

Some professionals work in both inpatient and outpatient settings. There is a disproportionate amount of resources concentrated in the major cities, which starves rural areas of mental health services [15].

Psychiatrists and other medical doctors

Although the number of psychiatrists (general psychiatrists, child and adolescent psychiatrists, and geriatric psychiatrists) is now better distributed than in the past, most psychiatrists still practice and live in the major cities, including Bangkok [23]. However, there are still not enough children and adolescent psychiatrists, including geriatric psychiatrists, while the need for such professionals is increasing [18]. Most psychiatrists work full-time in hospitals or government-funded mental health facilities [16]. Most psychiatrists (69%) work for government general hospitals, and only 29.1% are employed by psychiatric hospitals [16].

To solve the problem of the shortage of psychiatrists and boost mental health promotion and the prevention of mental disorders, the Department of Mental Health has received permission from the Thai Medical Council to train general doctors to become specialists in preventive medicine focusing on community mental health. These medical doctors will provide system-based mental health services in the community. Their role will be to focus more the mental health promotion and the prevention of mental disorders. In 2021, there were 1,262 doctors that qualified as sub-specialists in preventive medicine focusing on community mental health [32].

General physicians who attend short psychiatric workshop courses [1]. Primary health care physicians have limited experience in undergraduate psychiatric education and interaction with mental health services [15]; therefore, short course psychiatric workshops should be required. Up to now, approximately 1,000 community physicians (general practitioners) have attended such psychiatric/ mental health workshops [16].

Psychiatric nurses

Nursing training courses include a master's degree (2 years) in mental health nursing or an advanced diploma (at least 4 months) in mental health or in child and adolescent mental health nursing [1]. Moreover, an advanced diploma in geriatric mental health nursing has been unveiled recently. According to a survey conducted in 2013, most nurses who work in community mental health settings have been specifically trained in mental health [16].

Psychologists

Their qualification is a 4-year bachelor's degree, but certification and registration are required if they want to practice clinically [1]. According to the Geographic Information System (GIS) database of the Bureau of Health Strategy of the Ministry of Public Health, as of 2022, there are 729 psychologists working in health facilities, both psychiatric hospitals and provincial and sub provincial hospitals [31, 33, 34].

Social workers

Most of them work in psychiatric and provincial hospitals. Social workers who work in provincial hospitals mostly provide general welfare services, while their counterparts who work in psychiatric hospitals provide mental health services, including psychosocial treatment and rehabilitation [1].

Occupational Therapists (OT)

There are a total of 1,067 occupational therapists working in Thailand [35]. Most OTs are involved in the rehabilitation of patients with medical conditions [1]. However, the number of OTs who work with people with mental illness is limited, and most of them work in psychiatric hospitals [19]. Due to the shortage of OTs working in the mental health field, therefore, some of the responsibilities of the rehabilitation services have been shifted to psychiatric nurses and social workers, working in concert to provide service for people with chronic mental illnesses.

MENTAL HEALTH CARE FINANCING

According to the WHO's Mental Health Atlas 2020, funding for mental health amounts to only 2.3% of total government health expenditures, which is not adequate [18]. However, 81.2% of the aforementioned 2.3% of funding from the government is directed at mental hospitals [18]. The mental health budget allocated for promotion and education is approximately 3% of the total mental health budget [16]. Data on the mental health budget for community mental health is not available [16].

Thailand already has a developed health services sector and insurance plans that can provide health services to all Thai citizens. There are currently three main health care benefit schemes in the country: 1) the Universal Coverage Scheme, which is a tax-based scheme funded by the Ministry of Public Health, for all Thai citizens; 2) a Social Security Scheme, which is mandatory insurance under the Ministry of Labor for all employees; and 3) the Civil Servant Medical Benefit Scheme for government employees and their dependents (parents and up to three children) [16]. In 2021, 99.57% of Thai citizens were covered by the three main government health insurance schemes [36].

These main health benefits schemes include the cost of mental health care, including free access to the psychotropic drugs on the national essential drug lists that cover all mental disorders at all levels of care [1]. The cost of the referral system, outpatient care, and admission care has also been included [1, 16]. Mental health care funding is allocated to local health facilities, which are responsible for providing the services [1].

PUBLIC EDUCATION AND LINKS WITH OTHER SECTORS

The stigma of mental illness has been found to be widely spread in Thailand [16]. To tackle the problem, public education under multi-sectoral collaboration has been undertaken. The Department of Mental Health established a social mental health bureau to improve mental health literacy through public education [17]. Mental health-related news or phenomena in the country are monitored, and education is readily available to the public about mental health problems or disorders, self-care, and the accessibility of services. The result of that public education can be witnessed in the accessibility rate for patients with depressive disorders, which has gone from less than 5% to more than 50% in approximately 10 years [27].

Furthermore, since there is increasing evidence that mental health literacy can reinforce wellbeing, many efforts must be made to increase awareness about mental health. Therefore, policy to enshrine universal prevention in the Thai population based on the age group has been welcome. In community hospitals, mental health promotion, prevention, treatment, and rehabilitation have been integrated into the general health system.

FUTURE ISSUES FACING COMMUNITY MENTAL HEALTH

Despite the increase in the accessibility of mental health services, some challenging issues remain. First, there is the small number of mental health facilities at the community level, which stood at 1.69 per 100,000 people in 2020 [18], especially facilities providing rehabilitation services. It would be important to develop community health services facilities in the future to help people with chronic, serious mental illnesses reclaim their lives and re-integrate their communities. Second, government funding for mental health is only 2.3% of total government health expenditures [18]. Therefore, it is necessary to advocate for a policy that would encourage investment from other stakeholders in order to improve community mental health services that cover all groups of people in Thailand. Lastly, as the number of long-COVID patients continues to increase and the prevalence of psychiatric symptoms in this group such as sleep problems, anxiety, depression stood at 27.4%, 19.1%, and 12.9%, respectively, the state needs to become even more active. Thus, further research is needed to improve the mental health of patients with long COVID-19 living in communities around the country [37].

CONCLUSION

Although there are no stand-alone community mental health services nodes in Thailand similar to the WHO's "pyramid" model, community mental health care has been integrated into the general public health care system under the Ministry of Public Health, from the village level to the regional level. After the 2012 health care reform, the role of the Department of Mental Health now includes the development of a mental health policy and the regulation of the mental health services sector at the provincial and district levels. Due to the shortage of mental health personnel in the country, village health volunteers and local health personnel have been strengthening the capacity to provide quality and sustainable mental health care, with the support and collaboration of stakeholders in the community mental health network, including the multidisciplinary mental health team in the Department of Mental Health, and community/ general/regional hospitals. Furthermore, mental health care has been expanded into a network outside the health care system, including schools and community leaders. Several main health insurance schemes support the

cost of mental health care at all levels of care, together with a referral system within the public sector. Mental health care at each level includes not only psychiatric care and rehabilitation, but also prevention and promotion of mental health to fill the mental health gap and improve access to services, especially during a pandemic. However, investment in mental health from the government remains insufficient. There are at least three challenges in the future regarding community mental health care provision, such as developing community rehabilitation services facilities for people with chronic, serious mental illnesses; increasing funding from other stakeholders; and mental health care for persons with long COVID.

Article history:

Submitted: 21.06.2022
Accepted: 23.09.2022
Published: 27.09.2022

Authors' contribution:

K. Wannasewok literature review, writing manuscript; B. Suraaroonsamrit, D. Jeungsiragulwit providing data and illustration, writing the manuscript; P. Udomratn initial concept of the paper, reviewing and giving comments for the manuscript. All the authors made a significant contribution to the article, checked, and approved its final version prior to publication.

Funding: The research was carried out without additional funding.

Conflict of interest: The authors declare no conflicts of interest.

For citation:

Wannasewok K, Suraaroonsamrit B, Jeungsiragulwit D, Udomratn P. Development of community mental health infrastructure in Thailand: from the past to the COVID-19 pandemic. Consortium Psychiatricum 2022;3(3):98–109. doi: 10.17816/CP194

Information about the authors

***Kamonnet Wannasewok**, Doctor of Medicine (MD) (Second Class Honours), Associate Professor of Psychiatry, Department of Psychiatry, Faculty of Medicine Siriraj Hospital, Mahidol University; ORCID: https://orcid.org/0000-0001-6129-0089, Scopus Author ID: 57207845643
E-mail: Kamonnet.wan@mahidol.edu

Burin Suraaroonsamrit, Doctor of Medicine (MD), Senior Academic Consultant, Bureau of Mental Health Service Administration, Department of Mental Health, Ministry of Public Health; ORCID: https://orcid.org/0000-0003-3655-4243

Dutsadee Jeungsiragulwit, Doctor of Medicine (First Class Honours), Director of Bureau of Mental Health Service Administration, Bureau of Mental Health Service Administration, Department of Mental Health, Ministry of Public Health; ORCID: https://orcid.org/0000-0002-4425-1034

Pichet Udomratn, Doctor of Medicine (MD) (Honors), Emeritus Professor of Psychiatry, Faculty of Medicine, Prince of Songkla University; ORCID: https://orcid.org/0000-0002-3423-0037

*corresponding author

References

1. Community Mental Health: Thailand Country Report 2008 [Internet]. Department of Mental Health, Ministry of Public Health. [cited 2022Sep.22]. https://dmh.go.th/download/Ebooks/CommuMH2551/rptCommunity2008eng.pdf.
2. Keyes JE. Thailand — Britannica [Internet]. Encyclopædia Britannica. [cited 2022Sep.22]. https://www.britannica.com/place/Thailand.
3. Thailand in Brief. Demographic. [Internet]. Thailand Board of Investments. [cited 2022Sep.22]. https://www.boi.go.th/index.php?page=demographic.
4. The Bureau of Registration Administration. The announcement of the Central Registration Office: Number of population in the Kingdom of Thailand. [Internet]. Bangkok: Department of Provincial Administration; 2022. [cited 2022Sep.22]. http://www.ratchakitcha.soc.go.th/DATA/PDF/2565/E/012/T_0010.PDF.
5. The World Bank in Thailand: Overview. [Internet]. The World Bank. [cited 2022Sep.22]. https://www.worldbank.org/en/country/thailand/overview#1.
6. Thanaudom K, Jampathong N, Udomratn P. One hundred and thirty years of psychiatric care in Thailand: Past, present, and future. Taiwanese J Psychiatry (Taipei). 2018 Jan;32(1):9–17.
7. Prevalence of mental disorders and mental health problems: Results of the Thai National Mental Health Survey 2013. [Internet]. Nonthaburi (Thailand): Department of Mental Health. [cited 2022Sep.22]. https://dmh.go.th/ebook/files/prevalence_of_M_disorder_MH_problems_TNMHS2013.pdf.
8. Institutional Repository for Information Sharing. World Health Organization assessment instrument for mental health systems, WHO-AIMS version 2. January 1, 2005. [Internet]. World Health Organization. [cited 2022Sep.22]. https://apps.who.int/iris/handle/10665/70771.
9. Kwansanit P, Srisurapanont M. The parameters for calculating the burden of schizophrenia in Thailand. J Mental Health Thailand. 2018;26(1):50–62.
10. Kittitharaphan W, Wattanasuksa P. Years lived with disability from autism spectrum disorders in Thailand. J Mental Health Thailand. 2018;26(1):16–26.
11. Panyawong W, Santitadakul R, Pavasuthipaisit C. Prevalence of depression and suicidal risks in Thai adolescents: a survey in schools from 13 Public Health Region. J Mental Health Thailand. 2020;28(2):136–149.
12. Visanuyothin T, Pavasuthipaisit C, Wachiradilok P, Arunruang P, Buranasuksakul T. The prevalence of attention deficit/hyperactivity disorder in Thailand. J Mental Health Thailand. 2013;21(2):66–75.

13. National suicide prevention center. Report on Thailand's suicide rate. [Internet]. KhonKaen (Thailand): KhonKaen Rajanagarindra Psychiatric Hospital. [cited 2022Sep.22]. https://suicide.dmh.go.th/report/suicide/stat_prov.asp.
14. Department of Mental Health. Mental Health Check In DASHBOARDS. [Internet]. Nonthaburi (Thailand): Department of Mental Health. [cited 2022Sep.22]. https://checkin.dmh.go.th/dashboards.
15. WHO-AIMS REPORT ON MENTAL HEALTH SYSTEM IN THAILAND [Internet]. World Health Organization. 2006 [cited 2022Sep.22]. https://cdn.who.int/media/docs/default-source/mental-health/who-aims-country-reports/thailand_who_aims_report.pdf?sfvrsn=853b6294_3&download=true.
16. The ASEAN Secretariat. ASEAN mental health systems. [Internet]. ASEAN Secretariat. 2016 [cited 2022Sep.22]. https://asean.org/wp-content/uploads/2017/02/55.-December-2016-ASEAN-Mental-Health-System.pdf.
17. Department of Mental Health. Stucture of the Department of Mental Health. [Internet]. Nonthaburi (Thailand): Department of Mental Health. 2016 [cited 2022Sep.22]. https://dmh.go.th/intranet/structure/chart02/.
18. Mental Health Atlas 2020 Country Profile: Thailand. January 1, 2020. [Internet]. World Health Organization. 2022 [cited 2022Sep.22]. https://cdn.who.int/media/docs/default-source/mental-health/mental-health-atlas-2020-country-profiles/mental-health-atlas-tha-2020-country-profile.pdf?sfvrsn=41911214_1&download=true.
19. Department of Mental Health. Annual report 2021 [Internet]. Bangkok: Ministry of Public Health; [cited 2022Sep.22] https://dmh.go.th/ebook/files/รายงานประจำปีกรมสุขภาพจิต%20ปีงบประมาณ%202564.pdf.
20. Office of the Counsil of State. Mental Health Act, B.E. 2551. February 13, 2008. [Internet]. Bangkok (Thailand): Office of the Council of State. 2008 [cited 2022Sep.22]. http://web.krisdika.go.th/data/document/ext810/810000_0001.pdf.
21. Mental Health Strategy and Planning Division, Department of Mental Health. The Mental Health Act. July, 2019. [Internet]. Nonthaburi (Thailand): Department of Mental Health. 2019 [cited 2022Sep.22]. https://necam.go.th/wp-content/uploads/2020/11/02รวมกฎหมาย-พรบ.สุขภาพจิต-พ.ศ.2551-และที่แก้ไขเพิ่มเติม-ฉบับที่-2-พ.ศ.-2562-1.pdf.
22. Thailand's National Mental Health Plan B.E. 2561-2580. Department of Mental Health. [Internet]. Nonthaburi (Thailand): Department of Mental Health; 2019 [cited 2022Sep.22]. https://www.dmh-elibrary.org/files/original/3a3fce5f017f6d4b9ecad0b22d820658.pdf.
23. The Ministry of Public Health. Health resources/psychiatrist. [Internet]. Nonthaburi (Thailand): The Ministry of Public Health. 2022 [cited 2022Sep.22]. http://gishealth.moph.go.th/healthmap/resdetail.php?st=2&nd=15&rd=15&l1=7&l2=&l3=&ft=1&t=4.
24. Department of Mental Health. Manual of care service system for patients with serious mental illness at high risk for violence. June 1, 2020. [Internet]. Nonthaburi (Thailand): Department of Mental Health. 2020 [cited 2022Sep.22]. http://www.mhso.dmh.go.th/fileupload/202010061612167390.pdf.
25. Arunpongpaisal S, Kongsuk T, Maneethorn N, Maneethorn B, Wannasawek K, Leejongpermpoon J, Kenbupa K, Budwong S. Development and validity of two-question screening test for depressive disorders in Northeastern Thai community. Asian J Psychiatr. 2009 Dec;2(4):149–52. doi: 10.1016/j.ajp.2009.10.002. PMID: 23051095.
26. Kongsuk T, Arunpongpaisal S, Loiha S, Maneeton N, Wannasewok K, Leejongpermpoon J, Kenbubpha K. Development and validity of 9 questions for assessment of depressive symptom in Thai I-san community. Presented at: 6th International Workshop on Mental Health and Well-being: Sensing and Intervention. 2007. [Internet]. Researchgate. 2008. https://www.researchgate.net/publication/291800462_The_development_and_validity_of_9_questions_diagnostic_test_for_depressive_disorders_in_Thai_I-san_community.
27. Kongsuk T, Supanya S, Kenbubpha K, Phimtra S, Sukhawaha S, Leejongpermpoon J. Services for depression and suicide in Thailand. WHO South East Asia J Public Health. 2017 Apr;6(1):34–38. doi: 10.4103/2224-3151.206162. PMID: 28597857.
28. Sirithongthaworn S. The development of the Developmental Surveillance and Promotion Manual; DSPM. J Psychiatric Association Thailand. 2018;63(1):3–12.
29. Child and Adolescent Mental Health Rajanagarindra Institute (CAMRI). School Health HERO Project. [Internet]. Child and Adolescent Mental Health Rajanagarindra Institute. 2016 [cited 2022Sep.22]. https://new.camri.go.th/เครือข่าย-ฐานข้อมูล/School-Help-HERO.
30. Department of Mental Health. Mental Health Check In DASHBOARDS. [Internet]. Non-thaburi (Thailand): Department of Mental Health. 2022 [cited 2022Sep.22]. https://checkin.dmh.go.th/dashboards/dash04.
31. The Ministry of Public Health. Health resources. [Internet]. Nonthaburi (Thailand): The Ministry of Public Health. 2022 [cited 2022Sep.22]. http://gishealth.moph.go.th/healthmap/index.php?region=00&level1=2&level2=15&submit=แสดงข้อมูล.
32. The Medical Council of Thailand. Statistics of specialized physicians during 1964–2021. December 7, 2021. [Internet]. The Medical Council of Thailand. 2021 [cited 2022Sep.22]. https://www.tmc.or.th/pdf/stat-med-2021-004.pdf.
33. The Ministry of Public Health. Number of healthcare personnel/psychiatrist. [Internet]. Nonthaburi (Thailand): The Ministry of Public Health. 2022 [cited 2022Sep.22]. http://gishealth.moph.go.th/healthmap/resource.php.
34. The Ministry of Public Health. Healthmap/charts. [Internet]. Nonthaburi (Thailand): The Ministry of Public Health. 2022 [cited 2022Sep.22]. http://gishealth.moph.go.th/healthmap/chartst.php.
35. The Occupational Therapist Association of Thailand. Service database. [Internet]. Chiangmai (Thailand): The Occupational Therapist Association of Thailand. 2022 [cited 2022Sep.22]. https://www.otatthai.com/17535477/ฐานข้อมูลบริการ.
36. The National Health Security Office. NHSO Annual Report 2021. [Internet]. Bangkok (Thailand): The National Health Security Office. 2021 [cited 2022Sep.22]. https://eng.nhso.go.th/view/1/Annual_Reports/EN-US.
37. Badenoch JB, Rengasamy ER, Watson C, Jansen K, Chakraborty S, Sundaram RD, Hafeez D, Burchill E, Saini A, Thomas L, Cross B, Hunt CK, Conti I, Ralovska S, Hussain Z, Butler M, Pollak TA, Koychev I, Michael BD, Holling H, Nicholson TR, Rogers JP, Rooney AG. Persistent neuropsychiatric symptoms after COVID-19: a systematic review and meta-analysis. Brain Commun. 2021 Dec 17;4(1):fcab297. doi: 10.1093/braincomms/fcab297. PMID: 35169700; PMCID: PMC8833580.

In Memory of Professor Petr Viktorovitch Morozov

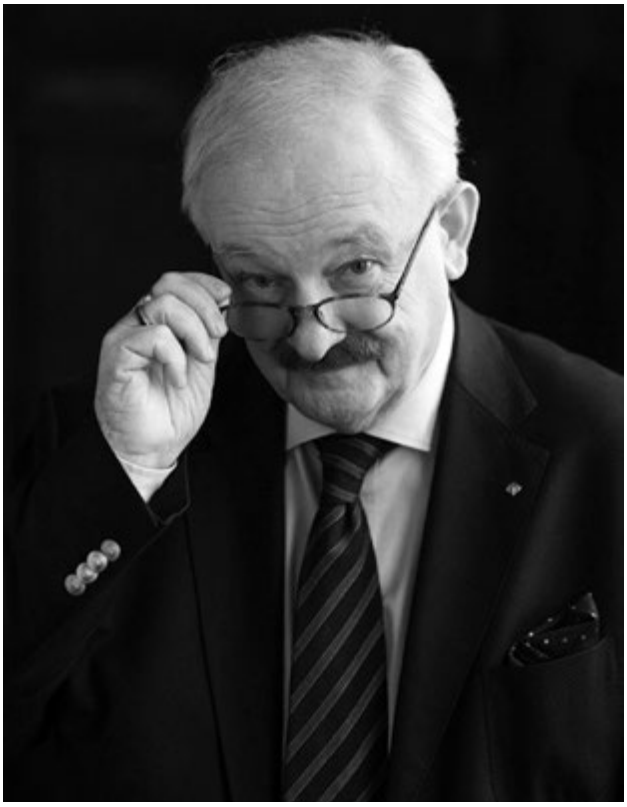
doi: 10.17816/CP214

Biography

In this obituary paper, we want to commemorate our dear colleague Professor Petr V. Morozov, who passed away on 17th July 2022. The death of professor Morozov is a great loss for the professional community. He was a world famous expert in psychiatry and held numerous top positions in professional associations: Secretary General of the World Psychiatric Association (WPA), vice-President of the Russian Society of Psychiatrists, an ECNP ambassador in Russia, an expert of the Council of Europe, a member of the Council of the European Psychiatric Association, a curator of the WPA-Servier Academy for young scientists, to name but a few recent positions.

Professor Morozov was an outstanding person, and in this obituary, our wish has been to let his unique personality transpire. We believe that the best way to do it is to collect personal stories from people who knew him and worked closely with him. After all, we are but the perception of us by others and we are alive through the personal memories of people who know us.

We asked members of the journal's editorial board, people who worked with professor Morozov, young psychiatrists and his children to send us their stories. We hope that these memories will restore at least some traits of professor Morozov and his deeds.



Professor Petr Viktorovitch Morozov
December 9, 1946 – July 17, 2022

George Kostyuk
Dr. Sci (Med.), Professor, Director of Mental-health Clinic No. 1 named after N.A. Alexeev, Editor-in-Chief, Consortium Psychiatricum, Moscow, Russia

My professional career in Moscow started at the Gannushkin Hospital. Petr Viktorovitch, who was a great fan of Gannushkin, and I bonded over our admiration for this outstanding Russian psychiatrist, and, eventually, we became friends. Back then, I was in charge of arranging various materials and items scattered over the hospital into a museum. And Petr Viktorovitch joined in with his usual enthusiasm when the task was genuinely interesting for him. He used materials from his personal archives. Our great efforts were rewarded, and we managed to set up a museum in the Gannushkin Hospital, among other things. We won the contract with the Russian Ministry of Culture for making a documentary about Petr Borisovitch Gannushkin. I asked Petr Viktorovitch to be a chief consultant for the film, and he agreed. I still have the fondest memories of our

collaboration.

I was admiring his knowing so many things about Professor Gannushkin, his attention to detail, and, above all, I suppose, his sincere affection for this personality. If he loved someone, he was genuinely committed to this person. Later, Petr Viktorovitch changed the title of his journal to "the Gannushkin Journal". Our admiration and respect for Petr Borisovitch Gannushkin was the core motif of our communication and our relationship, something that connected us. This is but a single piece of the puzzle, of course. After that, there were years and years of interaction and cooperation in various areas, but the first memories and impressions are the most vivid, and in this case, my first acquaintance with Petr Viktorovitch was linked to Petr Borisovitch Gannushkin.

He inherited this reverence (in the best sense of the word) for Professor Gannushkin from his father — Viktor Mikhailovitch Morozov. He was indirectly one of Gannushkin's students — he was allowed to attend his lectures.

I have always been fascinated by Petr Viktorovitch's attitude to his father and how he managed to instill the same affection for their grandfather into his children.

The fact is that Viktor Mikhailovitch's professional career was mostly connected with the Alexeev Hospital. Back then, it was still named after Petr Petrovitch Kashchenko. Therefore, as a child, Petr Viktorovitch had to spend a lot of time there, too. Studying at the Second Medical Institute was also associated with this hospital, and his subsequent professional development wouldn't be complete without the work at the Kashchenko Hospital. So, Petr Viktorovitch suggested that we should have a bas-relief portrait of Viktor Mikhailovich on the wall of the hospital. He ordered it at his own expense. And every year on October 29, on the day of Viktor Mikhailovitch's birthday, Petr Viktorovitch and his children brought fresh flowers to the memorial

Petr Morozov, George Kostyuk, Anna Morozova and Denis Morozov
© Press service of the Mental-health Clinic No. 1 named after N.A. Alekseev

plaque. I am sure this tradition will go on.

Respect for teachers and parents who were mentors both in mastering this life and profession was another wonderful trait of Petr Viktorovitch, a true role model for the younger generation of psychiatrists who worked next to him. I believe, Petr Viktorovitch's great social skills and kind heart were the best inspiration for younger doctors to adopt his philosophy.

Anatoly Smulevich
Dr. Sci (Med.), Professor, Academician of the Russian Academy of Sciences, Head of the Department of Psychiatry and Psychosomatics of Sechenov University, Moscow, Russia

IN MEMORY OF PETR VIKTOROVITCH MOROZOV

Petr Viktorovitch Morozov comes from a very talented family. His grandfather and father were members of the USSR Academy of Medical Sciences and had a profound influence on several generations of doctors.

It is hard to overestimate Petr Viktorovitch's contribution to the development of the community of psychiatrists, and psychiatry writ large, as a system both inside and outside Russia.

Petr Viktorovitch Morozov was Vice-President of the Russian Society of Psychiatrists, Secretary General of the World Psychiatric Association, Professor at the Department of Psychiatry of the Faculty of Continuing Professional Education of N.I. Pirogov Russian National Research Medical University and Professor at the Department of Psychiatry of the Federal State Budgetary Institution of Continuing Professional Education Central State Medical Academy.

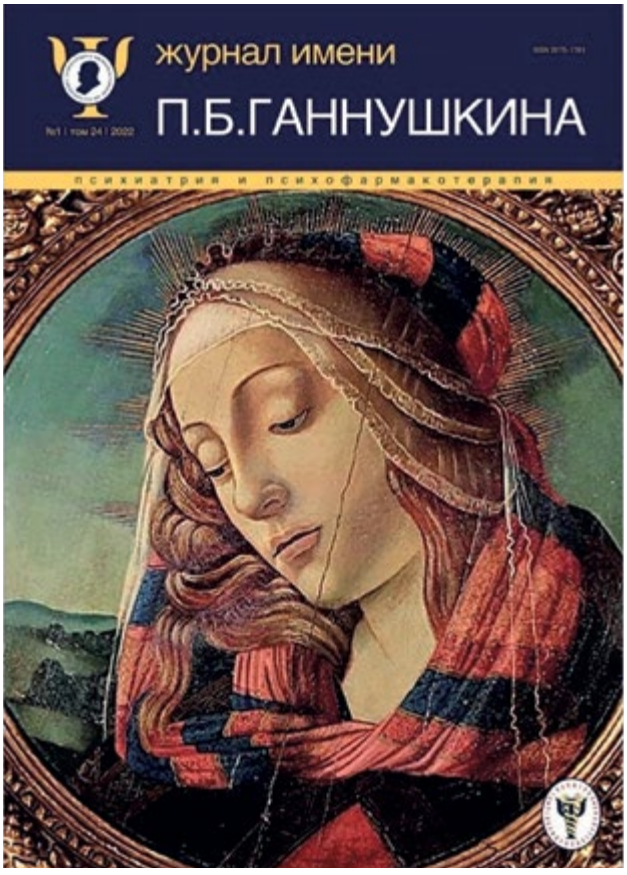
He implemented many of his initiatives through ambitious projects that brought together experts of various generations, key opinion leaders, and early-career specialists.

But I would like to expand on the most captivating side of Petr Viktorovitch's life — publishing, at which he was unquestionably good. He knew the limits of online and print publishing. Where he could not make a difference as a psychiatrist, he acted as a publisher, editor, and author.

Petr Viktorovitch was the Founder and Editor-in-chief of P.B. Gannushkin Journal of Psychiatry and Psychopharmacotherapy and the Psychiatrist's Diary newspaper that covered both scientific and social problems. Each issue of the journal covered the most recent developments in the field, which were given proper analysis and criticism. One could always find in the journal solid articles on controversial issues and a wide spectrum of topics that promoted debate in the psychiatrist community. Petr Viktorovitch helped us — in word and in deed — to start the Psychiatric Disorders in General Medicine journal. Besides purely scientific periodicals, he also managed popular scientific ones, including Psychiatrist's Diary. It is crucial that his pet projects pass to an intelligent and caring manager who will respect the mission that has been established to date.

Petr Viktorovitch authored ten monographs, 250 publications in Russian and foreign journals, and was among the authors of several editions (2009 to 2018) of the National Psychiatric Guidelines.

Being a recognized expert in the history of Russian and international psychiatry, he worked as an editor on the Anthology of Selected Papers by Russian Psychiatrists and wrote the monograph Titans of the Psychiatry of the 20th Century. A number of publications by Petr Viktorovitch



The P.B. Gannushkin Journal of Psychiatry and Psychopharmacotherapy issue 1, volume 24, 2022

Morozov dwell on the scientific life of some noted Russian (V.Kh. Kandinsky, V.P. Serbsky, P.B. Gannushkin, V.M. Morozov, etc.) and foreign (Karl Bonhoeffer, Oswald Bumke, Pierre Deniker, etc.) psychiatrists.

In his clinical psychiatry research, Petr Viktorovitch focused on some of the most complex and pivotal problems of psychopathology and nosological categorisation of mental illnesses. Those papers include Clinical and Follow-up Study of Juvenile Schizophrenia Combined with Body Dysmorphic Disorder, History and Clinical Description of the Kandinsky–Clérambault Syndrome, and Diagnosis and Therapy of Bipolar Disorder and Posttraumatic Stress Disorder.

Some other works by Petr Viktorovitch Morozov explore the problematics of mental illness classification, the way cultural factors influence such classifications, the organization of psychiatric care, mental illness prevention, and ethical aspects of psychiatry.

His studies in psychopharmacology and pharmacotherapy are summarized in the monographs Practical Psychopharmacology of Mental Illnesses (2021) and Modern Psychotropic Medicines Used in Psychiatry (2022). A number of other publications examine the development of treatment methods for psychiatric disorders and conditions (like schizophrenia, affective, psychosomatic, anxiety, phobic, obsessive-compulsive disorders, etc.) and topical problems of psychotropic drugs administration and use including patient compliance, the benefits of early therapy, and the use of sustained release dosage forms.

A considerable number of the latest articles written by Professor Morozov explore such topical issues as the incidence, clinical description, and psychopharmacology of mental disorders associated with the COVID-19 pandemic, while giving priority to the psychopathological typology of neuropsychiatric complications that make up the post-COVID syndrome, as well as the ways to relieve them.

There is little doubt that, in due time, Petr Viktorovitch Morozov's work will assume its deserved position in Russian psychiatry. Petr Viktorovitch will always be remembered by people who personally knew him, his friends and colleagues, as one of our most brilliant, intelligent, and knowledgeable minds, as someone who could retain his poise even in the most difficult situation, as a kind-hearted and caring person, as a man of great moral integrity one could always rely on, as someone who was always there ready to lend support.

Michel Botbol

WPA Secretary for Scientific Publications, Professor Emeritus of Child and Adolescent Psychiatry, University of Western Brittany, Brest, France

À "NOTRE AMI" PETR MOROZOV

It is difficult for a French psychiatrist to think of Russian Psychiatry without immediately conjuring the image of Petr Morozov, the elegant way he spoke our language and his rare ability to understand, beyond words, the singularities of our way of thinking our field. It is therefore difficult for us to imagine that this man is no longer with us and that we will no longer have the pleasure of seeing him in important moments of our history he used to accompany with his friendly presence.

I first met him on the occasion of the first Moscow congress of the Psychiatric Association of Eastern Europe and the Balkans (PAEEB) where he came particularly to meet our common friend, Juan Mezzich, then president of the WPA. He was preceded by his remarquable reputation since Juan detailed to me the remarquable way in which Petr had maneuvered to obtain the re-enrollment of the Russian Society of Psychitrists Association as a full member of the WPA, some years after its resignation in 1977. This action was crucial to accompany the necessary reforms of psychiatry which political changes made possible in his country. It was, indeed, a very important issue to the psychiatrists of my generation, who saw it as a moment when the particular history of psychiatry (and of WPA) met the Great Global History and its strong influence in the life of many of us.

I had then, on several occasions, and in different places, the opportunity to appreciate not only his affability and human qualities but also his wisdom and great sense of moderation, giving clues on how he was so efficient in this historic action and was able to disarm those who made a point of obstructing it for one reason or another.

I also appreciated deeply his resources in the WPA board on which we sat together for several years as zonal representatives of our respective regions.

Like many of my French-speaking colleagues, I also had the opportunity to marvel at his competencies and encyclopedic knowledge of the history of psychiatry and its evolution, not only in Russia and France, but in other regions of the world.

It is therefore quite natural that the esteem Petr had

Picture from a meeting in 1988 showing Petr Morozov with Professor N. Bohacek (Zagreb), Professor Shen Yu Tsun (Beijing), Dr Leonid Prilipko (at that time in Geneva), Dr Costas Stefanis (Athens), P. Chanoit (Paris) and Dr Marat Vartanian (Moscow) © Photo from personal archive of Professor Norman Sartorius

earned among French psychiatrists led them to a rare unanimity when it came to supporting his candidacy for the WPA EC. I had the pleasure of working again with him, albeit briefly, when he became the efficient Secretary General of that Association, a task in which I witnessed his complete devotion. Words cannot fully express the impression his gentle manners and his always positive attitudes left in the EC members.

I would like to offer my most sincere condolences to his family, and in particular to his son Denys, who is also a French speaker. In my name and on behalf of the French psychiatric associations which have asked me to do so, I would like to express, as well, my sincere condolences to our colleagues in Russia (and in the WPA Eastern Europe zone he represented so efficiently), who, I know, have been deeply affected by the loss of Petr and have to endure this ordeal at such a difficult time for all of us.

Nikolay Bokhan

Dr. Sci (Med.), Professor, Academician of the Russian Academy of Science, Director of the Mental Health Research Institute of the Tomsk National Research Medical Center, Tomsk, Russia

Irina Kupriyanova

Dr. Sci (Med.), Professor, Lead Researcher, Borderline States, Department Mental Health Research Institute of the Tomsk National Research Medical Center, Tomsk, Russia

P. V. MOROZOV: IN MEMORY OF SIBERIAN PSYCHIATRISTS

Petr Viktorovitch Morozov… a man who radiated so much warmth and elicited positive emotions. He was valued by those around him for his many talents, abiding sense of friendship, and genuine spirit of fairness. The pursuit

of multiple interests was not a waste of his energy, but, rather, a means for enriching himself. Whatever he did, whatever he took up, he strove for perfection, was utterly demanding, first and foremost, of himself. He has always been at the forefront of developments in Russian biological psychiatry , psychopharmacological research, and he was at the origin of new media projects in psychiatry. He had a passion for transcultural psychiatry.

A great friendship united Petr Viktorovitch and the community of Siberian scientists, not only psychiatrists but even cardiologists, pharmacologists, and genetic scientists, whose shared interest in science was their common bond, in addition to warm human relations. Transcultural psychiatry was an area of "exciting contacts." Tomsk scientists at the Mental Health Research Institute of the Tomsk National Research Medical Center founded the International Association of Ethnopsychologists and Ethnopsychotherapists, which became an affiliate member of the World Psychiatric Association and the World Association of Cultural Psychiatry. The school of "Ethnopsychiatry" was founded in the structure of the Russian Society of Psychiatrists. To optimize its transcultural focus, Petr Viktorovitch put the main emphasis on the educational module.

Thanks to the close ties he developed with peers abroad, conferences and workshops by leading world scientists such as Marianne Kastrup (Denmark), Renato Alarcon (U.S.) were often held in Russia. Undoubtedly, such success was made possible by work he did at the Department of Mental Health of the WHO and his excellent command of many European languages. He deserves a great deal of credit for the development of the processes of integration in the transcultural research carried out in Belarus, Ukraine, the Republics of Transcaucasia, and Central Asia. Symposia with the participation of scientists from the former Soviet republics commanded great attention from participants at the congresses of the World Psychiatric Association. A huge breakthrough in the integration of Russian and Western psychiatry was the publication of the journal World Psychiatry, which was published under the editorship of former WPA President Mario May and Petr Morozov.

As Vice President of the Russian Society of Psychiatrists, P.V. Morozov took part in the development and implementation of international transcultural projects between the Russian Society of Psychiatrists and foreign psychiatric

Picture of the staff of the WHO Division of Mental Health showing staff including P.V. Morozov, 1985
© Photo from personal archive of Professor Norman Sartorius

associations. No less fruitful amongst his activities was his work as a member of the Board and Representative of the World Psychiatric Association for Eastern Europe. The intelligence, erudition, aristocratism, and amazing work ethic of Petr Victorovich earned him deserved respect among his foreign colleagues and helped transform how Russian scientists are viewed. Formal scientific interests quickly developed into amazing friendships that lasted for decades. President of the European Psychiatric Association Danuta Wasserman (Sweden) enjoyed discussing topical issues of psychiatry with Petr Morozov in her native Polish. Foreign colleagues entrusted Peter Victorovich with very responsible posts: Ambassador of the European College of Neuropsychopharmacology in Russia and Secretary General of the World Psychiatric Association.

Another important facet of his work was the search for young talents, future "stars," especially at regional universities. He was a regular participant in the schools for young psychiatrists in Suzdal. Many young psychiatrists, thanks to the magical influence of P.V. Morozov, dared to dream about a scientific career and began studying foreign languages.

There are people whose humanitarianism and passion influence the circulation and development of new orbits of human life on Earth. Their boundless energy, thirst for knowledge, and inexhaustible creativity make every one of us better and willing to push forward toward new achievements.

That was Petr MOROZOV — POET, MUSICIAN, SCIENTIST, and CITIZEN OF THE WORLD.

Egor Chumakov

PhD, Assistant Professor, Department of Psychiatry and Addiction, Secretary of the Commission of the Russian Society of Psychiatrists for Work with Young Researchers and Specialists, Saint Petersburg, Russia

It's hard to find someone who, having personally known Petr Viktorovitch Morozov, couldn't remember a single interesting or inspiring story about him. I'd like to tell you a story both about Petr Viktorovitch's international professional career and the role he played in the development of young psychiatrists in Russia and in the wider world.

The organizers of the19th World Congress of Psychiatry invited me in 2019 to take part in a new learning session on complex cases that psychiatrists often confront at the early stages of their careers. The goal was to give young psychiatrists an opportunity to present a case that could capture the interest of an international audience, to have an in-depth discussion, and share their unique regional experience. Over all, there were four such sessions on the agenda — for delegates from different countries. Professor Morozov was invited as a guest expert representing Russia, and I was fortunate that he had agreed to support my nomination as a speaker.

The preparation for the session was nerve-racking. It was a completely new experience for me, as I had to speak not as a researcher but as a clinician at an international convention. But Petr Viktorovitch was there for me, and he supported me each step along the way. He gave me valuable advice and highlighted terminology peculiarities. We spent a lot of time talking on the phone and choosing a case that, on the one hand, could showcase a topical problem of clinical psychiatry that was comprehensible to an international audience and, on the other hand, could demonstrate the Russian clinical mindset and approach to diagnosing psychiatric disorders and conditions. We chose the case of a young girl with pronounced self-injurious behavior who was being treated at the day hospital of a Saint Petersburg clinic, and we needed to carry out a differential diagnosis between a schizophrenia spectrum disorder, an affective disorder, and a borderline personality disorder. Petr Viktorovitch proved right in his choice, of course, as the

Petr Morozov and Egor Chumakov
© Photo from personal archive of Egor Chumakov

case provoked a huge discussion. When the session was over, psychiatrists from Australia, Canada, Tunisia, and other countries approached me and made suggestions for further diagnostic developments and treatment tactics.

However, what I remember most vividly was the comments Petr Viktorovitch was anticipated to make as an experienced psychiatrist. He rocked the audience! His input was so powerful that it would have been good enough even for a plenary session. His short lecture covered historical and cultural aspects, classical psychopathology, the dynamics of mental disorders, and the difficulties psychiatrists encounter when trying to diagnose disorders that manifest themselves at adolescent and young-adult age. It was unfortunate that no remote participation was possible back then and that so few people (compared to the overall professional community) ended up hearing that speech. The session was positively welcomed and was added on the agendas of World Psychiatric Association annual congresses as a regular event. I am happy that that happened not without Petr Viktorovitch's and my contribution.

That speech and the feedback I got provided the impulse and direction in my further professional development and a new understanding of how to fathom the mechanisms that underly the formation of personality disorders. The feedback I got form the experts and participants of the session also gave me a different perspective on psychiatric disorder diagnosis and helped me better understand the way my colleagues from the rest of the world thought. I am immensely grateful to Petr Viktorovitch for this priceless experience I was lucky to share with him.

Alexey Pavlichenko

PhD, Senior lecturer, Education Center, Mental Health Clinic No.1 named after N.A. Alexeev, Moscow, Russia

I first met Petr Viktorovitch in 2010, when I was seeking to have my article published in his journal — P.B. Gannushkin Journal of Psychiatry and Psychopharmacotherapy. The article meant a lot to me, and the journal was, deservedly, the most popular among Russian psychiatrists. Judging by my experience of other journals, I expected the whole process to take a lot of time. Imagine my surprise when in two or three days I received a phone call from none other than Petr Viktorovitch! It took us an hour to discuss the details, and the article was published in a month and a half. Ever since, we have kept close contact with each other.

When I met him in person, I immediately felt as if I had known him for years and that I was talking to a person of my own age, despite the thirty-year age gap that separated us. His ability both to make others feel comfortable around him and to treat others with respect no matter their age, ethnic origin, or education was a central feature of his personality that psychiatrists from all over the world valued about him. Petr Viktorovitch could effortlessly start a conversation with a taxi driver in Barcelona, a guide at the Sigmund Freud Museum in Vienna, or a geneticist from Amsterdam. No matter who the interlocutor was, he showed deep command of the issues and genuine interest in the person with whom he was in conversation. Watching him, I often thought of this Christian parable that says: "A wise man sees a mentor in anyone he meets." He didn't like it, though, when people called him a mentor. He was completely devoid of even the slightest whiff of self-importance and was so selfless he commanded respect not for his degrees or titles but for his extensive and profound knowledge and desire to share with anyone interested. So many of the lectures he gave were unique and absolutely irreproducible. It was useless to take photos of his slides or to ask for softcopies of his presentations, as, besides important data, his lectures carried a powerful educational and humanistic message. His presentations fascinated even people outside our profession. To be honest, I also experienced something close to religious ecstasy when listening to them.

Eventually, Petr Viktorovitch brought me into the world of international psychiatry and introduced me to eminent psychiatrists from other countries. I got his thirst for new developments in psychiatry and unconditional love for knowledge he demonstrated until his last days. I remember, a few weeks before he passed away, how he called me to share his impressions of a lecture by a well-known psychiatrist from Germany, and we talked about it for hours. I often didn't agree with him, but I knew that he respected my opinion and my position. Not once did I sense that it was useless to argue with him on any issue, as he took part in an argument only when he knew something for a fact. Having a good command of a few

European languages, Petr Viktorovitch could source information from wherever he wanted on whatever aspects of psychiatry he wanted. Yet, he remained faithful to the clinical and psychopathological approach and considered the concepts that dominate psychiatry today to be a manifestation of reductionism, or, as he put it, "McDonald's psychiatry." On the one hand, I was a little bewildered by this outdated position, as I saw it. On the other hand, as a doctor and professor, I see more and more evidence that it is this approach that gives practitioners clear guidelines and is crucial to the training process.

I never figured out what his real passion was — psychiatry or fine arts? I suspect that Petr Viktorovitch couldn't answer this question himself. As for me, I could discern a true artist in his brilliant lectures, unique projects, and wonderful books about the great psychiatrists of the past. And I am so grateful to have met this outstanding man. I am sure, for everyone who was in close contact with him, there was a version of Petr Viktorovitch they could call "my person." With his death, we all have lost a dear friend — a "my person."

Tatyana Klyushnik
Professor, Director of Scientific Institution "Mental Health Research Centre", Moscow, Russia

PETR VIKTOROVITCH MOROZOV — THE MAN I KNEW AND REMEMBER

I first met Petr Viktorovitch when he was a sixth-year student at the Second Moscow State Medical Institute named after N.I. Pirogov. His musical ensemble "Kamerton" was on stage performing at the Matriculation Ceremony Afterparty, and he sang his wonderful songs. We were the freshmen – still young and shy – for whom this induction ceremony was arranged. One just couldn't take their eyes off these talented and charming "Kamerton" guys, they were full of energy and shared this energy with us. We felt so proud to be part of the university knowing that it nurtures not only medical talents. The vivid image of Petr Viktorovitch with his guitar in his hands was then refreshed several times: I encountered him singing his new and old songs at Workshops for Young Psychiatrists and conference afterparties. Some of them were very sad.

Petr Viktorovitch was a man of many talents, who never treated any task to which he had committed himself formalistically and went out of his way to help colleagues. The lectures and presentations he delivered at conferences, though strictly psychiatric, were always translating his love for and great knowledge of literature, music, theatre, and history. He managed to kindle genuine

Music band (VIA) Kamerton, 1970
© Photo from www.rock-book.ru

interest in the problems he discussed, and the time given for the presentation was never enough for him.

Petr Viktorovitch was always kind and friendly. I admired his unique social skills, his talent for communicating and interacting with people of various ages, social statuses, and interests, and his rare ability to keep a level head when dealing with complicated issues. I will always remember his trademark sense of humor, easy-

Music band (VIA) Kamerton, 2015. Presentation of the album "No one can stole our youth"
© Photo from personal archive

going manner, and the subtle self-deprication of a true intellectual.

Olga Karpenko

PhD, Head of Scientific collaborations Department in Mental-health Clinic No.1 named after N.A. Alexeev, Chair of Preventive psychiatry Section of World Psychiatric Association, Moscow, Russia

It turns out that I have known Petr Viktorovitch Morozov since I was a child before I met him in person. My father was a psychiatrist, and he fondly remembered Suzdal Schools — conferences for early-career psychiatrists that were like a breath of fresh air, an island of freedom in the stagnation of the 80s in the Soviet Union. There, they could discuss One Flew Over the Cuckoo's Nest movie, legendary but still not very allowed at that time rock band Aquarium was invited to play a concert there, at the same time that famous psychiatrists like Pierre Deniker could come there as guests. It was a place where respected professors and young psychiatrists interacted as equals. My father told these stories with great passion, and I got the impression that psychiatrists were guys who knew how to have a good time.

Many years later, when I became a psychiatrist myself, the idea of reviving the Suzdal Schools re-emerged and I joined the project with great enthusiasm. At first, Petr Viktorovitch helped to set up the Schools remotely – he gave advice on the scientific program, on how to create an informal atmosphere, and how to design a cultural program. I had yet to meet him in person at that time, and still I was fascinated with the man when I realized that the legendary atmosphere of the old Suzdal Schools was his creation. I was curious to know him in person but the opportunity had not yet presented itself.

Once, I was asked by senior colleagues to drive Petr Viktorovitch to one of the meetings and I thought: Finally, I am going to meet him! We talked by phone and he very politely declined. As he said, his manners do not allow him to make a lady drive him around. This surprising turn of events left me with mixed emotions – I was disappointed that our meeting didn`t happen, and at the same time I was charmed by his gentlemanly manners. I found out later that Petr Viktorovitch always behaved

Boris Grebenshchikov (Aquarium), Petr Morozov, Andrei "Dyusha" Romanov (Aquarium), Suzdal, 1988
© Photo from personal archive

Petr Morozov and Former USSR Republics' KVN Team, Suzdal School, 2011
© Photo from personal archive of Olga Karpenko

like a gentleman, never compromising that side of his personality.

We did meet eventually and even became friends later. In 2011, Petr Viktorovitch attended the Suzdal School in person and, among other things, suggested a new idea for the cultural program– that we hold a local KVN[1] competition. We managed to do it, and Petr Viktorovitch came up to me to introduce himself when he found out that I was the author of the winning team's script.

We have kept in touch since. Petr Viktorovitch invited me to take part in various scientific activities as well, but creativity was the main topic of our communication. Before each Suzdal School Petr Viktorovitch would get very inspired. He would call me to sound off his ideas trying to gauge my reaction. He discussed KVN arrangements, played the guitar, and sang songs he wanted to perform at the School.

Once, before implementing the competition on chastushkas and hokku at Suzdal School, he proposed to first test how it works on each other, like true scientists. One of us was to compose the beginning, the next one – the funny end of the poem. We got so absorbed by the game that we messaged each other lines back and forth day and night, until Petr Viktorovitch concluded that the new competition would work well and it could be translated from the "laboratory" to "practice".

Our conversations always intermingled with his numerous stories, ideas for books, and other creative plans. I was flattered and appreciated our unique connection. He unfailingly managed to share his enthusiasm with me, to awaken my curiosity and spur my creativity. The last thing we talked about was making a KVN team that would consist of professors only to rival the young ones. Unfortunately, fate has decreed otherwise.

For the last few years, Petr Viktorovitch and I also communicated within the World Psychiatric Association (WPA). Apart from being Secretary General (him) and Chair of the Preventive psychiatry section (me), we were members of the WPA working groups. Because of this, I had a chance to observe how he behaved during meetings and to learn diplomacy from him. I could always ask him for advice in a complicated situation and his advice was always very pragmatic and wise. I saw how he cared about Russian psychiatry, and how important it was for him to cement a place for Russian psychiatry on the international arena. I also witnessed what a heavy lift that effort represented.

Not long before his death, Petr Viktorovitch sent me a birthday card. He wished me to always find joy in the things that I am doing. And, I guess, this was the clue to his success, charisma, and fruitful professional life – he did what he really loved… and he helped many of us taste the fun side of psychiatry.

Sergei Potanin
PhD, Chair of the Council of Young Scientists of the Russian Society of Psychiatrists, Senior Research Fellow at the laboratory of the psychopharmacology, Scientific Institution "Mental Health Research Centre", Moscow, Russia

Petr Viktorovitch was always attentive to beginner psychiatrists. It was he who labored hard for the establishment of the Suzdal School, where a lot of my colleagues and I began to come to grips with the modern vision of how psychiatry, as a science, was developing, meeting interesting people, and participating in various projects along the way. The international prominence of Petr Viktorovitch made

1 Club of the Funny and Inventive (transliterates from Russian as Klub Veselykh i Nakhodchevykh (KVN)) is a competition of teams that consist of students and beginner specialists compete by showing humoristic sketches on a given topic.

it possible for us to attract prominent foreigners as speakers to the Russian Federation, to whom we could not only listen, but also talk in an informal setting, which is not always possible when you are but a fledgeling scientist. I feel obliged to mention what a wonderful, open-hearted, friendly, supportive, and cooperative individual Petr Viktorovitch was. I especially value his role-model approach to personal creativity development; how he never fixated exclusively on science or medical practice.

I used to be sceptical of all sorts of college plays, Kapustniks, local KVN shows, or other similar amateur comic performances, long before taking up psychiatry but still during my study at a psychotherapy institute. All that seemed futile, distracting from my principal preoccupation, and even ridiculous. Gradually, though, the KVN shows in Suzdal, whose most ardent promoter Petr Viktorovitch was, began to grow on me. When I saw him on stage and learned more about this creative side of his life, I decided to take the leap, too, and discovered a whole new perspective on creativity as a very important part of self-development.

I hope that we – as young scientists – will do our best to continue Petr Viktorovitch's lifework and projects, and always remember this wonderful man and outstanding scientist.

Yuri Osadshi

Vice President for Regional Affairs, Russian Early Career Psychiatrist's Council, Volgograd, Russia

I first met Petr Viktorovitch nine years ago when I attended the WPA Congress in Armenia. I was an ordinary psychiatrist from Volgograd who knew no one at the event and was immensely happy to see a kind-looking mustachioed man with a "Petr Morozov Russia" badge on his jacket. I approached him and said: "Hello, I am from Volgograd! And I want to develop psychiatry." Petr Viktorovitch smiled. That evening, he introduced me nearly to all members of the WPA Executive Committee, as if I were an old acquaintance of his.

He had the talent of instilling confidence and the feeling that he was "your person." He belonged both among the younger and the older generations. He managed to keep a balance between creativity and traditions, creativity and science, and work and leisure. He happily combined in himself the Renaissance and rock and roll. Petr Viktorovitch knew how to enliven the older generation, how not to let it get rusty and caught in the web of rationality. He tried to convey the importance of traditions and adherence to school customs to the youth. He explained and demonstrated to me how important it was for a psychiatrist to be a well-rounded person, as science alone – without a cultural, linguistic, philosophic, and historic background – cannot provide answers to all our questions.

In welcoming and supporting innovation, he taught us to protect what had been achieved and placed emphasis on the impossibility of a wholesale systematization of such a complex field of knowledge as psychiatry, and that, as doctors, we needed to see beyond symptoms. We must see the person.

I am — and will always be — indebted to Petr Viktorovitch!

Daria Smirnova

MD, PhD, Director of the International Centre for Education and Research in Neuropsychiatry, Associate Professor, Department of Psychiatry, Narcology and Psychotherapy, Samara State Medical University, Samara, Russia

(...)
You merely left for some warmer countries,
By the great seas.
(...)
I see you, I feel you, I sense your presense wherever I go.
— Those mourning ribbons, that wreath on your head
mean nothing to me —
I haven't forgotten you, and I will remember you
Forevermore!
Such promises I know are pointless,
I know the vanity.
— A letter to infinity. — A letter
To eternity —
A letter into the void.
Marina Tsvetaeva,
"Falling leaves over your grave..."

Dear Petr Viktorovitch!

TRUST IN HUMANKIND. FAITH. HUMANITY

I've finished your book you sent me in May. Thank you

so much! "Well, finally, you've started believing it too. And I've started believing in you. And believing in that we should do our best to finish whatever unfinished deed we have here, not to return… from the beyond. That's what we were talking about… about pansies, as well. Anna is smiling, her eyes welling up." (The age is out of joint, P.V. Morozov, 2022, p 87) It has always fascinated me how he could find precise, profound and meaningful words. How do you do that?! Unfailingly making me believe you, at that. You were right so many times. Even when I chose to ignore your guidance and do something my way, you turned out to be right again. Your fatherly advice about life – not frequent, but to the point – was always useful. And again, you were right. I've learned my lesson. I'm still consulting with you on all kinds of things even when you don't call me. I am so grateful to you for believing in me when I doubt my own abilities, when I don't believe in myself.

– Dear Petr Viktorovitch, I haven't completed our book chapter yet, but I promise I will do as soon as possible. I am almost done but my routine work keeps interfering. The chapter is undoubtedly the key priority, but I still don't have enough time. Working on the computer 24/7.

– Dear, dear Dasha, I never asked you about the chapter! It's ok. I'm calling you to talk about an absolutely different issue. I need your advice. Keep writing it whenever you have the time. It's all right. I've never doubted your commitment. (Your laughter is heart-warming, and I feel relieved.)

In your book, Anna's eyes are welling up, in this book — the book which mentions the crossings of our lifelines, I am the one whose eyes are filled with tears. Timur Syunyakov brougnt you the lavender flowers and the note from me. He later told me: "P.V. gave you a wink and a smile, and told you not to be sad, but to act. Anna and Denis agreed. Don't be sad, do act." Ok, I got it. I'll keep on working. I keep on working.

OVERLOADED WITH WORK. STREAM OF IDEAS. HORIZONS

In this age which is out of joint, we all are in the same international and borderless boat of humanity. I'm looking forward to our new meetings – in Suzdal, Barcelona, Berlin, Nice, Buenos Aires, Munich, Antalya, and everyplace – and long conversations in halls when, despite the late hour and drowsiness, you can't help but stay and keep listening. This is knowledge you won't be able to acquire via reading books or attending classes. Knowledge that manifests itself like a fresh and cool breeze, touches your forehead, wakes you up and dissolves in the talking, sighing, nodding, smiling, wondering and pondering. "You know, it's…" And you start your riveting story I can't stop listening to.

We started collaborating with the Early-Carrer Psychiatrists' Council of the Russian Society of Psychiatrists in 2010. You say: "I send her an e-mail at 3 a.m. thinking she'll read it in the morning. But she replies in 15 minutes. That's how we work." Professor Haim Belmaker's training course in Israel Timur Syunyakov and I attended, meeting Professor Assen Jablensky in Suzdal, receiving a grant for a scientific project in Australia… New horizons opened up just like that when you took part as an angel in my life project, as if with the wave of a magic wand. And this tsunami of work that started in 2010 – lectures, seminars, symposiums, congresses, articles, chapters, discussions – was impossible to stop. Unstoppable. More and more publications we've worked on as coauthors united by our mutual inspiration are on their way. We do continue, we act.

KINDNESS. LOVE. TIMELESS VALUES

You ask me: "Answer this question. Which is more important? To be kind or to be smart? Which would you choose?" I say, laughing: "I must be not very smart but I would no doubt prefer to be kind. I wish I never crossed paths with an evil genius." "We are on the same page here," you tell me.

I look at your phone with your daughter Anna's photo as a screensaver and listen to you speaking about your family, your son Denis, how much you need more time to be able to teach English to your granddaughter who's running around and up to your desk, and how much more needs to be done in collaboration with the World Psychiatric Association. You must be a little dissatisfied with something, that's why you keep creating, improving, protecting, thoroughly painting your own inimitable era, your own golden age, full of achievements and events, loyalty to ideas and integrity.

As if in a strange dream, I get a phone call from London from Professor Afzal Javed: "I can't believe it. I loved him so much. It's a personal loss to me. We've been discussing so many things with him. Peter was like a brother to me." "And like a father to me. We all love him so much," I said feeling unbearable pain in my heart.

I wake up to check my e-mail. In your letter, everything is as usual, including the valediction – "With sympathy, P.V." Next to the photo of "senior advisor, Professor Petr Morozov" in the Our Team section on the official website of the International Centre for Education and Research in Neuropsychiatry we place "Dear Prof. Peter, you are always with us! We love you forever." It is true now and will always be true.

The last page of your book says: 'The song 'Where is the happiness?' starts playing. To the right… in his shadow, a dim outline of something is faintly visible. Or is it just our imagination running riot?

A perfect moment for the closing credits.

30 August 2019 / July 2020. Moscow – Nikolskoye, Petr Morozov." (The age is out of joint, P.V. Morozov, 2022, p 87)

I am so happy to meet you, my dear teacher. Love you forever, hug you tightly, and promise we'll meet there again.

C'est la vie. Heart beating.

Sincerely yours… ever yours,

Dasha

Denis Morozov

Medical Manager, Operations Department, Servie, Moscow, Russia

Anna Morozova

Managing Partner, CO.FACTOR, Moscow, Russia

CONVERSATIONS WITH PATRIARCH

Many years ago, a tradition was born in our family — to have family get-togethers once a week, usually on a weekday evening, only for us — parents, sister and her husband, and me. We called dad – the head of our family — Patriarch. At first, we arranged our get-togethers at our parents' apartment. Dad loved cooking and, whenever he had the time, made something special for the occasion. Those were simple but very delicious dishes — borshch, beef steak, turkey with his trademark cranberry and lingonberry sauce, or even "stone" soup. We all looked forward to these evenings, because, for us, they meant the joy of being in each other's company and exchanging views on various and most unexpected issues, for parents — the joy of finally seeing their children. Our dear Patriarch would both have a cozy chat with each one of us individually and take part in the general confabulation. We could converse about anything — from the DSM-5 classification system and news about the latest international congresses to what headlights should be installed in Andrey's (my sister's husband) new car, or what a beautiful goal they scored in the Brazilian football championship.

Later, the venue of our get-togethers gradually shifted to a small Moscow restaurant, where we all would meet after work on Tuesdays. No refusals to come because of work were accepted as legitimate, with the exception of business trips. By that time, we all had very hectic lives — dad was constantly on business trips and had to deal with a lot of information, contacts, projects, and new people. When we gathered, we absorbed each piece of news our Patriarch shared with us, discussed – even argued about what would be or have been the best way to act. Each trip and event made him think of and come up with new ideas, no matter work-, home- or hobby-related. The Suzdal School always held a special place in his heart. He put so much physical and creative effort, all his heart and soul, into it. He loved it. We could talk about it for hours, discussing all kinds of things – from organizational issues and booking rooms in the Suzdal Travel Centre to details of the scientific agenda, presentation topics, and props for contests. Dad was a fan of the younger generation and could always think of something for them to engage in.

Driving him home from a restaurant or our country house was a special pleasure when I could enjoy talking to Patriarch alone.

After Yuliana, Anna's daughter, was born, we changed the format and the venue of our get-togethers – we now

P.V. Morozov and his family © Photo from personal archive of Denis Morozov

P.V. Morozov and his family, 1985 © Photo from personal archive of Professor Norman Sartorius

met at my house once a month on Sunday afternoons. I inherited dad's love for cooking: therefore, Patriarch named this new activity Family Dinner. Now, Yuliana was the one who received all his attention. He played football with her, played the guitar, sang songs, read books to her and simply kept her company in her games. He could always invent something to get her attention and provoke a very vivid reaction. When she would finally fall asleep, we would resume our conversations. Since our family get-togethers were rarer now, dad was looking forward to them very much. He always brought along something new to share with us: a journal, or a book, or an article, or an interview, or a new project, or an idea for us to discuss. How he managed to handle so many projects and deal with so much information was a mystery to me. He lived life — as his song has it — "to the fullest!"

We could talk about anything no matter the time. He gave us his full support and helped figure out what would be an optimum solution in all kinds of situations.

A month after the tragedy, Yuliana gave her mother a drawing and said: "Mum, give it to grandpa, please." Anna said that she wouldn't be able to do so anymore but the girl retorted: "Turn it upward to the sky, grandpa will see it and will be happy." She isn't four yet. Patriarch would have commented, as usual: "Genetics is a powerful thing."

Sister and I continue to visit our dad and talk with him, and having conversations with him… and that will never change: ever…

DEAR DAD, OUR PATRIARCH, WE LOVE YOU SO MUCH!

Your children