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## DEAR COLLEAGUES,

I am delighted to welcome you to the first issue of the *Consortium Psychiatricum* journal.

As you know, the word “*consortium*” means joining groups of people for a shared purpose. This paradigm is the cornerstone of modern science and it will serve as the basis of our editorial policy. “Another journal?” you may ask. “What can separate this journal from thousands of others?”

An acknowledged and respected trend in 21<sup>st</sup> century science (apart from joining interdisciplinary, international, intercultural collaborations) is to provide free access to knowledge. One special feature of our journal is that it provides open access to the content with no charge to the authors.

Another unique feature about *Consortium Psychiatricum* comes from the history of Russia and the history of science in Russia. For decades, Russian science in the field of psychiatry was, for various reasons, closed off from the rest of the world. However, in recent years Russian psychiatrists have become increasingly involved in professional collaborations all over the globe. My personal reason for starting this journal was understanding the need to make Russian psychiatry more visible on the global scientific scene. This process makes sense when it is mutual, i.e., Russian psychiatrists should also be more aware of global trends.

*Consortium Psychiatricum* aims to cover a wide range of mental health issues. Its mission is to provide a platform for sharing opinions on different aspects of mental health as well as to provide scope for cutting-edge research in the field.

For the first issue, we collected articles that we believe reflect current reality and contemporary concerns. We could not ignore the global challenge of the COVID-19 pandemic, and we give a general overview of the situation in the editorial article and present the results of a study performed in Russia. Modern approaches to known techniques are reflected in the systematic review on the use of virtual reality in cognitive behaviour therapy. Another “hot” topic is the development of available and non-restrictive mental help in the community. We start by publishing a series of articles about the organization of community-based psychiatry in countries all over the world. In the special cultural mental health issue, we reflect on the paradox of Islamophobia in our tolerant world. Additionally, the influence of infection on mental health is presented in the research article on toxoplasmosis and schizophrenia.

I want to thank all the authors, editors and reviewers who contributed to making the journal happen. While preparing this issue, shocking news came in from Lebanon regarding the explosion in Beirut. I want to express my sincere condolences to our colleagues from Lebanon and we appreciate their input to the journal despite the tragic disaster in their city.

I do hope that you will enjoy reading this journal. You are welcome to send us your papers and join our team of reviewers.

**George P. Kostyuk,**  
*Editor-in-Chief*

# COVID-19: consequences for mental health and the use of e-Mental health options

COVID-19: последствия для психического здоровья и возможности применения электронных технологий при оказании помощи

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## ABSTRACT

The current COVID-19 pandemic is associated with fear, insecurity, and perceived social isolation worldwide. In this editorial, we discuss the influence of the COVID-19 pandemic on mental health among the general population and among particularly vulnerable groups (e.g., people with pre-existing mental illness). Additionally, we explore the role of e-mental health options in times of social distancing. Preliminary empirical evidence indicates that a wide range of people have experienced mental health difficulties due to the COVID-19 pandemic and corresponding infection-control measures. E-mental health options are a feasible means of addressing psychological distress and mental illness during the pandemic. Thus, these options should be made available in a timely fashion. Future multidisciplinary research is needed to develop e-mental health strategies that specifically focus on the consequences of social isolation, economic hardship and fear of infection.

## АННОТАЦИЯ

Текущая пандемия COVID-19 во всем мире сопровождается страхом, чувством небезопасности и ощущением социальной изоляции. В данной редакционной статье мы обсуждаем влияние пандемии COVID-19 на психическое здоровье населения и отдельных уязвимых групп (например, людей, уже имеющих психические заболевания). Кроме того, мы исследуем возможности применения электронных технологий при оказании помощи в период социального дистанцирования. Предварительные данные эмпирических исследований указывают на то, что у широкого круга людей возникли проблемы с психическим здоровьем из-за пандемии COVID-19 и в связи с применением мер по контролю инфекции. Использование электронных технологий в период пандемии является целесообразным способом оказания помощи в отношении психического здоровья. В связи с этим необходимо обеспечить своевременную доступность дистанционного оказания помощи. Необходимы также дальнейшие междисциплинарные исследования для разработки стратегий использования электронных технологий в охране психического здоровья, сфокусированные на последствиях социальной изоляции, экономических трудностей и страха перед инфекцией.

**Keywords:** e-mental health, mental health, COVID-19, pandemic

**Ключевые слова:** электронные технологии охраны психического здоровья, психическое здоровье, COVID-19, пандемия

## INTRODUCTION

The current COVID-19 pandemic has caused insecurity and fear around the globe. Additionally, measures such as social distancing and home confinement, which help prevent the spread of the disease, carry the risk of increasing psychological distress or aggravation of pre-existing mental illness. Thus, mental health experts worldwide have raised concerns over the consequences of the COVID-19 pandemic for mental health (e.g., [1–4]). These concerns are in line with previous evidence relating to mental health problems following isolation measures in the context of contagious diseases [5]. There is also some preliminary evidence indicating the negative effects of the current COVID-19 pandemic on mental health with stricter and more efficient social distancing measures (e.g., quarantine), potentially causing more severe consequences [2, 6].

The World Health Organization (WHO), the Inter-Agency Standing Committee (IASC) created by the United Nations (UN), the World Psychiatric Association (WPA), and several other organizations have published guidelines and resources for maintaining or restoring mental health during the pandemic [7–9]. Additionally, national organizations are setting up tailored national strategies to respond to mental health issues during the pandemic. Many of these strategies include online-based mental health options (e.g., [1, 10, 11]), which is partly due to difficulties associated with inpatient mental health services (e.g., the risk of infections; [12]). In this editorial, we discuss evidence for the impact of the current COVID-19 pandemic on mental health among the general population and among vulnerable groups (e.g., persons with pre-existing mental illness). Additionally, we explore how the use of e-mental health options can help maintain or restore mental health in the current COVID-19 pandemic.

## CONSEQUENCES OF THE COVID-19 PANDEMIC FOR MENTAL HEALTH

The COVID-19 pandemic may negatively influence mental health via increased stress levels due to fears about infection, economic hardship, job loss or via perceived social isolation as a consequence of social distancing measures. Additionally, excessive fear and panic due to misinformation on social media (the so-called “infodemic”) may occur [13], which has been termed “coronaphobia” [14]. According to a recent

review based on 28 primary articles (including four empirical studies), anxiety and depressive symptoms have been common during the COVID-19 pandemic among the general population (16–28% point prevalence; [15]). There is also some anecdotal evidence of suicides because of fears related to the COVID-19 pandemic [16]. Similarly, anecdotal evidence from Germany indicates the occurrence of specific symptom clusters, such as a nihilistic “apocalyptic” syndrome among elderly patients who have been cut off from their families during the pandemic [17].

Some societal groups may be particularly vulnerable to the psychological consequences of the COVID-19 pandemic. As stress increases the risk of relapse or aggravation of pre-existing mental illness, persons with pre-existing mental illness may be particularly prone to experiencing difficulties [12, 18]. Additionally, persons with mental illness may avoid inpatient or outpatient services due to fear of infection during the pandemic. Similarly, infection-control measures (e.g., travel restrictions) may complicate regular outpatient visits. Other potentially vulnerable groups include healthcare workers (e.g., [3]), older persons (e.g., [19]), students studying overseas (e.g., [20]), homeless persons [21] and migrant workers [22]. For example, in a recent study of Chinese medical staff during the COVID-19 outbreak, 50.7% of the participating medical staff reported depressive symptoms; 44.7% reported anxiety symptoms; 36.1% reported symptoms of insomnia and 73.4% reported general stress-related symptoms [23].

For certain groups, living circumstances can also influence the degree to which persons experience mental health difficulties during the COVID-19 pandemic. In a study of college students in China [24] who were living in urban areas (as opposed to rural areas), the stability of a student’s family income and living with parents were found to be protective factors against anxiety during the pandemic. Results indicated that stressors related to anxiety levels included worry about economic influences, worry about academic delays and the influence on daily life, whereas social support could have a buffering effect [24]. An innovative study applying machine learning algorithms to postings on social media found that social media users in China more frequently posted about negative emotions (e.g., anxiety, depression and indignation) after the COVID-19 outbreak, compared to before [25].

In sum, there is preliminary evidence of substantial negative effects of the COVID-19 pandemic on mental health. As more people have been affected by COVID-19 compared to previous pandemics (e.g., SARS or H1N1 influenza), the challenges for mental healthcare seem unprecedentedly large. Against this background, with such severe consequences resulting from the COVID-19 pandemic in terms of mental health, it becomes clear that sustainable solutions are needed to address psychological distress and mental illness in the current situation.

### **THE USE OF E-MENTAL HEALTH OPTIONS IN THE COVID-19 PANDEMIC**

Various stakeholders have recommended the use of e-mental health options as a means of addressing the negative impacts of the COVID-19 pandemic on mental health (e.g., [4, 26]). Some of these recommendations cover mental health options that are adequate for persons with and without pre-existing mental illness. Such options include, for example, the use of online materials for education in mental health (e.g., [23]) or applications covering self-help (e.g., [27]). Other recommendations, such as synchronous telemedicine in mental healthcare for diagnosis and counselling (e.g., [26]) and asynchronous therapeutic intervention such as structured letter therapy (e.g., [28]), are tailored for persons with mental illness. Growing evidence shows the general effectiveness of digital solutions for improving mental health (e.g., [29, 30]). A recent review also showed that e-mental health interventions may be effective in crisis settings [31].

The COVID-19 pandemic may be a “turning point” for e-mental health, which may durably increase the uptake of e-mental health options [27]. In China (the first country to be affected by the pandemic), online mental health options (e.g., online mental health education, online psychological counselling and online psychological self-help intervention systems services) have been widely used during the pandemic [23]. However, to date, many countries are not yet in a position to support the use of e-mental health solutions during the pandemic. In Germany, just this year, the Digital Health Care Act has come into effect, enabling the prescription of medical apps. A consistent digital infrastructure throughout healthcare institutions is still lacking. Recently, however, in response to the COVID-19 outbreak, the National Association of Statutory Health Insurance Physicians and the Association of Statutory Health Insurances

have agreed to expand the reimbursement possibilities for video consultations [32]. Thus, the pandemic seems to have accelerated the regulatory processes required for the use of e-mental health services.

National governments, health policymakers and crisis policies should consider further accelerating the implementation of e-mental health in order to prevent or reduce psychological distress among the general population and to restore mental health in persons with pre-existing mental illness. As a quick emergency response, governments could expand the legal framework that allows the application and reimbursement of e-mental health products and publish guidance for their use. However, for an increased uptake in the long run, more sustainable policy measures must be introduced, including development of adequate financing strategies, the funding of further research, promotion of high standards of usability and interoperability, and quality control for e-mental health products on the market [33, 34].

In sum, e-mental health options should quickly be made available to all persons potentially suffering from the psychological consequences of the COVID-19 pandemic, particularly to vulnerable groups, such as persons with pre-existing mental illness, healthcare professionals and older people. Future multidisciplinary research is needed to develop e-mental health strategies that specifically focus on the consequences of social isolation, economic hardship and fear of infection (see also [35]).

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# Impact of COVID-19 pandemic on anxiety, depression and distress – online survey results amid the pandemic in Russia

Влияние пандемии COVID-19 на уровень тревоги, депрессии и дистресса: результаты онлайн-опроса в условиях пандемии в России

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## ABSTRACT

**Background.** In 2020, the COVID-19 pandemic evoked a variety of research into the virus and its effects on mental health. A variety of mental health and psychological problems have been reported: stress, anxiety, depressive symptoms, insomnia, denial, stigma, anger and fear.

**Objectives.** To assess the level of anxiety, depression and distress in the general population during the lockdown in Russia and to reveal factors associated with distress.

**Methods.** An online survey was carried out from 22–27 April 2020 (the fourth week of lockdown) among the general population (mostly Moscow residents). The survey questions covered general information about people's social and demographic characteristics, experience of COVID-19, health condition (physical and mental), attitudes and views on the pandemic, and the need for psychological support. The survey included the Hospital Anxiety and Depression Scale (HADS) and evaluation of the preceding week's subjective distress level using a visual numeric scale (from 0 to 10). We also asked respondents to specify the causes of distress, adopted from the WHO information sheet relating to the major psychological challenges of the COVID-19 pandemic.

**Results.** In total, 352 responses were collected (men = 74, women = 278; age (M ± SD) = 36.81 ± 11.36 y.o.). Most respondents (n = 225, 63.92%) did not have any personal experience of the coronavirus infection. Normal levels of anxiety and depression scores were prevalent in the sample. Higher than normal levels of HADS anxiety/depression (> 7 scores) were observed in 105 (29.83%) and 59 (16.76%) respondents, respectively; mean (95% CI) scores for HADS anxiety/depression were 6.23 [5.77, 6.68] /4.65 [4.22, 5.08] (women) and 4.20 [3.32, 5.09] /3.46 [2.63, 4.29] (men), respectively.

The leading causes of distress were: 1) the risk of financial problems in the future (n = 267, 76.3%); 2) violation of plans and the disruption to normal life (n = 235, 67.1%; and n = 240, 68.6%, respectively); 3) the health of elderly or chronically diseased relatives (n = 205, 58.6%) and 4) being in self-isolation (n = 186, 53.1%).

**Conclusion.** The level of anxiety and depression during the COVID-19 pandemic in the study sample did not exceed the norm for the population in non-pandemic conditions. Our assessment of distress levels captured existing emotional problems, and distress levels were found to be connected with the reported need for psychological support.

## АННОТАЦИЯ

**Введение.** В 2020 году пандемия COVID-19 спровоцировала разнообразные исследования, в фокусе которых оказался и сам вирус, и влияние пандемии на психическое здоровье. В результате были выявлены разнообразные психиатрические нарушения и психологические реакции: стресс, тревога, депрессия, бессонница, отрицание, стигматизация, гнев и страх.

**Цели.** Измерить уровень тревоги, депрессии и дистресса у населения в период самоизоляции в России, выявить факторы, связанные с дистрессом.

**Материал и методы.** С 22 по 27 апреля 2020 года (четвертая неделя периода изоляции) был проведен онлайн-опрос населения (в основном жителей Москвы). В ходе опроса собирались социальные и демографические данные о респондентах, опыте с COVID-19, состоянии здоровья (физического и психического), отношении к пандемии и мнению о ней, потребности в психологической поддержке. Опрос включал госпитальную шкалу тревоги и депрессии (HADS), а также оценку уровня субъективного дистресса за предыдущую неделю с использованием визуальной числовой шкалы (от 0 до 10). Кроме того, респондентов просили указать причины дистресса из списка, составленного на основе информационного листка ВОЗ о главных психологических проблемах, вызванных пандемией COVID-19.

**Результаты.** В общей сложности было собрано 352 ответа (от мужчин – 74, от женщин – 278; возраст (среднее  $\pm$  SD) – 36.81  $\pm$  11.36 года). Большинство респондентов ( $n = 225$ , 63.92%) не имели какого-либо личного опыта, связанного с коронавирусной инфекцией. В группе преобладали нормальные уровни тревоги и депрессии. Уровень тревоги/депрессии по шкале HADS выше нормального ( $> 7$  баллов) был отмечен у 105 (29.83%) и 59 (16.76%) респондентов соответственно; средний (95% ДИ) уровень тревоги/депрессии по шкале HADS составил 6,23 [5.77, 6.68] / 4,65 [4.22, 5.08] (женщины) и 4.20 [3.32, 5.09] / 3.46 [2.63, 4.29] (мужчины) соответственно.

Основными причинами дистресса были: 1) риск финансовых проблем в будущем ( $n = 267$ , 76.3%); 2) нарушение планов и привычной жизни ( $n = 235$ , 67.1% и  $n = 240$ , 68.6% соответственно); 3) здоровье пожилых или хронически больных родственников ( $n = 205$ , 58.6%); 4) нахождение в самоизоляции ( $n = 186$ , 53.1%).

**Выводы.** В популяции участников исследования уровень тревоги и депрессии во время пандемии COVID-19 не превысил нормальные значения, характерные для населения в условиях без пандемии. Проведенный анализ уровня дистресса выявил существующие эмоциональные проблемы, была обнаружена связь между уровнем дистресса и потребностью, по мнению участника, в психологической поддержке.

**Keywords:** COVID-19, SARS-CoV-2, pandemic, distress, anxiety, depression, HADS, mental health, survey, Russia

**Ключевые слова:** COVID-19, SARS-CoV-2, пандемия, дистресс, тревога, депрессия, HADS, психическое здоровье, опрос, Россия

## INTRODUCTION

Since the beginning of 2020, the world has faced a major threat due to the global transmission of the new coronavirus disease COVID-19, a situation that was officially declared to be a pandemic by the World Health

Organization on 11 March. Unprecedented government-level measures have been deployed on a massive scale, including the introduction of quarantine restrictions and prohibitions that minimize direct social contact and the spread of infection. Many countries have started studying

COVID-19 and the impact of lockdown measures on the mental health and psychological well-being of the general population and various vulnerable groups.

Key factors associated with the COVID-19 pandemic have been identified: social isolation and distancing, quarantine, unemployment, caregiving, facing death or experiencing illness [1, 2]. Systematic reviews have reported expected psychological and mental health problems due to the outbreak of COVID-19, such as stress, anxiety, depressive symptoms, insomnia, denial, stigma, anger and fear [3]. According to findings in different countries around the globe, the COVID-19 pandemic increases negative emotionality, fear of infection or death, frustration, anger and feelings of guilt, loneliness and despair [4]. A nationwide survey of more than 50,000 Chinese people, carried out during the COVID-19 epidemic, showed that almost 35% of respondents had experienced psychological distress. This was associated with gender, age, education level, occupation and region. Males and young people demonstrated lower rates, while highly educated individuals and migrant workers experienced the highest level of distress. Availability of local medical resources, efficiency of the regional public health system and prevention and control measures taken in response to the epidemic also influenced the level of distress [5].

A high level of anxiety was detected at the initial stage of the COVID-19 epidemic in China [6, 7], Hong Kong [8] and Saudi Arabia [9]. More than half of the respondents rated the psychological impact as moderate, and about a third reported moderate anxiety [6]. A follow-up study conducted four weeks after the initial survey did not show a significant reduction in levels of distress, anxiety and depression [7]. Almost all respondents were alert to the progression of the coronavirus disease (99.5%) [8].

A German study has revealed the association between behavioural and emotional responses to stress factors and gender and age. When asked to rate the risk of developing COVID-19, older people reported a lower figure than younger people, and women were more concerned about COVID-19 than men [10]. Psychological distress levels have been found to positively correlate with the female gender and pre-existing somatic symptoms; lower stress levels are associated with hygiene and precautionary measures, and trust in clinicians [7]. WHO data revealed a threefold increase in the prevalence of symptoms of depression in Ethiopia in April 2020, compared to figures obtained before the outbreak [11].

High levels of anxiety and depression have been identified in patients with COVID-19 [12]. In addition to these people, particular attention should be paid to at-risk groups: elderly people and people with chronic diseases, children and adolescents, caregivers, unemployed persons, socially disadvantaged people and individuals with mental disorders [4]. Some social groups (people on a low income, retired or divorced people and students) have been found to be at a higher risk of depression, while unemployment is associated with the risk of anxiety [9]. The parents of children hospitalized due to the pandemic have also been found to show increased levels of anxiety and depression [13].

Medical personnel who are on the front line in the fight against coronavirus, providing direct assistance to patients, are also of great concern. One study [14] focused on 1257 healthcare professionals working in hospitals or wards for Covid-19 patients in China. Assessment of their mental health showed high rates of depression (50.4%), anxiety (44.6%), insomnia (34.0%) and distress (71.5%), particularly among nurses, women, frontline healthcare workers and those working in the epidemic "hot zone" [15].

The results of a study investigating the psychological impact of COVID-19 among medical college students in China (n = 7143) indicated that 0.9% of respondents were experiencing severe anxiety; 2.7% moderate anxiety and 21.3% mild anxiety. Moreover, having personal experience of COVID-19 was a risk factor for increased anxiety, while living in urban areas, a stable family income and living with parents were found to be protective factors. Economic effects and the effects on daily life are directly associated with anxiety symptoms [16].

According to another study prognosis, levels of anxiety increase even further in due course, both through direct causes (including fear of contamination, stress, grief and depression triggered by exposure to the virus) and the influence of social and economic consequences on an individual and societal level [17].

Our study aimed to assess the level of anxiety, depression and distress among the general population during lockdown in Russia and to reveal the main causes of distress. This information could be helpful in developing strategies aimed at maintaining the psychological well-being of people and prevention of mental health problems.

The study hypothesis was that amid the COVID-19 pandemic, and during a month of lockdown, people will have abnormal levels of anxiety and depression, while people's levels of distress will increase due to concerns about their own health and the health of loved ones, the threat to life from the pandemic and everyday difficulties due to lockdown.

## **MATERIALS AND METHODS**

### **The survey context**

In Russia, the pandemic situation began to gradually deteriorate in March 2020. Ever since the first case on 2 March, the capital city, Moscow, has been the centre of the epidemic in this country. At the same time, it also has the most modern, comprehensive and well-organized healthcare service in the country. On 25 March, the president declared a holiday from 30 March to 12 April, with salaries continuing to be paid. Employers were obliged to shift work to a remote regimen so that staff could carry on working if remote work was possible and get paid, regardless of their work involvement. The initial "holiday" period was prolonged until the end of April. All public events were cancelled. Shops were closed, except for food shops, pet shops and pharmacies, and all education processes shifted to a remote format. A pass control measure was introduced in Moscow and certain other regions. At the end of March, the transport cards of people over 65 years old who needed to stay at home for their own safety were suspended, as were those of school children and students. An even stricter regimen was introduced in Moscow on 15 April, according to which people were only allowed to leave their home to go to the nearest shop. Travelling longer distances was limited to twice a week, with a special pass. Violation of the restrictions resulted in penalties of 4000 roubles (US\$57) for each case. When we commenced our survey, the number of infected cases in Russia was about 58,000 (about 32,000 by 22 April in Moscow alone), and the numbers rose steadily by 5000–6000 every day, though the number of deaths was relatively low, with about 513 in total (261 in Moscow) and daily growth of about 50 cases [18]. Information about current events and the latest news relating to the pandemic were presented continuously on all TV channels and other media. A general sense of uncertainty arose due to the stepwise decisions of authorities regarding the lockdown regimen and very approximate deadlines set.

## **Methods**

The survey, developed by the authors of this study, was performed online among the general population (mostly Moscow residents) from 22–27 April 2020 (the fourth week of lockdown). The researchers distributed links to the survey via social networks. People were asked to answer questions about their personal well-being during the COVID-19 pandemic by filling in the survey in Google forms, and the results were collected once respondents pushed the "submit" button. It was made clear that answering all the questions and pushing the "submit" button would be taken as a sign of voluntary consent to share answers. The survey was completely anonymous; no identifiable personal data or IP addresses were collected. Ethical approval was not obligatory due to the non-interventional online survey research design.

There were no special inclusion criteria for participants, except a minimum age requirement of 18.

The survey questions covered general information about people's social and demographic characteristics, with an emphasis on occupation, living conditions, experience of COVID-19, health condition (physical and mental), attitudes and views on the pandemic and the need for psychological support. Respondents were then asked to fill in the Hospital Anxiety and Depression Scale (HADS) [19]. The HADS results were interpreted using recommended cut-offs for the scale (normal level: a score of 0–7; borderline abnormal: a score of 8–10; abnormal: a score of > 10). Participants were asked to evaluate what their level of subjective distress had been during the preceding week using a visual numeric scale and to assess their level of distress using the 10-point scale (from 0 to 10, where 0 is no distress, and 10 is maximal distress). Participants were also asked to specify the cause of distress by answering yes/no to a list of distress causes. Causes of distress were adopted from the WHO information sheet about the major psychological challenges of the COVID-19 pandemic [20], including the following: fear of getting infected; concerns about the health of loved ones; problems in interaction with children and a partner; distress due to the lockdown; a total change of plans and lifestyle; stigmatization due to COVID-19 and financial problems. The full version of the survey is shown in Appendix A in the supplementary materials.

## Statistical analysis

### A. Primary endpoint

The primary endpoint of the study was an evaluation of the frequency distribution of normal, borderline abnormal and abnormal levels of anxiety and depression HADS scores and mean HADS anxiety/depression scores (HADS-A and HADS-D).

### B. Secondary endpoints of the study were evaluation of the following:

1. demographic characteristics and factors connected with personal experience of COVID-19 and attitude towards COVID-19 information, and their association with levels of HADS-A and HADS-D;
2. the level of subjective distress;
3. major sources of distress among the general population during the fourth week of lockdown.

Categorical variables are presented as frequencies (% and 95% CI limits for relative frequencies). To determine demographic factors associated with anxiety/depression levels, contingency tables were generated and then tested with the chi-square test. Continuous data are presented as means and 95% margins of confidence intervals. Between-group comparisons of continuous variables were performed using ANOVA. The importance of demographic predictors, attitude towards COVID-19 information and sources of distress were estimated using general classification and regression tree models, where the distress score was the dependent variable. Variables with an importance of more than 0.25 were then selected for the final model, and after the cross-validation process, the regression tree model was generated. All tests were performed at a two-tailed significance level of  $p < 0.05$ .

Statistical analysis was performed using XLSTAT 2019.3.2 (Addinsoft (2020), XLSTAT statistical and data analysis solution, New York, USA; <https://www.xlstat.com>).

## RESULTS

### Demography

In total, 352 responses were collected (men = 74, women = 278; age (M  $\pm$  SD) = 36.81  $\pm$  11.36 y.o.). Most respondents (n = 282, 80.11%) had a high level of education, and about a quarter (n = 73, 20.74%) of those with a high level of education were medical doctors. Overall, 246 (69.89%) people were working; 49 (13.92%) were studying and the other 57 (16.19%) were

not working due to various reasons, including being retired, on maternity leave or for other reasons. At the time of the survey during lockdown, 133 (37.78%) respondents had begun working remotely; 70 (19.89%) were not working; 26 (7.39%) had stopped working and were not getting paid; 17 (4.83%) had stopped working but were being paid; 24 (6.82%) were continuing to work from home as they had before the pandemic; 65 (18.47%) were continuing to go to their usual workplace; 2 (0.57%) had been fired during the pandemic and 4 (1.14%) and 11 (3.12%) were business owners whose businesses had continued to operate or had stopped operating respectively.

Most respondents lived in Moscow or its suburbs (n = 288, 81.82%), in an apartment 300 (85.23%), and were satisfied with their living space (n = 251, 71.31%). Only around half (n = 196, 55.68%) had a partner; others were single; 52 (14.77%) lived only with their partner; 49 (13.92%) lived alone; 31 (8.81%) had several generations under one roof (children and elderly relatives) and others lived with either children or elderly relatives. Full details of the demographic characteristics are given in Appendix B in the supplementary materials.

### Personal experience of COVID-19 and attitude towards COVID-19 information

In their responses to general questions about the pandemic situation, 197 (55.9%) people said that they considered the COVID-19 pandemic to be really serious and a great danger to health; 53 (15.1%) thought that it was not true and 102 (28.9%) chose the "difficult to answer" option; 288 (81.6%) were prepared to wait out the quarantine and had made all the recommended preparations; 321 (91.1%) worried about their health and the health of their loved ones; 167 (47.6%) carefully monitored the information about COVID-19; 157 (44.6%) did so from time to time and only 27 (7.8%) did not monitor the situation.

Most respondents (n = 225, 63.92%) did not have any personal experience of the coronavirus infection. Of the 127 respondents who did have some experience, 63 (17.9%) said that they or someone they knew had been infected by COVID-19; 37 (10.51%) answered that they or someone they knew had been hospitalized due to COVID-19; only 12 (3.41%) people knew someone who had died from COVID-19 and 15 (4.26%) were medical professionals who worked with COVID-19 patients.

### Primary endpoint

Of the 352 participants, only 49 (13.92%) had abnormal levels of anxiety (HADS-A score > 10); 56 (15.91%) people had borderline abnormal levels of anxiety (HADS-A score of 8–10) (Figure 1). Abnormal levels of depression (HADS-D score > 10) were revealed in 30 (8.52%) participants, and borderline levels (a score of 8–10) were indicated in 29 (8.24%) people. Higher than normal levels of HADS anxiety/depression were observed in 105 (29.83%) and 59 (16.76%) respondents, respectively; mean (95% CI) scores for HADS anxiety/depression were 6.23 [5.77, 6.68] /4.65 [4.22, 5.08] (women) and 4.20 [3.32, 5.09] /3.46 [2.63, 4.29] (men), respectively. Abnormal scores were recorded by 42 (11.93%) participants for both the anxiety and depression scale. Normal levels of anxiety and depression were prevalent in our sample (HADS-A:  $\chi^2 = 221.4$ ,  $df = 2$ ,  $p < 0.0001$ ; HADS-D:  $\chi^2 = 395.5$ ,  $df = 2$ ,  $p < 0.0001$ ) (Table 1).

### Secondary endpoints

Abnormal levels of anxiety were significantly more frequent in women than in men ( $\chi^2 = 8.21$ ,  $df = 2$ ,  $p = 0.017$ ; Table 1). Another variable besides gender, which had a significant influence on the level of anxiety, was present or past history of mental health problems (as reported by respondents) ( $\chi^2 = 111.29$ ,  $df = 10$ ,  $p < 0.001$ ). Moreover, of those who had had psychiatric problems in the past ( $n = 52$ ), 11 reported abnormal levels of anxiety and 15 were borderline abnormal, whereas of the 300 people who reported not having previously had psychiatric problems (including those who had problems at the time of the survey), only 38 and 41 reported abnormal or borderline abnormal anxiety, respectively ( $\chi^2 = 12.25$ ,  $df = 2$ ,  $p = 0.002$ ).

Personal experience of COVID-19 of any kind (being infected or hospitalized, knowing someone who was infected, hospitalized or had died due to COVID-19) was found to be associated with increased HADS-A scores, although mean scores did not reach even borderline levels of anxiety (mean HADS-A scores of people who had experience of COVID-19: 6.724 [6.046; 7.403]; mean HADS-A scores of people with no experience of COVID-19: 5.280 [4.770; 5.790]; post-hoc test for contrast:  $t = -3.347$ ,  $p < 0.001$ ). Other variables (level of education, living conditions, marital status, occupation, medical education, etc.) were not found to have any significant influence on the level of anxiety in respondents.

Unlike the HADS-A results, levels of HADS-D scores did not differ significantly between men and women. The only variables found to influence depression scores were living conditions and past or present mental health problems (as reported by respondents): people who lived in a shared apartment (rooms) had significantly higher HADS-D scores ( $\chi^2 = 23.57$ ,  $df = 6$ ,  $p < 0.001$ ), and those who had experienced mental health problems had higher HADS-D scores ( $\chi^2 = 56.6$ ,  $df = 10$ ,  $p < 0.0001$ ).

### Distress

Most respondents ( $n = 208$ , 59.4%) estimated their level of distress to be < 5 on the 10-point scale (Figure 2).

All respondents were asked to identify causes of distress if they had any. The leading causes of distress were (in the order of incidence) as follows: 1) the risk of financial problems in the future ( $n = 267$ , 76.3%); 2) violation of plans and the collapse of normal life ( $n = 235$ , 67.1%; and  $n = 240$ , 68.6%, respectively); 3) the health of elderly or chronically diseased relatives ( $n = 205$ , 58.6%) and 4) being in self-isolation ( $n = 186$ , 53.1%). Less than 30% of respondents reported having problems in terms of relationships with family members (children, a partner or elderly relatives). Being stigmatized due to COVID-19, having work overload or being at risk of losing a job were also among the less common reasons for distress (Figure 3).

Estimation of demographic variables associated with distress levels, attitude towards COVID-19 and sources of distress found to have an importance of 0.25 or higher in the regression model were as follows: the need for psychological support; changes in psychological condition; worries about the family's financial situation; worries about the current situation; mental health; present or future financial risks and other health problems. When these variables were entered into the regression tree model (Figure 4), the best fit model included the following: the need for psychological support; changes in psychological condition; worries about the family's financial situation and mental health.

Our research sample was split according to the need for psychological support reported by respondents. Those who did not feel the need for psychological support had a lower mean score for distress (group size, mean distress level and variance:  $n = 210$ ,  $M = 3.00$ ,  $D = 5.84$ ), while those who felt this need had a mean score of 6.57 ( $n = 49$ ,  $M = 6.57$ ,  $D = 3.83$ ). Those who chose the "difficult to answer" option also had a higher level of distress ( $n = 93$ ,  $M = 4.78$ ,

Table 1. Distribution of HADS-A and HADS-D scores

	Gender				
	Women	Men	Total		
<b>HADS-Anxiety Score</b>					
Mean [CI 95%] HADS anxiety score	6.23 [5.77, 6.68]	4.20 [3.32, 5.09]	5.80 [5.39, 6.22]	df = 1, SS = 239.4, F = 16.04, p < 0.0001	
Normal (score < 8)	N 187 % 75.71%	60 24.29%	247 100.00%	χ <sup>2</sup> = 221.4, df = 2, p < 0.0001	
Borderline abnormal (score 8–10)	N 45 % 80.36%	11 19.64%	56 100.00%		
Abnormal (score > 10)	N 46 % 93.88%	3 6.12%	49 100.00%		
χ <sup>2</sup> = 8.21, df = 2, p = 0.017					
<b>HADS-Depression Score</b>					
Mean [CI 95%] HADS depression score	4.65 [4.22, 5.08]	3.46 [2.63, 4.29]	4.40 [4.01, 4.78]		df = 1, SS = 82.49, F = 6.26, p = 0.013
Normal (score < 8)	N 225 % 76.79%	68 23.21%	293 100.00%	χ <sup>2</sup> = 395.5, df = 2, p < 0.0001	
Borderline abnormal (score 8–10)	N 26 % 89.66%	3 10.34%	29 100.00%		
Abnormal (score > 10)	N 27 % 90.00%	3 10.00%	30 100.00%		
χ <sup>2</sup> = 5.03, df = 2, p = 0.081					
<b>Total</b>	N 278 % 78.98%	74 21.02%	352 100.00%		

D = 4.66). People in this group also had worries about family finances. Those who felt that they did not need psychological support could be split into two groups according to changes in their psychological condition (“yes” or “no” answers). Those who mentioned a change in psychological condition during the pandemic had higher levels of distress (n = 67, M = 4.16, D = 6.52). Among these respondents, we also identified a group of people who had some concerns about family finances (n = 41, M = 5.02, D = 6.85) but who were not overly worried about this issue (n = 26, M = 2.8, D = 3.00).

## DISCUSSION

The survey was performed during the fourth week of lockdown, which officially started from 30 March (about two weeks later than in most European countries).

This enabled us to obtain information about the realities of lockdown and people’s experiences in neighbouring countries. Information about coronavirus started to appear in the mass media and on the internet in January and became the main media topic at the beginning of March. The total number of infected cases in Russia rose during the course of our survey, from 57,999 at the start (22 April) to 87,147 people by the end (27 April) [21].

In line with data from countries that had already experienced a coronavirus outbreak and lockdown, we expected to see a higher prevalence of anxiety and depression than usual among the general population in the midst of the epidemic in Russia. In our sample, we did not find a great prevalence of subclinical or clinical levels of depression or anxiety in the sample using the HADS

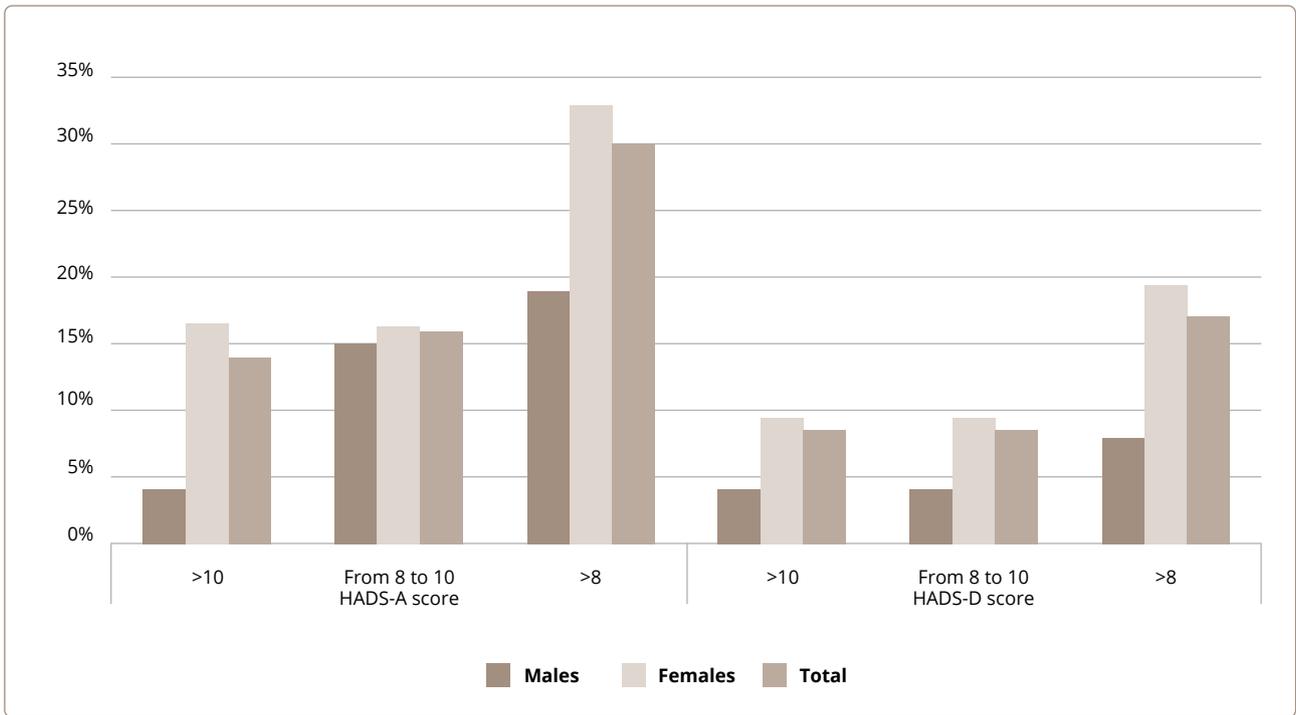


Figure 1. Relative frequencies of scores for abnormal (> 10), borderline abnormal (> 8) and normal (< 7) levels of anxiety (HADS-A) and depression (HADS-D)

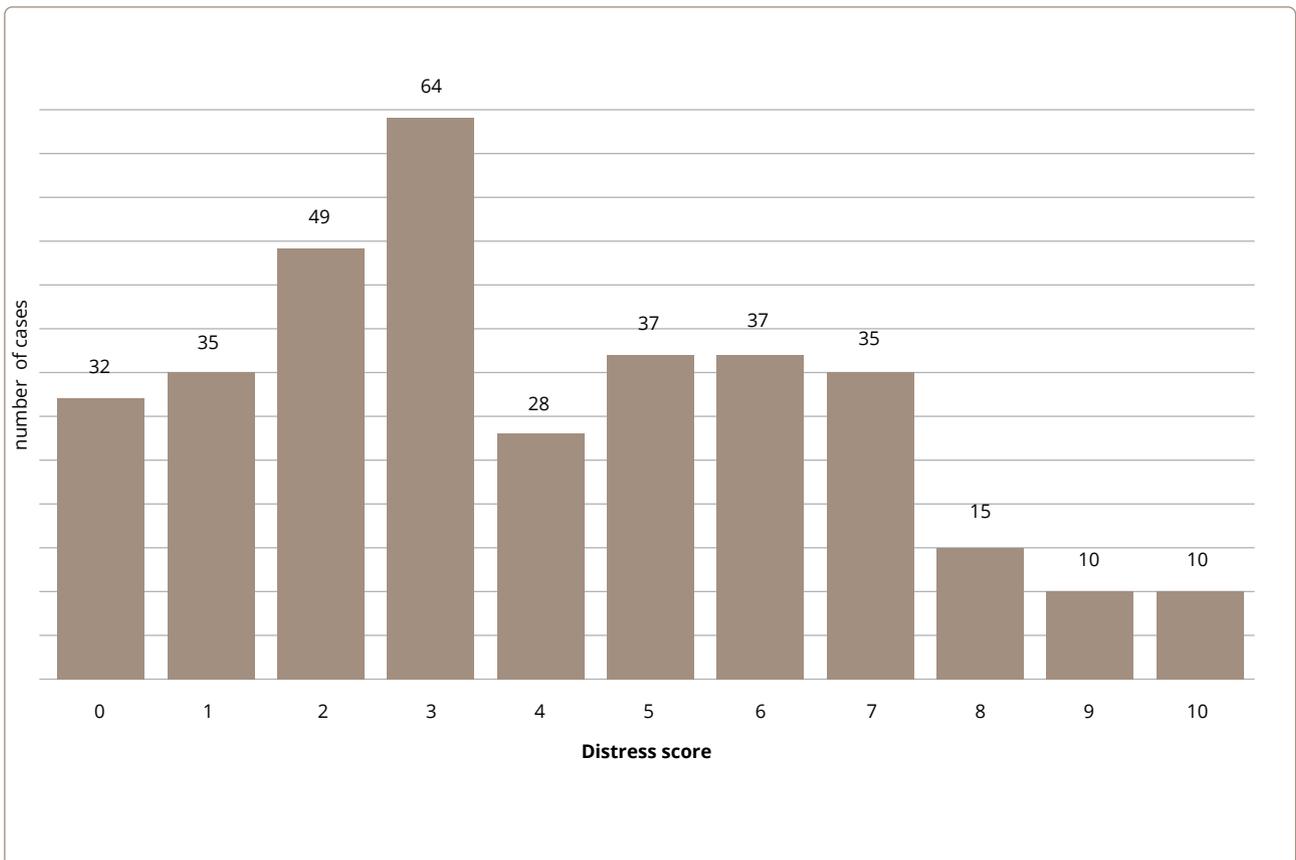


Figure 2. Levels of distress in the sample

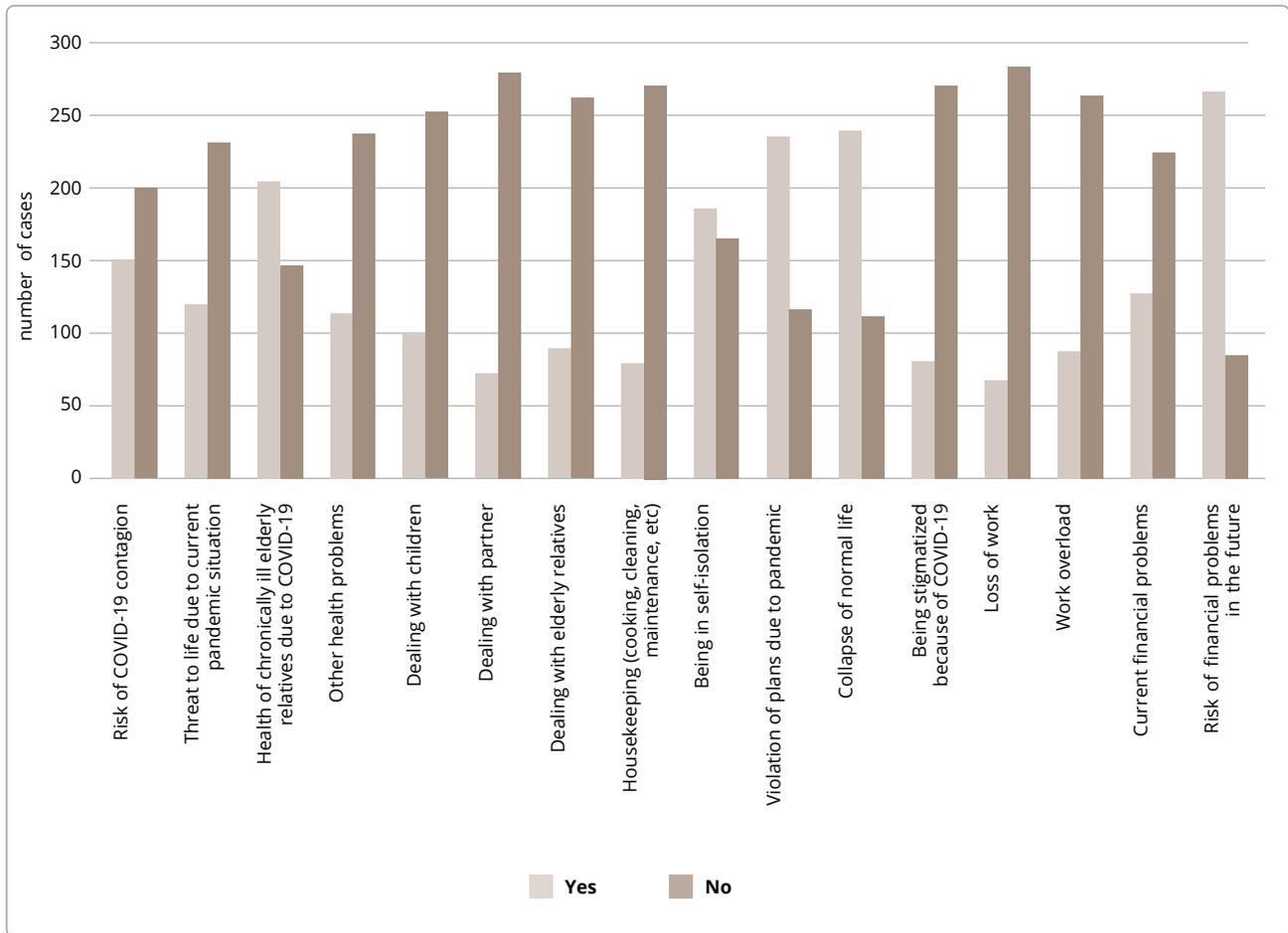


Figure 3. Causes of distress

scale. In our sample, abnormal levels (> 10) of anxiety and depression were observed in 13.9% (4.1% in men and 16.5% in women) and 8.5% (4.1% in men and 9.7% in women) of respondents, respectively and we found higher than normal levels (> 7) in 29.8% (18.9% in men and 32.7% in women) and 17.0% (8.1% in men and 19.4% in women) of respondents, respectively. This is lower than was estimated for both abnormal anxiety/depression (18.1% in total, 10.9% in men and 22.7% in women for anxiety; 8.8% in total, 6.7% in men and 10.0% in women for depression), and it constitutes a higher than average level of anxiety/depression (46.3% in total, 35.5% in men and 54.9% in women for anxiety; 25.6% in total, 20.6% in men and 28.6% in women for depression) in terms of the Russian general population (N = 16,877) [22]. It is also similar to estimates based on a sample of the German general population (N = 4410). In men and women, abnormal anxiety is 5.2% and 8.1%, respectively; abnormal depression is 9.6% and 9.3%,

respectively; higher than normal anxiety is 18.1% and 23.2% respectively and higher than average depression is 23.9% and 23.5%, respectively [23]. In our study, higher levels of anxiety and depression were found to be associated with a self-reported history of mental health problems and the female gender, while higher depression levels were more frequent among people with disadvantaged living conditions.

Although the mean scores for anxiety/depression in our study were lower (6.23/4.65 for women and 4.20/3.46 for men), they are within the limits of known population norms published by Shal'nova S.A. et al. for the Russian Federation (8.1/5.4 for women and 6.7/4.5 for men) [22], and they are closer to other known norms that were estimated in Germany (N = 4410): anxiety/depression 5.0/4.7 (females) and 4.4/4.8 (males) [23].

Our results differ from the results of similar surveys carried out during the pandemic, where excessive levels

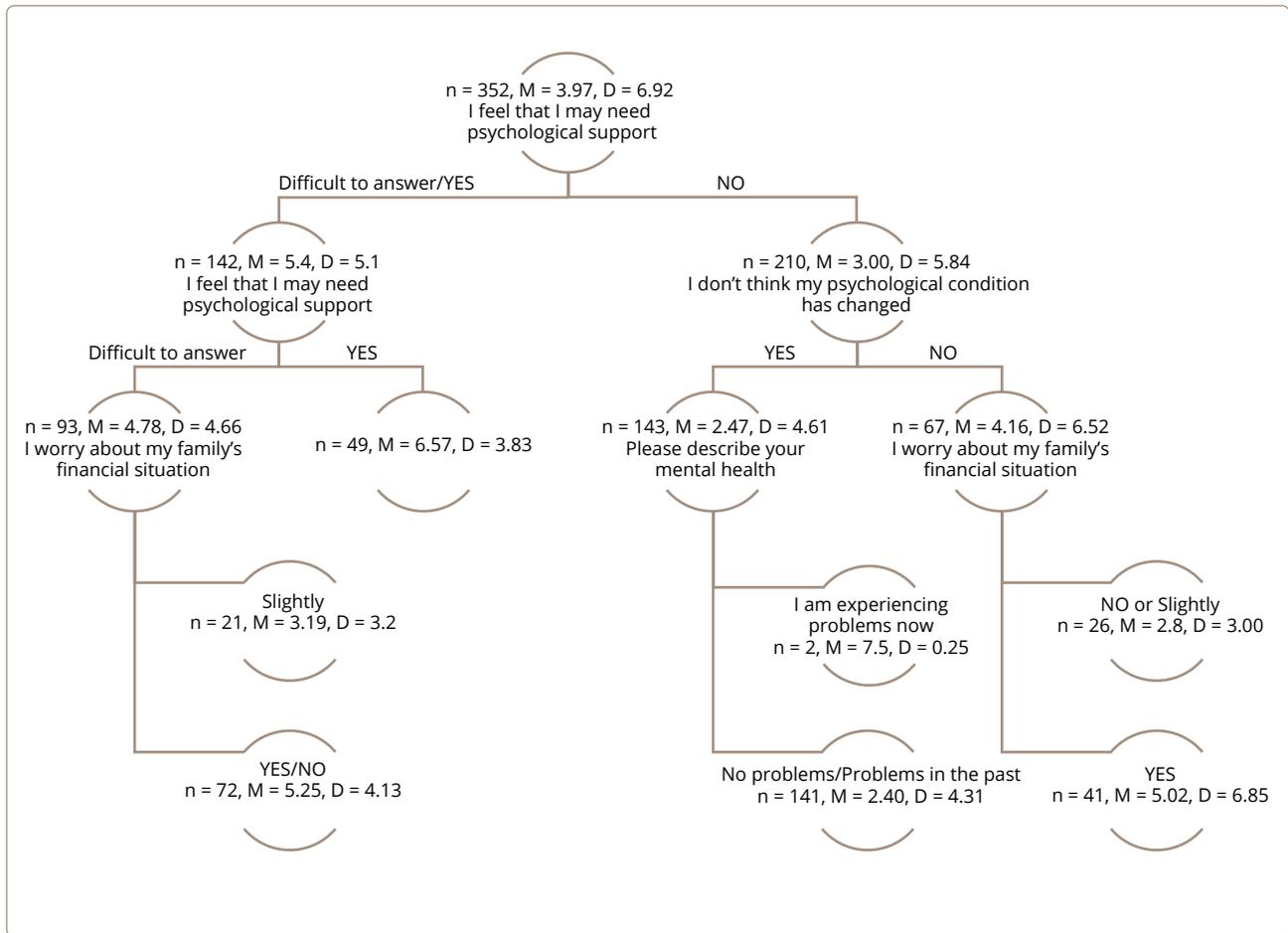


Figure 4. Regression tree model

of depression and anxiety were found either by using the HADS [24] or the Depression, Anxiety and Stress Scale (DASS-21) [6–8]. Moreover, our results cannot be explained by the careless attitude of people towards the pandemic among the examined sample (with most respondents sharing the view that the pandemic is a serious threat and most being ready to wait out the quarantine); nor can they be explained by a lack of information because 92.2% reported receiving it. Our findings relating to normal levels of HADS-A and HADS-D may partly be explained by the fact that only 14% of respondents had personal experience of severe consequences of the COVID-19 infection, such as hospitalization or the death of people close to them. Furthermore, the strict countermeasures aimed at curtailing the spread of COVID-19 were implemented in the context of a consistently low estimated mortality rate and possibly led to a waning of the initial psychological reaction. Another reason is the biased sample in terms of social and demographic

characteristics, with a prevalence of women and high levels of education among respondents, along with an absence of people with lower levels of education, elderly people and migrants, i.e., people from the most vulnerable social groups, who have been proven to suffer emotional problems during the pandemic [4, 9, 12, 13].

In our study, an additional instrument was used for self-assessment of subjective distress levels and the causes of distress, along with questions about the need for psychological support and changes in psychological well-being. It is interesting to note that in our sample, people showed high levels of awareness regarding whether they had any psychological problems: higher levels of perceived distress were associated with the need for psychological support and awareness of changes in psychological well-being (Figure 4). It seems that subjective evaluation of distress levels in our survey was more informative in terms of detecting problems with mental well-being, compared with the HADS, which was

originally designed for depression and anxiety screening in general medical settings.

The leading causes of distress were found to be associated with financial concerns and self-isolation, and the health of elderly or chronically ill relatives. The risk of being infected with COVID-19 or concerns about the threat to life were not the main reasons for distress, nor was the fear of being stigmatized due to COVID-19. Difficulties associated with dealing with family members (children, a partner or elderly relatives) had even less impact on distress. These results do not correspond with assumptions made by the WHO about possible causes of distress (reflected in its information sheets) [25] or with the results of another survey carried out during the first week of the COVID-19 pandemic in Russia [26].

The leading sources of distress captured in our study may differ from the sources of distress at various stages of lockdown. In the study mentioned above (carried out at the beginning of April), the top concerns (in descending order) were the risk to the lives and health of relatives (77.2%), possible financial difficulties (57.0%) and severe social consequences (49.5%) [26], whereas in our study (conducted at the end of April), the leading cause was the risk of financial problems in the future (76.3%), followed by violation of plans and the collapse of normal life (67.1%), the health of elderly or chronically diseased relatives (58.6%) and being in self-isolation (53.1%).

## LIMITATIONS

The main limitation of our survey is the unknown selection bias [27]. The link to the survey was disseminated via the social environment of the authors (via chat platforms, social internet networks and emails). People were encouraged to continue sharing the link with their contacts. Therefore, we do not know the sampling frame. The Google forms platform does not provide information on the number of survey entries, the number of partial responses or the number of people who do not respond at all. Therefore, the limitations of our study are comparable with other online mental health surveys carried out during the pandemic [28].

The respondents in the sample used for the analysis have specific demographic and social characteristics, with a prevalence of women and high levels of education. Furthermore, although the study sample was large

enough for a statistical analysis, it was far smaller than the samples used in other studies, which comprised thousands of participants. Another limitation is the fact that most respondents were from Moscow. On the other hand, the fact that most of our respondents were from the capital city allows us to make comparisons with other international studies carried out in megacities all over the world known to be the epicentre of the epidemic in their respective countries.

## CONCLUSIONS

The level of anxiety and depression reported during the COVID-19 pandemic in the study sample did not exceed the population norm that was assessed in the usual (non-pandemic) situation. The specific demographic and social characteristics of the sample (a prevalence of high levels of education among respondents, less personal experience of coronavirus and relatively high levels of social well-being) could explain the low levels of depression and anxiety found, and the low incidence of severe distress. Notwithstanding this, we did find the female gender and a history of mental health problems to be associated with higher levels of anxiety and depression.

It seems that self-reports of psychological well-being and subjective distress assessments are informative screening tools for detection of people who have distressing emotional reactions. Such screening tools may be more useful for the general population during periods of crisis, rather than as tools designed to measure clinical levels of emotional disturbance, such as anxiety or depression. In our survey, the HADS scale turned out to be less sensitive in capturing existing emotional problems, while use of the subjective distress scale revealed individuals in need of psychological support and a change in their psychological well-being.

Mental health professionals should focus on the causes of distress when developing psychological support interventions, and the relevant authorities should do likewise when media strategies are being developed to manage (reduce) the impact of “infodemic” [29] on the public and when social support programmes are being devised.

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# Schizophrenia and toxoplasmosis: association with catatonic symptoms

Шизофрения и токсоплазмоз: ассоциация с кататоническими симптомами

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## ABSTRACT

**Introduction.** The association between schizophrenia and toxoplasmosis has been demonstrated in a number of studies: the prevalence of schizophrenia is significantly higher in toxoplasmosis positive subjects than in those with *T.gondii* negative status. However, the clinical significance of this association remains poorly understood.

**Objectives.** To identify clinical phenomena that are typical for toxoplasmosis-associated (*T.gondii* seropositive) schizophrenia compared to Toxoplasma-seronegative schizophrenia.

**Methods.** A retrospective database analysis of serum samples from 105 inpatients with schizophrenia (ICD-10 code: F20; including 55 male patients; mean age of 27.4 ± 6.4 years) was carried out. The clinical examination involved a structured interview including ICD-10 and E. Bleuler's criteria for schizophrenia and psychometric tests (Positive and Negative Scales of PANSS). Serum antibodies (IgG) to *T.gondii* were identified using ELISA. The statistical significance of any differences were evaluated using the non-parametric Mann-Whitney (U) and  $\chi^2$  tests.

**Results.** The proportion of seropositive patients in the sample was 16.2%. Comparing schizophrenia patients, who were seropositive or seronegative for toxoplasmosis, there were no statistically significant differences for the mean total PANSS score, mean PANSS-P, PANSS-N or PANSS-G scores. For the majority of PANSS items, differences were also statistically insignificant, except for G5 and G6—mannerism and posturing. Seropositive patients had a higher score for this item than seronegative patients: 3.5 versus 2.1 points (U=389.5; p=0.001). Depression, on the contrary, was less pronounced in seropositive than seronegative patients: 1.4 versus 2.4 points (U=509.5; p=0.023). In addition, in seropositive patients, the frequency of symptoms such as mutism according to ICD-10 criteria for schizophrenia

was significantly higher (23.5% versus 3.4%,  $\chi^2=9.27$ ,  $p=0.013$ ), and the whole group of catatonic symptoms according to the E. Bleuler's criteria for schizophrenia was higher (52.9% versus 28.4%,  $\chi^2=3.916$ ,  $p = 0.048$ ).

**Conclusion.** The association between a positive toxoplasmosis status in patients with schizophrenia and catatonic symptoms has been revealed for the first time and should be verified in larger studies.

## АННОТАЦИЯ

**Введение.** Ассоциация шизофрении и токсоплазмоза верифицирована в ряде исследований: среди инфицированных шанс диагностики шизофрении статистически значимо выше, чем при отрицательном статусе по *T. gondii*. При этом клиническая значимость такой связи сих пор недостаточно определена.

**Цели.** Выявление клинических феноменов, свойственных ассоциированной с токсоплазмозом (сероположительной) шизофрении, в сопоставлении с сероотрицательной шизофренией.

**Материал и методы.** Ретроспективно проанализирована база данных, составленная на основе коллекции образцов сыворотки крови 105 госпитализированных больных шизофренией (F20 по МКБ-10; 55 мужчин, средний возраст  $27,4 \pm 6,4$  года). Клиническое обследование осуществляли с применением структурированного интервью, включавшего критерии МКБ-10 и Э. Блейлера для шизофрении, а также психометрически – с использованием шкалы положительных и отрицательных симптомов шизофрении (PANSS). В сыворотке крови методом иммуноферментного анализа определяли антитела класса IgG к *T. gondii*. Статистическую значимость различий определяли с помощью непараметрических критериев Манна-Уитни (U) и  $\chi^2$ .

**Результаты.** Доля сероположительных пациентов в выборке исследования составила 16,2%. При сопоставлении сероположительных и сероотрицательных больных шизофренией не было обнаружено статистически значимых различий по среднему суммарному баллу шкалы PANSS и по подшкалам PANSS-P, PANSS-N, PANSS-G. По подавляющему большинству пунктов PANSS различия также оказались статистически недостоверны, за исключением пунктов G5 и G6 – манерность и поза (более высокий балл отмечен у сероположительных больных: 3,5 балла против 2,1 балла (U = 389,5;  $p = 0,001$ )), а также депрессии, которая, напротив, была менее выражена у сероположительных пациентов – 1,4 балла против 2,4 балла (U = 509,5;  $p = 0,023$ ). Кроме того, при сероположительной шизофрении оказалась статистически значимо выше частота обнаружения такого симптома из установленных в МКБ-10 для диагностики шизофрении симптомов, как мутизм (23,5% против 3,4%,  $\chi^2 = 9,27$ ,  $p = 0,013$ ), а также всей группы кататонических симптомов по критериям шизофрении Э. Блейлера (52,9% против 28,4%,  $\chi^2 = 3,916$ ,  $p = 0,048$ ).

**Выводы.** Данные об ассоциации положительного статуса по токсоплазмозу у больных шизофренией с кататоническими феноменами получены впервые и требуют репликации на более крупных выборках.

**Keywords:** *schizophrenia, toxoplasmosis, T.gondii, catatonia, Positive and Negative Syndrome Scale, PANSS.*

**Ключевые слова:** *шизофрения, токсоплазмоз, T. gondii, кататония, шкала позитивных и негативных синдромов, PANSS*

## INTRODUCTION

A significant association between schizophrenia and toxoplasmosis caused by the neurotropic pathogen of *T.gondii* has been identified in a number of clinical and epidemiological studies, the results of which

are illustrated, for example, in the meta-analysis by J. Gutiérrez-Fernández et al. [1]. The latter demonstrates a statistically significant correlation between the *T.gondii*-positive status and schizophrenia with the odds ratio (OR) of 2.50 (95% CI=1.40–4.47). This

means that following *T.gondii* infection, the probability of schizophrenia diagnosis is 2.5-fold higher compared to patients with *T.gondii*-negative status. In general, the OR ranges from 1.47 (95% CI=1.03–2.09) to 2.73 (95% CI=2.10–3.60) in meta-analyses and some large epidemiological studies [2-4].

Data on the prevalence of infection in patients with schizophrenia (seropositive for IgG) also vary across a fairly wide range: from 16.2% to 46% [5, 6].

According to a study of the Russian population of schizophrenia patients, the prevalence of the infection is as high as 40%: 62 of 155 schizophrenia patients were seropositive for toxoplasmosis (IgG) versus 39 of 152 healthy control group subjects (25%); the odds ratio being 1.93 [7].

The clinical significance of seropositive *T.gondii* status in schizophrenia patients remains poorly understood. Similarly, knowledge of the possible correlates at the symptomatic, syndromal and dimensional levels is sparse and available data largely controversial.

A comparison of *Toxoplasma*-seropositive patients with schizophrenia and seronegative patients has been carried out in only a few studies. F. Dickerson et al. [5] included 358 patients with schizophrenia in their study and found that seropositive patients differed significantly from seronegative patients by gender only (most patients were female,  $p=0.021$ ). However, there were no significant differences in respect of age, race, level of education, age at onset, duration of schizophrenia, or for total PANSS or Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) scores, smoker status, prevalence of diabetes or the use of antipsychotic drugs.

T. Çelik et al. [6] showed in a sample of 90 patients with schizophrenia that only a continuous disease course was associated with a seropositive status. No similar relationship was observed for parameters such as lack of insight or type of schizophrenia according to ICD-10 (paranoid, undifferentiated, residual, disorganized, catatonic).

A small number of scientific papers present the results of clinical and laboratory associations of toxoplasmosis in schizophrenia with individual dimensions of the mental illness. G.P. Amminger et al. [8] showed that a higher plasma level of IgG was significantly associated with a greater severity of positive symptoms on the Brief Psychiatric Rating Scale (BPRS) in a group of patients with

an ultra-high risk of psychosis (attenuated or short-term psychotic symptoms).

In a study by D. Holub et al. [9], seropositive schizophrenia patients demonstrated statistically significant differences in the severity of symptoms ( $p=0.032$ ) assessed using the PANSS-P (Positive Symptoms Subscale) but not PANSS-N (Negative Symptoms Subscale) or General Psychopathology PANSS-G subscale, when compared to seronegative subjects. The authors noted that the onset of schizophrenia in infected male patients occurred approximately a year earlier than in non-infected males while in infected female patients it was three years later than in non-infected female patients. In addition, the last hospital stay at the time of the study was, on average, 33 days longer than in the case of seropositive schizophrenia patients than in seronegative patients ( $p=0.003$ ).

Comparable data were obtained in one of the largest studies on the association between schizophrenia and toxoplasmosis, which included 600 patients with the first episode of schizophrenia [10]. The authors showed that there were no significant differences between the groups in terms of parameters such as gender, age, level of education, disease duration, age at the time of schizophrenia onset, living conditions (urban, rural) or family history of mental illness. They also demonstrated that schizophrenia patients with chronic toxoplasmosis had a higher PANSS Positive Subscale score (mean PANSS-P score: 20.8 versus 19.4), cognitive symptoms score (mean score: 8.5 versus 7.7) and excitement score (mean score: 9.5 versus 7.9) and a significantly lower PANSS Negative Subscale Score (mean PANSS-N score: 16.4 versus 17.8) compared to seronegative patients. However, none of the above publications provides an analysis of differences in individual PANSS scale items or schizophrenia symptoms.

Therefore, the goal of the study was to identify clinical phenomena that are typical for toxoplasmosis-associated (*T.gondii* seropositive) schizophrenia compared to seronegative schizophrenia.

## MATERIALS AND METHODS

**Study Design** A retrospective database analysis of serum samples obtained from schizophrenia patients was carried out. The patients were included in the databases as part of the research programme “International approaches to studying human and society mental health” conducted in the Mental-health clinic No. 1, named after N.A. Alexeev

since 2017. The study was approved by the independent interdisciplinary ethics committee of clinical studies on 14th July, 2017 (meeting minutes No. 12). Serum samples obtained from schizophrenia patients were collected from January 2019 to February 2020.

**Inclusion Criteria** included schizophrenia diagnosis according to the ICD-10 criteria (F20); age >18 years and signature on the informed consent form for both participation in the study and testing of biological samples (blood serum).

**Exclusion Criteria** included structural CNS disorders (F0) according to the ICD-10 criteria, psychoactive substance dependence (F1), affective psychoses (F3) according to the ICD-10 criteria and exacerbations of autoimmune disorders that could potentially distort the results of serology testing.

Clinical examination of patients was carried out in the first days of their hospital stay by two psychiatrists using a single structured interview and also collecting social, demographic and certain clinical symptoms of schizophrenia. The interview included the criteria for schizophrenia diagnosis according to the ICD-10 (important symptoms, some of which are observed during most of an episode lasting one month or longer) supplemented by E. Bleuler's criteria [11] and a psychometric evaluation of symptoms using the PANSS scale [12, 13].

**Blood sampling** was performed once from the cubital vein in the morning under fasting conditions between 8.00 and 8.30 am. Blood samples were placed in test tubes with ethylenediaminetetraacetic acid (EDTA) and transported to the laboratory within two hours to material safety requirements. Blood was centrifuged at 750 g for 15 min at 22°C; plasma was collected and subsequently used for testing. Frozen samples were stored at -18° to -24°C.

**Serology Testing Methods.** Serum levels of anti-*T. gondii* antibodies (IgG) were determined in the blood samples using ELISA and a ToxaplaStripG kit (Certificate 9398-005-4037-1634-2008).

**Statistical Analysis Methods.** Differences in quantitative ordinal variables (mean total PANSS scores, PANSS-P score, PANSS-N score, PANSS-G score, as well as individual PANSS items) were evaluated using the Mann-Whitney test (U). The nonparametric chi-squared test ( $\chi^2$ ) was used to compare the frequencies of categorical variables (individual symptoms of schizophrenia according to the ICD-10 and the E. Bleuler's criteria [11]). The level of statistical significance was 0.05.

**Sample Characteristics.** The study included 105 patients with schizophrenia (including 55 and 50 male and female patients, respectively). The mean age was 27.4±6.4 years (ranging from 18 to 50 years) with a median age of 27 years. The age of the prodromal symptoms onset was 19.1±7.4 years and the age at schizophrenia onset was 23.9±7.2 years. The disease durations from the beginning of the prodromal symptoms onset and from the onset of the active phase were 8.6±7.1 years and 3.7±4.6 years, respectively.

## RESULTS

The proportion of seropositive patients in the sample was 16.2% (17 out of 105 cases). When comparing Toxoplasma-seropositive or seronegative schizophrenia patients, no statistically significant differences were found in parameters such as the mean total PANSS score, mean PANSS-P, PANSS-N or PANSS-G scores, although there was a general trend towards a higher mean total score for all subscales and the total PANSS score among patients who were seropositive (Table 1).

**Table 1. Results of comparison of PANSS items in schizophrenia patients depending on their seropositive (Ig+) or seronegative (Ig-) status (M±SD)**

Item	Ig+ (n=17)	Ig- (n=88)	U	p
Mean PANSS total score ( $\Sigma$ )	103.7±23.8	96.0±28.6	735.0	0.266
Mean PANSS-P (Positive Scale) score	26.4±6.1	23.8±8.4	881.0	0.182
Mean PANSS-N (Negative Scale) score	28.2±9.4	24.9±9.8	837.5	0.262
Mean PANSS-G (General Psychopathology Scale) score	49.3±11.7	47.0±13.2	739.5	0.525

For the majority of PANSS items, differences were also statistically insignificant, except for two items on the PANSS-G scale—G5 and G6 (Table 2). The total score for “G5. Mannerisms and posturing item” in seropositive patients was statistically significantly higher at 3.5 points versus 2.1 points ( $p=0.002$ ) and “G6. Depression” total score in seropositive patients was statistically significantly lower at 1.4 points versus 2.4 ( $p=0.025$ ).

Given the statistical difference for the item G5 (mannerisms and posturing), an additional analysis of clinical data was conducted. The differences between the groups of seropositive and seronegative patients were analysed by categorical variables, which also included descriptions of motor phenomena observed in schizophrenia (primarily catatonia). In accordance with the ICD-10 criteria for schizophrenia, seropositive patients demonstrated a statistically significantly higher rate of mutism (23.5% versus 3.4%,  $\chi^2=9.27$ ,  $p=0.013$ ). However, the frequency of other ICD-10 defined catatonic symptoms was similar in both groups. Based on E. Bleuler’s criteria (1911) [11], a statistically significant difference was observed for all catatonic symptoms (52.9% versus 28.4%,  $\chi^2=3.916$ ,  $p = 0.048$ ).

## DISCUSSION

The proportion of seropositive patients in the sample of schizophrenia patients established in this study (16.2%) is consistent with the lower values of the range given in the literature of 16.2–46% [5, 10] and considerably lower than that obtained in one of the Russian studies, also carried out on the population of patients with schizophrenia in the Moscow region (40%) [7]. This may be partly due to the younger age of patients in this study (mean and median values are 27 years); many were undergoing diagnostic evaluation for their first psychotic episode.

Comparing Toxoplasma-seropositive and seronegative schizophrenia patients, no statistically significant differences were found in parameters such as the mean total PANSS score, mean PANSS-P, PANSS-N or PANSS-G scores. In this respect, our data are consistent with the results obtained by F. Dickerson et al. [5] who did not reveal any differences in the total PANSS score and by D. Holub et al. [9] who also found no differences in the PANSS-N or PANSS-G scores. However, D. Holub et al. [9] and H.L. Wang et al. [10] showed a higher PANSS-P in seropositive patients, which differs from our findings. In our study, although the total PANSS-P scores were

higher in seropositive patients, the differences did not reach statistical significance. Moreover, in the study by H.L. Wang et al. [10], seropositive patients were found to have significantly lower PANSS-N scores, which was not observed in our study or by other authors [5, 9].

None of the studies showed data on individual PANSS items, which could underlie the differences in question and none of them demonstrated data on individual schizophrenia symptoms assessed using other methods.

The statistically significant differences in respect of the G5 item “Mannerisms and posturing” observed in our study indicate that seropositive patients had more severe catatonic motor symptoms (clumsiness, unnatural movements, discoordination, bizarre and fixed postures, stiffening, habits and stereotypes), which were registered according to the PANSS instructions by physicians who were observing patients during the interview (or based on information obtained from personnel or relatives) [12, 13]. The data indicating the association of toxoplasmosis seropositive status and catatonic symptoms were supported by the evidence that seropositive patients were statistically significantly more likely to have mutism (according to the ICD-10 criteria) and all groups of catatonic symptoms according to E. Bleuler’s criteria [11].

This association of seropositive toxoplasmosis status and catatonic phenomena in schizophrenia patients may be due to a mild neurological deficit that develops as a result of the neutropic effect of the infection and mimics and/or amplifies motor symptoms associated with schizophrenia. It should be noted that this assumption is consistent with the modern concept of catatonia in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and International Classification of Diseases 11th Revision (ICD-11) as a syndrome, which can be seen in a wide range of diseases, both those of the schizophrenic spectrum and organic CNS disorders.

Some studies of organic psychoses in patients with Toxoplasma infection, both congenital and acquired, can be considered as clinical observations indirectly confirming this hypothesis [14, 15]. The aforementioned studies provide psychopathological characteristics of schizophreniform disorders associated with toxoplasmosis. Some of them are classified as oneiroid-catatonic conditions (delusional interpretation oneiroids) with mild cloudiness of consciousness. According to the authors, these psychoses could

**Table 2. Comparison of mean PANSS scores depending on seropositive (Ig+) or seronegative (Ig-) status of patients (M±SD)**

Items	IgG+ (n=17), Mean score	IgG- (n=88), Mean score	U	p
P1. Delusions	5.41±1.50	4.52±1.89	540.50	0.064
P2. Conceptual disorganization	4.71±1.40	3.95±1.71	564.00	0.116
P3. Hallucinatory behaviour	3.24±2.49	3.28±2.23	723.00	0.820
P4. Excitement	3.12±1.76	2.75±1.67	655.00	0.403
P5. Grandiosity	2.53±1.55	2.45±1.81	704.50	0.683
P6. Suspiciousness/persecution	4.59±1.23	4.11±1.38	583.50	0.160
P7. Hostility	2.76±1.60	2.60±1.81	697.00	0.642
N1. Blunted affect	4.06±1.68	3.63±1.67	651.00	0.386
N2. Emotional withdrawal	4.29±1.40	3.60±1.52	549.00	0.087
N3. Poor rapport	3.88±1.45	3.20±1.63	585.00	0.164
N4. Passive/apathetic social withdrawal	3.94±1.68	3.84±1.60	721.50	0.813
N5. Difficulty in abstract thinking	4.29±1.57	3.57±1.64	561.50	0.111
N6. Lack of spontaneity and flow of conversation	3.71±1.72	3.50±1.71	694.50	0.637
N7. Stereotyped thinking	4.00±1.54	3.53±1.72	618.50	0.278
G1. Somatic concern	2.06±1.56	1.90±1.40	695.00	0.601
G2. Anxiety	3.18±1.24	3.28±1.38	674.50	0.507
G3. Guilt feelings	1.53±1.33	1.66±1.29	691.00	0.513
G4. Tension	2.76±1.30	3.09±1.46	650.50	0.382
<b>G5. Mannerisms and posturing</b>	<b>3.53±1.74</b>	<b>2.11±1.68</b>	<b>389.50</b>	<b>0.001</b>
<b>G6. Depression</b>	<b>1.41±0.94</b>	<b>2.41±1.76</b>	<b>509.50</b>	<b>0.023</b>
G7. Motor retardation	2.35±1.62	1.94±1.46	644.50	0.305
G8. Uncooperativeness	2.71±1.69	2.60±1.65	729.00	0.863
G9. Unusual thought content	4.00±1.17	3.48±1.39	593.00	0.164
G10. Disorientation	1.88±1.17	1.65±1.05	671.50	0.434
G11. Poor attention	4.18±1.63	3.61±1.64	593.00	0.191
G12. Lack of judgement and insight	4.88±1.65	4.37±1.71	606.50	0.234
G13. Disturbance of volition	4.31±1.25	3.74±1.55	561.00	0.184
G14. Poor impulse control	2.88±1.69	2.91±1.71	745.50	0.982
G15. Preoccupation	4.47±1.46	4.06±1.65	630.00	0.294
G16. Active social avoidance	4.00±1.37	3.94±1.50	726.50	0.848

be initially considered hallucinatory-paranoid states [15] with a phenomenon of psychic automatism and a delusional misidentification syndrome or Capgras delusion, as well as religious or love delusions [14]. More severe disorders of consciousness in such patients were associated with catatonic symptoms (substupor or stereotypic arousal). However, in some cases the investigators also observed (as the disorders of consciousness became less pronounced) the phenomenon of a lucid catatonia syndrome. The investigators noted that gradually progressive toxoplasmosis was associated with alterations of exacerbations in the form of substupor states and psychomotor excitement, which was the reason why some patients were initially diagnosed with catatonic schizophrenia [14].

Some hypotheses suggested by other authors may be considered biological grounds that are consistent with our working hypothesis [10, 16–18]. Thus, the heterogeneity of psychopathological and neurological symptoms associated with *Toxoplasma* invasion may be associated with patterns of distribution of parasite cysts in the host brain. Predominant topical localization of cysts in dopaminergic structures in some cases might cause the development of schizophrenic symptoms or amplification of certain schizophrenic phenomena, e.g., catatonic manifestations, which are considered as a transnosological construct in modern research. Some authors believe that the mechanism underlying this association may be due to the ability of *T.gondii* to increase dopaminergic activity [19, 20] or its effects on tryptophan metabolism in the corresponding structures [21], which requires verification in further morphological and neuroimaging studies.

The discussion of the association between depression-related symptoms in seropositive patients is beyond the scope of this article. However, we may stipulate that this is consistent with the findings of a clinical and epidemiological study by A.B. Smulevich et al. [22] who investigated the association of depressive and other schizophrenia symptoms and demonstrated a negative correlation between the rate of depressive and catatonic symptoms.

## CONCLUSION

Our results may be relevant for further research on the nature of the association of seropositive toxoplasmosis

status with clinical manifestations of schizophrenia and its underlying mechanisms.

Given the inconsistency of available published data regarding the association of toxoplasmosis seropositive status with individual dimensions on the PANSS scale (primarily positive and negative items), it is probably too early to draw unambiguous conclusions about this relationship. Future research in larger samples and/or a meta-analysis of available publications is needed.

However, we have not been able to find information on the association of seropositive status with catatonic symptoms in schizophrenia in the available publications and it is probably discussed for the first time, which determines the novelty of this study. Our data on the association with catatonic symptoms need to be replicated and further confirmed using biological methods, taking into account the clinical characteristics of schizophrenia. The obtained data can be used for differential diagnosis of endogenous and organic psychoses and therefore, for differential treatment approaches taking into account the possible role of toxoplasmosis in schizophrenia, as well as its potentially modifying effects on the clinical manifestations of schizophrenia.

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# Cognitive behavioural therapy in virtual reality treatments across mental health conditions: a systematic review

Применение когнитивно-поведенческой терапии в формате виртуальной реальности при различных психических состояниях: систематический обзор

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## ABSTRACT

**Background.** Virtual reality (VR) has been effectively used in the treatment of many mental health disorders. However, significant gaps exist in the literature. There is no treatment framework for researchers to use when developing new VR treatments. One recommended treatment across a range of diagnoses, which may be suitable for use in VR treatments, is Cognitive Behavioural Therapy (CBT). The aim of this systematic review is to investigate CBT treatment methods that utilize VR to treat mental health disorders.

**Objectives.** To investigate how CBT has been used in VR to treat mental health disorders and to report on the treatment characteristics (number of sessions, duration, and frequency) that are linked to effective and ineffective trials.

**Methods.** Studies were included if patients had a mental health diagnosis and their treatment included immersive VR technology and CBT principles. Data were extracted in relation to treatment characteristics and outcomes, and analysed using narrative synthesis.

**Results.** Ninety-three studies were analysed. Exposure-based VR treatments were mainly used to treat anxiety-related disorders. Treatments generally consisted of eight sessions, once a week for approximately one hour. VR treatments were commonly equal to or more effective than 'traditional' face-to-face methods. No specific treatment characteristics were linked to this effectiveness.

**Conclusion.** The number, frequency and duration of the VR treatment sessions identified in this review, could be used as a treatment framework by researchers and clinicians. This could potentially save researchers time and money when developing new interventions.

## АННОТАЦИЯ

**Введение.** Виртуальная реальность (VR) эффективно применяется при лечении многих психических расстройств. Тем не менее информации в литературе об использовании этого подхода недостаточно. В частности, отсутствуют данные по формату лечения, который могли бы использовать исследователи

при разработке новых методов ВР-терапии. Одним из рекомендованных методов терапии при широком спектре диагнозов, который может применяться в формате ВР, является когнитивно-поведенческая терапия.

**Цели.** Изучить использование методов когнитивно-поведенческой терапии с применением технологии ВР для лечения психических расстройств и определить характеристики лечебного процесса (количество сессий, продолжительность и частота), которые оказались эффективны и неэффективны.

**Материал и методы.** В обзор включали исследования, проводившиеся с участием пациентов с установленным диагнозом психического расстройства, в лечении которых использовались технологии ВР с эффектом присутствия и принципы когнитивно-поведенческой терапии. Извлекали данные, связанные с характеристиками и исходами лечения, и анализировали их с использованием описательного синтеза.

**Результаты.** Было проанализировано 93 исследования. Экспозиционная ВР-терапия преимущественно применялась для лечения тревожных расстройств. Терапия обычно включала 8 сеансов 1 раз в неделю длительностью около 1 часа. ВР-терапия обычно была так же эффективна, как традиционные методы работы «лицом к лицу», либо эффективней их. Эффективность не была связана с какими-либо специфическими характеристиками терапии.

**Выводы.** Количество, частота и длительность сеансов ВР-терапии, выявленные в данном обзоре, могут использоваться для определения формата лечения исследователями и клиницистами. Это потенциально способно сократить время и средства, затрачиваемые исследователями при разработке новых вмешательств.

**Keywords:** *Virtual Reality, Digital Interventions, Narrative Analysis, Mental Health Treatment, Cognitive Behavioural Therapy*

**Ключевые слова:** *виртуальная реальность, цифровые вмешательства, описательный анализ, терапия психических расстройств, когнитивно-поведенческая терапия*

## INTRODUCTION

Virtual reality (VR) is a technological interface that allows users to experience computer-generated environments within a controlled setting [1]. Recent meta-analyses and systematic reviews have found this technology to be an effective tool in the treatment of a range of mental health conditions [2], with most evidence derived from anxiety-related disorders [3], eating disorders [4] and psychosis [5].

In addition to its treatment effectiveness, VR exposure therapy has been found to be more cost-effective than face-to-face treatment for post-traumatic stress disorder [6]. Furthermore, VR treatments are well accepted by patients, who have expressed high levels of support and interest in its use for their mental health treatment [7]. There is also evidence that drop-out rates may be lower with VR treatments than with traditional face-to-face treatments [8]. This technology may,

therefore, potentially improve access and adherence to psychological treatments [7, 8].

Despite the potential of VR in mental health treatment, significant gaps exist in the literature relating to VR treatment. Studies in the literature have mainly focused on treating anxiety disorders with exposure-based therapies and have overlooked other diagnoses (e.g., depression, bipolar and personality disorder) and other treatment possibilities (e.g., guided self-help) [8].

A framework is a basic structure that underlies a system or concept, and may be built on or used as a point of reference to decide upon a particular course of action [9]. To our knowledge, there are no shared VR treatment frameworks currently available for researchers to follow. Without a treatment framework on which to build, researchers who want to explore new VR treatment methods for overlooked diagnoses, are forced to spend a great deal of time and money to develop their own treatments, which may or may not

be successful [10]. The potential risks associated with not having a treatment framework, may constitute a barrier to new VR treatment methods.

One recommended treatment across a range of diagnoses [11], which may be suitable for use in VR treatments, is cognitive behavioural therapy (CBT). CBT is based on the cognitive model of mental illness and this model hypothesizes that the way in which patients feel and behave, is determined by their perception of situations, rather than the actual situations [12]. CBT aims to relieve distress by helping patients develop more adaptive cognitions and behaviours [13]. Developing a treatment framework that summarizes effective VR CBT treatment characteristics (e.g., the number of sessions, duration and frequency) could provide a possible foundation upon which researchers can build. This could potentially reduce the time and money spent on the development of interventions.

At present, no research has synthesized VR treatment characteristics across diagnoses. The aim of this systematic review is to explore CBT treatment methods that utilize VR to treat mental health disorders. A treatment framework will be developed from the identified shared treatment characteristics (e.g., the number of sessions, duration and frequency).

## Objectives

The objectives of this systematic review are to:

- 1 investigate how CBT has been used in VR to treat mental health disorders.
- 2 report on the treatment characteristics (number of sessions, duration, and frequency) that are linked to effective and ineffective trials.

## METHODS

The study protocol for this systematic review and narrative synthesis was registered on PROSPERO [CRD42018106757].

### Identification of studies

The eligibility criteria were developed using the PICO framework [14]. Papers were eligible if they were written in English, the study participants had to be over the age of 18 with any mental health diagnosis, using recognized diagnostic criteria (ICD-10 or DSM-V) or a validated scale with a pre-defined cut off point. To be included in the review, the interventions in the

studies had to use principles of CBT, as defined by the NHS [15]. Furthermore, the VR technology used, had to be immersive. Immersive VR is defined as a computer-synthesized virtual environment surrounding the user. This can include (but is not restricted to) a head-mounted display (HMD) and a Cave automatic virtual environment (CAVE). An HMD consists of a computer-generated video display attached to the user's head, with retina or head trackers that measure the changing position, which is fed back to the rendering computer [16]. A CAVE is essentially a room in which computer-generated visual imagery is projected onto the walls, floor and ceiling, and the user is free to move around [17]. Papers were excluded if they did not have an experimental design (e.g., case series and reviews) and if the treatment procedures were not reported. All comparators and mental health-related outcomes were taken into consideration, including treatment effectiveness, feasibility, adherence and attrition.

A literature search of PubMed, CINAHL, EMBASE, PsycINFO, the Cochrane Library and NICE Healthcare Databases Advanced Search was conducted in August 2018. Grey literature was also searched using OpenGrey and Google Scholar. The search strategy was developed by identifying relevant key terms, used in a previous VR review [8] and was further developed in conjunction with an information scientist. The general search terms were: 'virtual reality' AND 'cognitive behavioural therapy' AND disorder-specific terms (see Appendix A for full search terms). Databases were searched from inception for titles, abstracts and keywords. Four key papers were identified and used to assess the reliability of the search results [1, 8, 18, 19]. The authors also conducted hand searches of the Annual Review of CyberTherapy and Telemedicine and the reference list of relevant papers. Study authors were contacted when access issues occurred.

### Study selection

Identified references were transferred into Endnote and duplicates removed. The references were then transferred into an Excel spreadsheet. The first reviewer (MD) screened all the titles and abstracts, whereas the second reviewer (NL) independently screened 25%. Subsequently, the full text of the potentially relevant papers was retrieved and was once again independently assessed for eligibility by

both reviewers. Hereafter, the reasons for exclusion were noted in the database. The inter-rater reliability for screening between the authors (MD and NL) using Cohen's Kappa was moderate (60% agreement,  $p < .0001$ ). Any disagreements throughout the screening process were resolved through discussion and, if necessary, by involving a third reviewer (VB).

A data extraction framework was created using Excel and piloted with five studies. The data extracted included general information relating to the study eligibility, methods, VR treatment descriptions and a summary of the results, outcomes and conclusions.

Data were analysed using narrative synthesis [20]. Some treatment characteristics such as number and duration of sessions, were reported numerically, other treatment characteristics such as type of VR technology used and treatment location, were simplified into categorical variables for quantitative synthesis. This was to allow synthesis and integration of a large amount of data across the dataset. The quantitative data were imported into SPSS to allow for vote counting and for the statistical testing of differences. Vote counting and quantitative synthesis (e.g., t-tests and Chi-squared) were used to develop a preliminary synthesis, as they allowed the researchers to identify patterns across the included studies [20].

The first objective of this review was to investigate how CBT has been used in VR to treat mental health disorders. Once the treatment characteristics of all of the 93 studies were synthesized, the first objective of this review had been achieved.

The second objective was to report on the treatment characteristics that are linked to effective and ineffective trials. Studies which aimed to explore VR treatment effectiveness (62 out of the 93 studies) were selected for the second analysis. These studies were categorized according to their aims and were analysed separately.

Finally, treatment characteristics of studies which found VR to be more effective by comparison with 'traditional' treatment methods (e.g., in-vivo exposure) were compared with studies which found VR to be ineffective when compared with 'traditional' treatment methods. To allow for a clear comparison, studies which were equally effective using 'traditional' methods were excluded from this analysis.

### **Risk of bias**

The two reviewers (MD and NL) independently assessed the risk of bias using the Quality Assessment Tool for Quantitative Studies [21]. This tool has been specially developed for public health research and assesses six components of bias and quality; these include selection bias, study design, confounders, blinding, data collection methods, withdrawals and dropouts. The inter-rater reliability between the authors, using Cohen's Kappa was high (80% agreement,  $p < .001$ ). Any disagreements between the two reviewers were resolved through discussion or by consulting a third reviewer (JM). The results of the quality analysis were further tabulated to identify any types of bias common to the included studies.

### **RESULTS**

The study selection process and a summary of the included studies will be presented first, followed by a general overview of the quality of the included studies. Next the main results will be presented, according to the two review objectives; 1) how CBT has been used in VR to treat mental health disorders and 2) which are the treatment characteristics that are linked to effective and ineffective trials.

#### **Selection and inclusion of studies**

Once duplicates were removed, the search generated 2273 references, of which 129 papers met the review inclusion criteria. The 129 papers reported on 93 separate studies; 36 papers reported follow-up data or secondary data analysis of the original 93 included studies. The 36 papers were combined with their original studies and analysed together. The most common reason for exclusion was the use of non-immersive technology (e.g., studies using computer screens). See Figure 1 for the PRISMA flow diagram.

#### **Characteristics of included studies**

Anxiety-related disorders were the most frequently studied group ( $n=80$ ), followed by eating disorders ( $n=6$ ), psychosis ( $n=3$ ), substance disorder ( $n=3$ ) and finally, one study relating to depression. The majority of the studies were randomized control trials ( $n=48$ ), followed by cohort studies ( $n=27$ ), non-randomized clinical trials ( $n=8$ ) and other designs ( $n=9$ ). The average sample size across the studies was 41 (range 4 -162), ( $M=40.7$ ,  $SD=35.9$ ,  $n=93$ ).

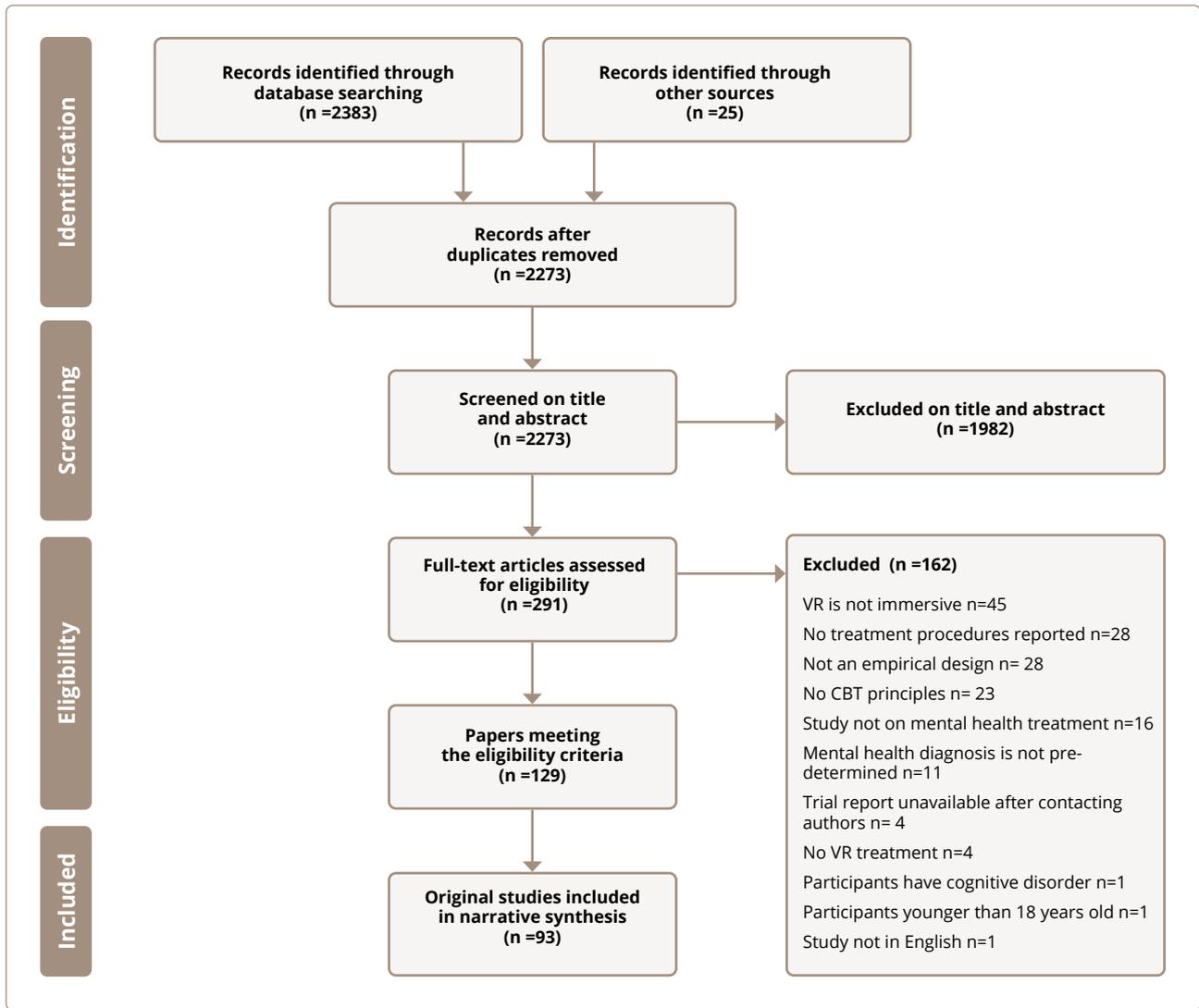


Figure 1. PRISMA flow diagram of the study selection process

Table 1. Breakdown of the quality assessment

Quality assessment	Selection bias rating	Study design rating	Confounding variable rating	Blinding rating	Data collection rating	Withdrawal rating
Strong	16	55	75	8	48	47
Moderate	36	37	5	18	20	20
Weak	41	1	13	67	25	26
Mode	Weak	Strong	Strong	Weak	Strong	Strong

### **Quality assessment and risk of bias in included studies**

The quality of the studies in this review was found to be predominately weak (see Appendix B for individual study quality assessment). A table was formulated to explore why studies were often of poor quality (Table 1).

The poor quality of the studies can be attributed to selection bias. Most studies either did not report where they recruited their patients from, or they recruited volunteers through advertising. This may have resulted in lower than anticipated drop-out rates, as volunteers might have been more willing to participate. Furthermore, although logistically difficult, most studies did not blind the patients or the assessors to the treatment intervention. This may have resulted in assessment bias.

A cross-tabulation between the quality of studies and the year of publication showed that the quality of studies has not improved over time.

### **How has CBT been used in VR to treat mental health disorders?**

To address the primary aim of the review, the common characteristics of treatments will be described. For a summary of the treatment characteristics, please view the second column of Table 2.

VR has generally been used as a component in a more extensive treatment protocol (n=58). On average, patients were offered eight treatment sessions, and six of these sessions involved VR technology. The first and the last sessions were psychoeducational, e.g., identifying symptoms and discussing relapse prevention [22]. Treatment was usually delivered once a week for an average of 78 minutes. The average duration of the VR component in these sessions was 53 minutes.

VR treatment was primarily delivered using an HMD device. In all the studies, patients were treated individually in the virtual environment. The VR treatment was generally delivered by therapists (n=38), although only nine studies provided details on the clinical training of the therapist, which included graduate and postgraduate therapists.

The majority of the studies did not report the location of the therapy, however, where the location was explicitly stated, treatments were generally administered in a therapist's office / clinic. A typical VR treatment session would involve the patient wearing an HMD, connected to a computer, which is controlled by the therapist.

Virtual reality exposure therapy (VRET) was the most frequently delivered CBT treatment (84 of the 93 studies). During VRET, patients are gradually exposed to a virtual environment that provokes anxiety, e.g., a battlefield in the case of patients with post-traumatic stress disorder [23], or exposure to a spider for patients with arachnophobia [22]. The aim is that patients become desensitized to the fear-provoking stimuli with gradual exposure.

VRET was the most commonly used treatment in this review. Across the nine remaining studies, there was some variation in the definitions used to describe the CBT treatments, e.g., VR enhanced CBT, VR cognitive therapy and repeated behavioural experiment tests. These treatments will be discussed together. Similar to VRET, these treatments all used VR to expose patients to specific, anxiety-provoking virtual environments. However, unlike VRET, the aim of exposure was not just to desensitize the patient to a situation, but to trigger certain emotions or behaviours that therapists can subsequently work on with the patient. For instance, in an eating disorder study, patients were exposed to virtual environments that were thought to trigger emotions related to weight, e.g., restaurants, clothes shopping and a swimming pool. In these environments, patients performed virtual tasks such as weighing themselves and trying on clothes, whilst the therapist discussed feelings and beliefs [24]. Similarly, Pot-Kolder et al. (2018) [26] used VR to expose patients with persecutory delusions and paranoid ideation to stressful social environments, that could trigger fear and paranoid thoughts, e.g., being on the underground or in a café. In these virtual environments, they explored and challenged the patient's suspicious thoughts and safety behaviours, and tested harm expectancies.

One study [27] used automated, repeated behavioural experiments for the treatment of a fear of heights. In the virtual environment, patients were guided by a virtual coach to explore and perform height-related tasks (e.g., saving a cat from a high level). In doing this, patients explored how safe they felt at certain virtual heights and often found that they felt safer than they expected.

### **What are the treatment characteristics that are linked to effective and ineffective trials?**

Studies included in this review varied as to their primary aim; not all the studies investigated or reported treatment effectiveness. Therefore, this section will first

Table 2. Summary of evidence, VR treatment characteristics

Summary of evidence	All CBT based VR treatment studies		Studies that found VR treatment effective with a specific population		Studies that found VR treatment to be effective in comparison to a waitlist control		Studies that found VR treatment to 'traditional' treatment		Studies that found VR treatment to be ineffective in comparison to 'traditional' treatment		Comparison between studies that found VR treatments effective and not effective
	Mean (SD) / n (%)	Overall n=93	Mean (SD) / n (%)	Overall n=20	Mean (SD) / n (%)	Overall n=7	Mean (SD) / n (%)	Overall n=19	Mean (SD) / n (%)	Overall n=3	
<b>VR treatment characteristics</b>											
<b>Total number of treatment sessions</b>	7.6 (5.6)	86	8.6 (5.5)	18	9.6 (5.2)	5	9.5 (7.5)	18	10.0 (0.0)	3	0.9
<b>Number of VR sessions</b>	5.7 (3.5)	86	7.2 (2.9)	20	6.8 (5.4)	5	6.4 (3.5)	18	7.0 (1.0)	3	0.8
<b>Duration of sessions (in mins)</b>	78.3 (45.1)	73	54.0 (26.6)	15	86.4 (55.0)	6	74.7 (39.3)	16	85.0 (22.9)	3	0.7
<b>Duration of VR sessions (in mins)</b>	53.2 (24.2)	70	46.3 (27.5)	14	53.7 (27.8)	5	59.0 (24.6)	16	50.8 (11.8)	3	0.6
<b>Treatment frequency</b>		77		16		6		16		2	Chi-squared assumption violated
Single session	11 (14.3%)		-		-			2 (12.5%)	-		
Once a week	37 (48.1%)		10 (62.5%)		3 (50%)			7 (43.8%)	-		
Twice a week	21 (27.3%)		5 (31.3%)		2 (33.3%)			4 (25%)	1 (50%)		
Three times a week	4 (5.2%)		-		1 (16.7%)			2 (12.5%)	-		
Five times a week	1 (1.3%)		1 (6.3%)		-			-	-		
Varied frequency	3 (3.9%)		-		-			1 (6.3%)	1 (50%)		
<b>VR device</b>		93		20		7		19		3	Chi-squared assumption violated
HMD	85 (86.7%)		20 (100%)		7 (100%)			17 (89.5%)	2 (66.7%)		
CAVE	2 (2.2%)		-		-			-	-		
HMD and CAVE	4 (4.3%)		-		-			-	1 (33.7)		
Neuro VR	2 (2.2%)		-		-			2 (10.5%)	-		
<b>Treatment provider</b>		71		14		7		14		3	Chi-squared assumption violated
Therapist	38 (53.5%)		9 (64.3%)		4 (57.1%)			7 (50%)	1 (33.3%)		
Students ( <i>Graduate / Doctoral / Clinical</i> )	15 (21.1%)		3 (21.4%)		-			3 (21.4%)	1 (33.3%)		
Psychologist	12 (16.9%)		2 (14.3%)		2 (28.6%)			3 (21.4%)	-		
Clinical Psychologist	5 (7%)		-		1 (14.3%)			-	1 (33.3%)		
Dentist	1 (1.4%)		-		-			1 (7.1%)	-		
<b>Treatment location</b>		52		12		4		10		2	Chi-squared assumption violated
Therapist office/clinic	19 (36.5%)		6 (50%)		2 (50%)			4 (40%)	-		
University laboratory	18 (34.6%)		3 (25%)		1 (25%)			2 (20%)	2 (100%)		
Hospital	12 (23.1%)		3 (25%)		1 (25%)			4 (40%)	-		
Patient's home	3 (5.8%)		-		-			-	-		
<b>Type of CBT treatment delivered</b>		93		20		7		19		3	Chi-squared assumption violated
Virtual reality exposure therapy	84 (90.3%)		19 (95%)		6 (85.7%)			13 (68.4%)	3 (100%)		
Virtual reality enhanced CBT	5 (5.4%)		1 (5%)		1 (14.3%)			4 (21.1%)	-		
Virtual reality cognitive therapy	3 (3.2%)		-		-			1 (5.3%)	-		
Repeated behavioural experiment tests	1 (1.1%)		-		-			1 (5.3%)	-		

Table 3. Summary of the study aims (Key\* studies included in the analysis of the second aim)

Aim (n=93)	Studies that have found VR treatments to be effective (n=46)	Studies that have found VR treatments not effective in comparison to control groups (n=3)	Studies that have found no significant difference between VR treatments and control groups (n=13)	Studies that have not focused on treatment effectiveness (n=31)
*Effectiveness of VR treatment with a specific patient population (n=20)	23,28-46	No studies	No studies	Not applicable
*Effectiveness of VR treatment in comparison to waiting list (n=8)	47-53	No studies	54	Not applicable
Importance of presence in VR treatment (n=3)	Not applicable	Not applicable	Not applicable	55-57
Cost-effectiveness of VR treatment (n=1)	Not applicable	Not applicable	Not applicable	6
*Effectiveness of VR treatment in comparison to 'traditional' treatment methods (n=34)	58-77	78-80	22,81-91	Not applicable
Whether VR treatment is enhanced with additional variables (n=21)	Not applicable	Not applicable	Not applicable	92-112
Patient preference and acceptability (n=2)	Not applicable	Not applicable	Not applicable	113,114
Feasibility of VR treatment with cheap consumer hardware (n=1)	Not applicable	Not applicable	Not applicable	115
The ability to conduct remote therapy using VR technology (n=3)	Not applicable	Not applicable	Not applicable	116-118

provide an overview of all the aims (n=93) then it will specifically focus on the subgroup of studies that aimed to investigate treatment effectiveness (n=62).

The aim of the papers correlated with the year of publication, demonstrating that earlier studies tended to focus on assessing the efficacy of VR treatments, whereas later studies aimed to assess the use of cheaper technology and remote treatment delivery. For a summary of the study aims, please see Table 3.

### **Efficacy of VR treatment within a specific patient population**

Of the 20 studies that used a repeated measures design to investigate the efficacy of VR treatment with a specific patient population, all considered VR to be an effective treatment for anxiety-related disorders [119-121],

substance disorders [31] and eating disorders [122]. For instance, a cohort study comprising 20 combat-related PTSD patients reported post-intervention, that following VRET, 80% of the patients no longer met the criteria for PTSD [23]. Another cohort study with 48 nicotine-dependent adults reported that VR cue exposure treatment reduced the patients' cigarette cravings [32]. Riva et al. (2002) [122] also used a cohort design with 57 obese and binge eating disorder patients and reported that VR-enhanced CBT, improved patients' body satisfaction.

A breakdown of the treatment characteristics in studies that found VR treatment effective within a specific population, can be found in Table 2. These studies generally consisted of a small sample size (M=25.4, SD=26.8, n=20). The treatments involved

a mean of nine sessions, and VR was used in seven of these sessions. The treatment was delivered once a week for a mean duration of 54 minutes.

### Efficacy of VR treatment by comparison with waiting list

Similar to studies that investigated the effectiveness of VR treatment within a specific patient population, the majority of the studies reported VR treatments to be relatively more effective than waiting list controls (n=7). A controlled clinical trial with 23 arachnophobia patients, reported that VRET was effective in treating this phobia. Eighty-three per cent of the patients in the VRET group showed a significant clinical improvement by comparison

with no improvement in the waiting list group [49]. An RCT, with 116 psychotic disorder patients, found that VR-CBT did not increase the length of time patients spent with other people, however, it did significantly improve patients' momentary paranoid ideation and anxiety. These improvements were maintained six months after completion of follow-up treatments [26].

Only one RCT that had 32 general anxiety disorder patients, reported that a single session of VRET was not significantly effective by comparison with the waiting list group [54].

The fourth column of Table 2 presents a breakdown of treatment characteristics in the studies that found VR treatment to be more effective than a waiting list

**Table 4. Summary VR treatment effectiveness in comparison to other 'traditional' treatments**

Effectiveness of VR treatment in comparison to 'traditional' treatment methods (n=34)	VR treatment less efficacious (n=3)	VR treatment equally efficacious (n=12)	VR treatment more efficacious (n=19)
In-vivo exposure (n=11)	78,79	19,22,81,84,86,90	69,71,123
CBT (n=7)	—	85,124	65,67,68,72,125
Imaginal exposure (n=3)	—	126,127	74
Psychoeducation (n=2)	—	—	128,129
Treatment as usual (n=2)	—	—	27,63
Bibliotherapy (n=1)	—	—	110
Prolonged exposure (n=1)	80	—	—
Integrated psychological therapy (n=1)	—	—	77
Nicotine replacement (n=1)	—	—	59
Information pamphlet (n=1)	—	—	75
Control exposure (n=1)	—	88	—
Attention placebo (n=1)	—	—	130
Computer-aided exposure (n=1)	—	131	—
Relaxation group (n=1)	—	—	64

control group. The treatment characteristics were similar to those studies that were investigating the effectiveness of VR within a specific population. For instance, studies were delivered across a mean of 10 sessions, and seven of these involved VR.

### **Effectiveness of VR treatment by comparison with 'traditional' treatment methods**

The majority of the studies in this review aimed to identify the effectiveness of VR treatments by comparison with 'traditional' treatment methods. Thirty-one out of the 34 studies (91.2%) considered VR treatments to be equally or more efficacious than traditional treatment methods. See Table 4 for a summary of VR treatment effectiveness by comparison with other 'traditional' treatments.

Three RCTs considered VR treatments to be less efficacious than 'traditional' treatment methods. Two compared the effectiveness of VRET with in vivo exposure treatment, where patients are physically exposed to the feared stimuli. Meyerbroeker et al. (2013) [79] randomized 55 agoraphobia patients and found that in-vivo exposure decreased patients' panic severity more than VRET. Similarly, Kampmann et al. (2016) [78] randomized 60 patients with a social anxiety disorder and noted that in-vivo exposure decreased patients' social anxiety symptoms. Another RCT compared the effectiveness of VRET with prolonged exposure in 162 combat-related PTSD patients. Follow-ups at three and six months reported that prolonged exposure had significantly reduced more PTSD symptoms than VRET [80].

The number of studies that reported negative results is minimal (n=3). Despite the small number of negative results, studies between effective and ineffective VR treatments were compared using a t-test. Studies which found VR treatment to be inferior to traditional methods had a larger sample size (M=92.3) than those which considered VR treatments to be superior (M=48.8). However, this difference was not significant (T=-1.8, DF=20, P=0.09).

Data were also collected in relation to participant drop-out rates. The patients' reasons for dropping out of VR treatments included VR exposure not arousing the anxiety that is necessary for desensitization [76], VR causing motion sickness and conflicts with patients' diaries [130]. The patients' reasons for dropping out

of 'traditional' treatments included not wanting in-vivo exposure [71], not being satisfied with the treatment allocation and wanting to pay for VR therapy [69]. Studies which found VR treatments more effective than 'traditional' treatments reported significantly lower VR drop-out rates (M=15.1%) than treatments which regarded 'traditional' treatments as superior to VR treatments (M=39%) (T=-2.4, DF=13, P=0.04).

Therefore, patient drop-out rates were a variable in the success of VR treatment. The other treatment variables, such as the number and duration of the sessions, were very similar across the two outcomes. Please see Table 2, Column 6 for comparisons between the variables.

## **DISCUSSION**

### **Main findings**

VR has mainly been used in the treatment of anxiety-related disorders, and treatment has usually taken the form of exposure therapies. VR has generally been used as a component in a more extensive treatment protocol. On average, patients were offered eight sessions of therapy, and six of these sessions involved VR technology. The sessions were usually delivered once a week for an average of 53 minutes.

Even though the overall quality of the evidence is weak, VR treatments seemed to perform comparably in terms of efficacy with 'traditional' face-to-face treatments. Treatment characteristics, such as the number and duration of sessions, were very similar between studies that regarded VR treatment as effective and those that found it not to be effective. However, patient drop-out rates were significantly lower in studies that considered VR treatment to be effective by comparison with those that found it ineffective.

### **Comparison with literature**

This review is the first to investigate how VR has been used in CBT (a psychotherapeutic approach) to treat a variety of mental health disorders. Previous VR reviews have focused on providing a general overview of the field [8] or reported treatment outcomes for specific diagnoses [2].

Results from this review support the findings from previous reviews, that VR is an acceptable and promising therapeutic tool for mental health treatment [4]. It can be used to deliver cognitive rehabilitation, social skills training interventions and VR-assisted

therapies for psychosis [5]. VRET is equally effective as in-vivo exposure for the treatment of anxiety-related disorders [3].

However, regardless of the wide variety of CBT treatment techniques and applications, research into VR treatments still focuses primarily on treating anxiety-related disorders with exposure-based therapies [8, 132]. There is still limited research into different types of CBT therapies, e.g., group therapies, and limited research into applications for different diagnostic groups, e.g., patients with mood disorders [8, 133, 134].

In a recent review, Freeman et al. (2017) [8] highlighted evidence that drop-out rates may be lower with VR treatments. This review supports this finding; overall, fewer patients dropped out of VR treatments than 'traditional' treatments. However, similar to Freeman's review, as differences in drop-outs may have been due to the quality of face-to-face treatments, this review is also unable to make any firm conclusions regarding these differences, but it does highlight the importance of offering high-quality treatments in research studies.

### **Strengths and Limitations**

This review is the first to collate data as to how CBT has been used in VR to treat mental health disorders. The shared treatment characteristics (e.g., eight sessions, once a week for approximately one hour) identified in this review, could potentially prevent researchers from wasting resources developing one-off interventions. Building on the shared treatment characteristics identified in this review, may potentially enable researchers to explore new VR treatment methods or explore VR treatments for under-researched diagnoses.

The treatment framework developed from this review (e.g., eight sessions, once a week for approximately one hour using an HMD) may have potential clinical implications. The lack of VR treatment guidelines could potentially have been a barrier to VR treatments entering mainstream clinical practice. Building on the treatment framework developed from this review, therapists or clinics may feel more confident to offer their patients CBT-based VR treatments.

The results from this review need to be understood within the context of its limitations. This review consisted of a high volume of papers, produced from original studies. Many authors used data across different

studies, and some authors avoided referencing their data source. This has made the separation of the original studies from secondary analysis papers difficult. A significant amount of time was spent matching the papers, and studies were compared for similarities and differences. Therefore, although the potential risk of overrepresentation of some studies is minimal, this cannot be ruled out completely. However, as the results were mainly synthesized narratively, according to treatment characteristics and methods, this would have had a limited impact on the findings.

The second aim of this review was to report the shared characteristics of effective and ineffective CBT methods. Even though the review search criteria and strategy were extensive, this review may have been affected by publication bias. Negative results are less likely to have been published. This review only identified three recent studies that reported the inferiority of VR treatment. This may be an indicator of time-lag bias, where positive findings are published first and negative findings later. Therefore, the results section of this review, comparing the shared treatment characteristics of effective and ineffective CBT methods, should be interpreted with caution.

Furthermore, this review has only conducted causal associations but has not tested these associations in a formal manner, e.g., this review cannot conclude that reducing the number of sessions from eight to five will reduce treatment effectiveness. However, the analysis conducted in this review and the framework created, is based on the best available evidence, although future studies would be required to test the framework generated.

### **CONCLUSIONS**

This review is the first to synthesize CBT treatment characteristics and methods used in VR to treat mental health disorders. The shared treatment characteristics of a total of eight treatment sessions, once a week for approximately an hour, could be used as a treatment template by future researchers. This could potentially prevent researchers from spending time and money developing their own one-off interventions. Furthermore, it may possibly enable researchers to explore new VR treatment methods or explore VR treatments for under-researched diagnoses.

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# Community-based psychiatry around the world

## Амбулаторная психиатрия в мире

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The 100<sup>th</sup> anniversary of community-based psychiatry in Russia was commemorated in 2019. This event was celebrated within the framework of the international conference, "Centenary of Community-Based Psychiatry: Landmarks and Perspectives" which was held from 16<sup>th</sup> to 18<sup>th</sup> May, 2019 in Moscow; participants from 72 countries took part in the conference. Leading Russian and foreign psychiatrists in the field of community psychiatry exchanged findings and innovated solutions for their practice and for research purposes to improve the quality of psychiatric care for patients.

In Russia, the first community-based mental health services were developed in Moscow in 1919 by order of the healthcare department of the local government. In 1924 the first mental dispensary (specialized psychiatry setting for delivering primary mental healthcare) opened in Moscow [1, 2]. Since that time, Russian psychiatry has developed concurrently in both an institutional and community-based direction, acquiring rich clinical experience.

Over the last few decades, the importance of the development of community-based mental healthcare was highlighted in WHO documents [3]. Outpatient services are at the front-line of psychiatric care to provide detection, therapy and prevention of mental health disorders, as well as psychosocial rehabilitation on a long-term basis.

The community psychiatric service should comply with the local healthcare system, therefore, a uniform model for all countries does not exist. The organizational form and efficacy of such work depends on many factors, such as financing, governmental policy, legal rules, culture-related traditions, etc. A country-level approach to community psychiatric service development can be

a source of new ideas and inspiration for better global mental healthcare.

It was for this reason that we decided to collect brief reviews from different countries all over the world, presenting their experiences and giving a panoramic view of community-based psychiatry. We developed a set of questions to make the reports comparable and to highlight the key milestones in the development of community-based psychiatric care.

### The following list of questions was suggested for the authors' consideration:

#### 1. When was community-based mental healthcare established in your country?

#### 2. What are the general characteristics of community-based mental healthcare in your country in relation to the following:

- where is it delivered (settings)?
- who can deliver it (what kind of specialists)?
- what kind of mental healthcare is provided and for whom?
- what are the connections between primary care units and community-based mental health services?
- what are the connections between community-based mental health services and other mental health services available in your country?
- what is the source of financing?
- what are the legal aspects?

#### 3. What have been the general characteristics of the mental health system since the 1980s (preferably in numerical format) as follows:

- number of psychiatrists, psychotherapists, psychologists and other professionals involved

in mental healthcare (per 100,000 of the population).

- number of psychiatric beds (per 100,000 of the population), length of inpatient treatment, usual route followed by the patient after hospital discharge (medical referrals, organization of follow-up).

- mental healthcare facilities available in your country (mental hospitals, beds in general hospitals, day hospitals, outpatient offices, etc.).

**4. What status does community-based mental healthcare have in the mental health and healthcare system in your country?**

**5. What are its strengths and weaknesses?**

**6. What plans are there for its future development?**

**7. Anything else that you consider to be important.**

An invitation to write an article giving a description of the community-based psychiatry service was sent to the respected mental health professionals of more

than 30 countries. The responses from all continents are still being collected. In the journal, we are starting to publish the reviews received by countries in every issue, in the 'special article' section.

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# Community psychiatry in Portugal: a critical review

## Внебольничная психиатрия в Португалии: критический обзор

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### ABSTRACT

The mental health system in Portugal evolved from an institutional-centred system to a community-based system, a process which began in 1998 and has gathered pace since 2006.

The approval and implementation of the Portuguese Mental Health Law and the Portuguese National Mental Health Care Plan has contributed to the implementation of institutions and regulations aimed at decentralized, local and less restrictive models of care. The implementation and evolution process has been steady and gradual, introducing many of the envisioned changes whilst adapting existing mental health institutions and services.

The current article describes this transition process, attempting to identify the strengths and weaknesses of the Portuguese Mental Health System from a community-centred perspective.

### АННОТАЦИЯ

Психиатрическая служба Португалии эволюционировала от институциональной во внебольнично-ориентированную систему, этот процесс начался в 1998 году и ускорился после 2006 года.

Утверждение и реализация в Португалии Закона о психической помощи и Национального плана охраны психического здоровья способствовали разработке нормативных актов и созданию учреждений в соответствии с моделью децентрализованной психиатрической службы, оказывающей помощь в наименее ограничительных условиях по месту жительства. Процесс внедрения и развития данной модели был планомерным и постепенным, с адаптацией существующих психиатрических учреждений и служб к запланированным изменениям.

В статье описывается процесс трансформации психиатрической службы Португалии и проводится анализ ее сильных и слабых сторон с точки зрения внебольнично-ориентированной парадигмы оказания помощи.

**Keywords:** Portugal; Mental Health, Deinstitutionalization, Community Psychiatry, Mental Health Services

**Ключевые слова:** Португалия, психическое здоровье, деинституционализация, внебольничная психиатрия, психиатрическая служба

## INTRODUCTION

According to data from 2017, mental health disorders were responsible for 12% of Disability Adjusted Life Years (DALYs) and 18% of Years Lived with Disability (YLDs). Depressive and anxiety disorders were placed in fourth and sixth place respectively, when considering all causes of disability and were responsible for loss of productivity and poorer social and developmental indicators. The population of Portugal has a prevalence of mental disorders in excess of 30%, with depression and anxiety disorders amounting to 7.9% and 16.5% respectively [1, 2]. In particular, the time gap between symptom onset and treatment referral is considered too long [3]. Community-centred mental health care is regarded as more efficient and effective, allowing for continuity of care and support to empower patients by treating them in the least restrictive way possible, resulting in better outcomes [4].

The history of mental health care in Portugal is similar to that of other European countries, with deinstitutionalization efforts beginning in the latter half of the 20<sup>th</sup> century and becoming law in 1998. Since then, the mental health system in Portugal has been organized into local and regional institutions, with the remaining psychiatric hospitals undergoing a transitional process to provide general, decentralized health care services and a long-term care network, contributing to and supporting recovery, reintegration and the rehabilitation of capabilities in a community-based setting. The transitional process still faces challenges today, however, solutions have been suggested. In the last few years, important steps have been undertaken to fully complete the transition to community-based care.

This article aims to explore and synthesize the evolution of the transitional process in Portugal, from institutional-centred mental health care to community-based health care, identifying challenges and proposed solutions in order to reinforce its effective implementation.

## METHODS

The authors performed a critical search of policy and legislative documents from the official reports of national and international institutions and articles regarding community mental health in both Portuguese and English languages.

The review was conducted in February 2018 and updated in April 2020. Combinations of the following terms were

searched: "Mental Health Care", "Community Mental Health Care", "Community Psychiatry", "Community Psychiatry in Portugal", "History of Community Psychiatry in Portugal", "Challenges to Community Psychiatry in Portugal", "Mental Health Portugal", "Psychiatry in Portugal", "Financial Models Mental Health". The following databases, search engines and websites were used - the Portuguese Official Gazette and electronic databases: Medline, Pubmed and GoogleScholar.

The publications were selected according to their relevance and content, and all publications were screened and discussed among the authors. Publications were excluded if they were deemed not to contribute with relevant information to the objectives of this article.

## RESULTS

The authors found a total of 42 publications, including legislation and policy documents or reports, and scientific peer-reviewed articles concerning the provision of community mental health care in Portugal.

The three main themes covered in these publications related to: mental health care systems and institutions in Portugal, the history of mental health care in Portugal and challenges to implementing community psychiatry in Portugal.

### History of Mental Health Care in Portugal

Community psychiatry in Portugal reflects the evolution of thought and knowledge in relation to the issues of the mind and its ailments. Mental health care underwent a predominantly institutional model during the nineteenth century, and the first mental health law dates from 1889. The twentieth century was characterized by the construction and capacitation of large psychiatric hospitals, in order to standardize treatment and keep mental health patients isolated from the rest of society [5-7].

The first deinstitutionalizing efforts can be traced back to 1927, with Sobral Cid arguing for the replacement of asylum centres with specialized centres, focusing on prevention, treatment and reintegration. A law passed in 1945 advocated a 'hygienist and prophylactic approach', instructing the construction of a hospital - Hospital Magalhães Lemos - with a pavilion-oriented disposition as an important intermediate step.

The psychopharmacological "revolution" of the 60s, allied to the evolution in thinking, allowed for a paradigm

shift that culminated in the mental health law of 1963, deemed as the first legislative step towards the direction of community-based mental health care [5, 7–10]. The '70s, '80s and '90s saw a slow but progressive march towards decentralization, with the creation of the Portuguese National Health System (NHS) in 1979 with the reinforcement of primary care and successive mental health plans and legislation enforcing a less vertical, hospital-centred model [10–12].

Since the last decades of the twentieth century, and primarily after 1998, Portugal has gradually been implementing a transition from an institutional model, in which central and psychiatric hospitals were the mainstay in mental health care, to a decentralized, community-based system.

In 1998, the approval of a new mental health law, later complemented by a joint decree (n° 407/98) from the Ministries of Health and Work and Welfare [7, 13–15], organized mental health care, prioritizing care at community level, in the least restrictive environment possible. Inpatient units, focused on more serious and acute illnesses were preferably annexed to general hospitals while outpatient treatment, where possible, was provided in local health centres. Psychosocial rehabilitation was administered through residential institutions, day-care centres and professional training units, adapted to each patient's level of autonomy and needs [15]. Within this model, the Local Mental Health Services (LMHS) constituted the basic units, whereas the psychiatric hospitals, still in existence despite this reorganization, were responsible for providing both local care, as well as specialized region-wide services, offering an adequate level of care for patients unable to be treated in general hospital units [13–15].

Portugal, as a subscriber to the 2005 World Health Organization's (WHO) Mental Health Action Plan for Europe [16] and Mental Health Declaration for Europe [17] has reaffirmed its pledge to develop community-based services, acknowledging the importance of "recovery and inclusion into society of those who have experienced serious mental health problems" and committing, among other things, to offering mental health patients treatment and comprehensive care in a wide range of settings, while establishing partnerships and cooperation across regions and sectors, both on a geographical and an organizational level [10, 16, 17].

Established in 2006, the National Council for Mental Health (NCMH) produced a report on mental health in Portugal and the National Mental Health Plan (NMHP) 2007-2016, identifying the problems in implementing certain objectives of the 1998 law and proposing solutions [4, 15].

This document resulted in more focus on deinstitutionalizing patients successfully and promoting their integration into the community. One of the primary concerns of the NMHP has been "integrating mental health care in primary care, guaranteeing continuity of care, starting inpatient admissions, followed by rehabilitation and domiciliary assistance" [4], stating that no central institution should be closed until adequate community-based solutions have been created, capable of accommodating patients previously referred to that institution, thereby significantly encouraging the development of community-centred services [10, 15, 18].

The approval of Decree-Law 8/2010 in January 2010, established the National Programme for Continued Care in Mental Health for patients with severe mental illness. In 2017, through the Order 1269/2017, approval was granted to create pilot projects in community-based, long-term, mental health care [19, 20].

### **Mental Health Care System and Institutions in Portugal**

Portugal is a European country, situated in the south-west of the Iberian Peninsula, with a population of around 10 million. It is composed of 18 districts and two autonomous regions, corresponding to the archipelagos of Madeira and the Azores. From an organizational point of view, the continental part of the country is divided into five health regions, administered by the regional health administrations (Figure 1), responsible for granting access to health care, while assuring the compliance of health policies and programmes as well as executing health care policies, coordinating planning measures and supporting and evaluating public health institutions in their areas of intervention [21–23].

Mental health services are organized into regional and local services. Local services form the basis of the national mental health care system in Portugal and are desirably connected with primary health care and other institutions, providing essential mental health care in both inpatient and outpatient settings and assuring continuity of care by

linking with other programmes and services. They can be organized in a similar way to departments of services in general hospitals (Figure 2).

Regional services are responsible for supporting and complementing local services, among other duties [1, 13, 14, 24]. The document that regulates and creates mental health home treatment teams, described the aforementioned components as interdependent, since each level and context of care needs to be optimized to allow for quality of care and an adequate transition to a more decentralized health care model.

The LMHS, the basis of mental health care in Portugal are organized according to the numbers of the population for which they are responsible. They are tasked with providing mental health care for their respective population in the least restrictive way possible, maintaining inpatient and day hospital treatments [1, 25]. Psychiatric hospitals and regional institutions are also responsible for



Figure 1. Map of Portugal

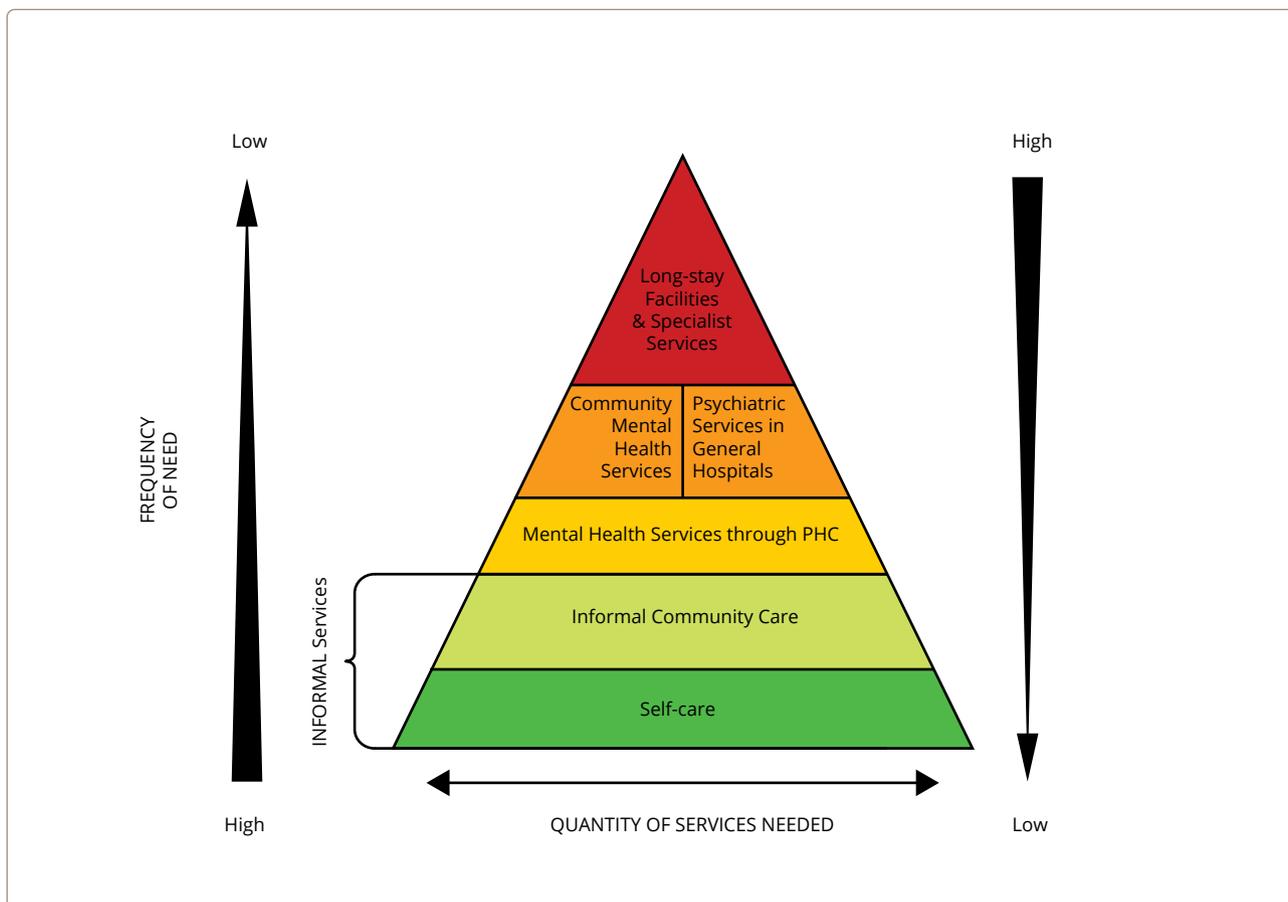


Figure 2. Portugal Mental Health Services in a desirable future

ensuring regional responses to problems that require predominately institutional solutions and answers for prolonged illness [1].

The mental health home treatment teams are foreseen as an important component of the LMHS [26]. Their objectives encompass the treatment of patients with severe mental illness following a case management review, while maintaining the connection to primary care and support for less severe, and more common mental health problems, providing support for the elderly population and coordinating prevention programmes in relation to suicide and depression. They are composed of multidisciplinary teams with active participation on the part of nurses and other non-medical professionals [1, 26].

The rehabilitation and psychosocial reintegration services are delivered primarily through three different institutions that comprise the National Network for Continued Mental Health Care in conjunction with the LMHS and the National Network of Integrated Care [19, 27]. Residential units, socio-occupational units and domiciliary support teams represent a continuum of patient autonomy levels, offering care in residential and ambulatory settings accordingly. Comprised of psychiatrists, mental health and general nurses, psychologists, social workers, occupational therapists and legal advisors, these different services can adapt to changing patient needs, and are centred on improving social and community-wide integration, empowerment and effective recovery, allowing the patient to live life to the full and to contribute to society [28]. Firstly, the residential units function as community-integrated residences for people with mental health disorders, granting them access to specialized mental health care, medical and nursing care, psychosocial support, rehabilitation and community integration [19]. They also aim to provide psychoeducation to family members or caregivers, as well as providing transportation for patients to other health care facilities when required. Residential units are divided into subtypes, ranging from autonomous training residences to maximum support residences [29]. Secondly, the socio-occupational units are located in the community and designated to patients with mild to moderate psychosocial dysfunction, and social, occupational or relational impairment. They promote autonomy, emotional stability and social participation, with the objective of providing social, familiar and

professional integration and stability [19, 28]. Thirdly, the home treatment teams act on a domiciliary level to help supervise and manage medication, ensure regular support in terms of personal care and daily activities and oversee financial and household management [19]. They are, by definition, connected and coordinated by residential units, socio-occupational units, local primary care structures or the LMHS [27].

Patients with chronic and clinically-stable, severe mental illness, including those with learning and intellectual disabilities, resulting in psychosocial disability, can be referred by any health care professional to institutions in the National Network of Continued Mental Health Care [27]. The patient's admission criteria are verified by their local mental health care service, primary care unit, or in the case of children or adolescents to child and adolescent mental health care units, their orientation being defined in accordance with their needs, following a case management review.

Funding for mental health services is primarily granted through government funds, namely the health budget. Primary and secondary health care levels are financed according to specific indexes reflecting service usage, mainly inpatient treatment and outpatient consultations; long-term and rehabilitation health care receive a sum mainly related to inpatient treatment days per patient [30]. Specific funding for community-based institutions has been introduced this year, with regard to the pilot LMHS [31]. Private Non-Governmental Organizations (NGOs) and companies can also manage and provide financing for institutions, which are integrated into the National Network of Integrated Mental Health Care.

Currently there are 40 LMHS divided into administrative regions (16 in the North, seven in the Centre, 13 in Lisbon, four in Alentejo and two in the Algarve region) [18], and two mental health services in psychiatric hospitals (Hospital de Magalhães Lemos in Porto and Centro Hospitalar Psiquiátrico de Lisboa in Lisbon) [23].

It should also be noted that, along with the evolution observed in general mental health services throughout the years and specifically since 1998, Portugal has implemented and reinforced a strong and decentralized, addiction-oriented division of its mental health services. These services are structured around local intervention units (integrated response centres; alcohol units, dishabituating units and therapeutic communities) distributed by region. Each integrated response centre

is responsible for the prevention and treatment of drug or alcohol-related disorders, with an emphasis on reducing harm and reintegrating patients by working with specialized teams (Treatment Team) and decentralized outpatient treatment programmes [32].

Similarly, child and adolescent psychiatry has seen a gradual paradigm shift towards a decentralized model. In general terms, psychiatry inpatient units and emergency services are devolved to regional level services (of which there are four), while outpatient units and other services are provided by departments or units, connected to general hospitals (totalling 30, with nine local departments and 21 units) [33].

Cooperation with primary health care and other community-based institutions is deemed fundamental for the multidisciplinary teams of child and adolescent psychiatry, and several departments both local and regional, have functioning community-centred teams, which enforce ongoing protocols with community and social organizations, such as schools and caregiving institutions [33]. The National Network of Continued Mental Health Care also provides specific long-term, integrated care facilities, and its implementation and evolution accompanies that of adult mental health care [33, 34]. In relation to old age psychiatry, Portugal has not implemented a specific national, community-centred response

in this area. Some mental health services have specific inpatient or outpatient units devoted to the older population, however, a widespread differentiated response is still absent.

The number of institutions integrating the National Network of Continued Mental Health Care has increased since 2017. Data from 2019 indicate that there are 140 residential units of different types, 85 socio-occupational units and 24 domiciliary support teams, mainly in the North, in Lisbon and in the Tejo Valley regions [1].

During the last few years, according to available data, there has already been a transition from a centralized model to more decentralization, evidenced by the decrease in the number of beds per 100,000 inhabitants in psychiatric hospitals (Figure 3), the reduction in public residential availability, which has been transferred to the social sector (Figure 4) and the increase in inpatient capacity in general hospitals (owing to the closure of Hospital Miguel Bombarda, Centro Psiquiátrico de Recuperação de Ames and Hospital do Lorzão in 2009) and LMHS (Figure 5) with around 10 beds per 100,000 inhabitants in 2015 [8]. In 2013, 6% of day hospital consultations were offered in a community setting [35], while data from 2017 show a global increase in consultations with patients treated in day hospitals (Figure 6).

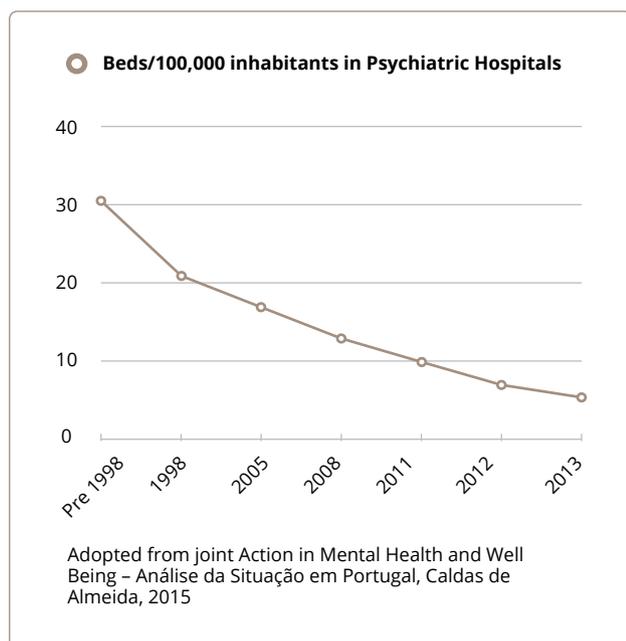


Figure 3. Beds/100,000 inhabitants in Psychiatric Hospitals

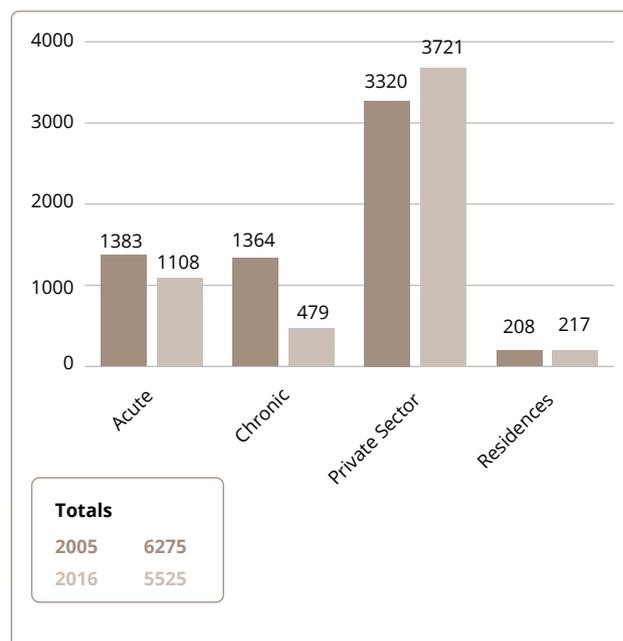


Figure 4. Ne of beds (National)

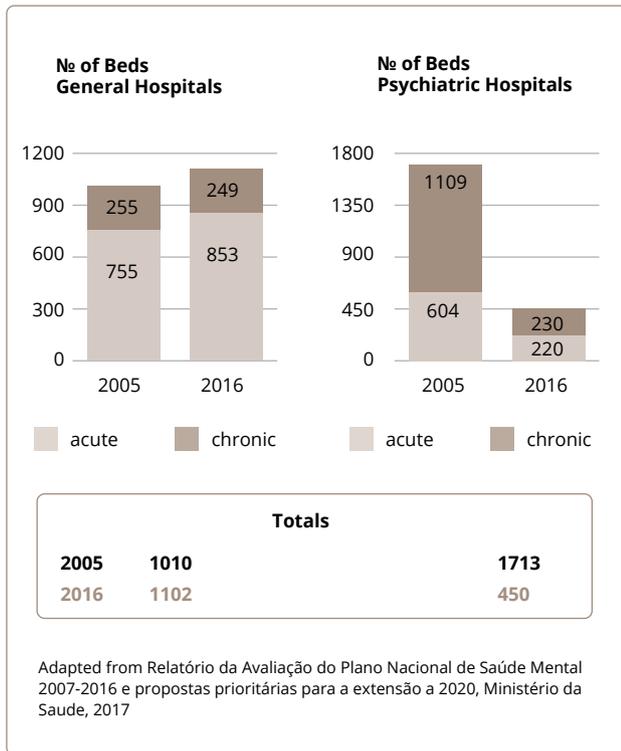


Figure 5. № of Beds: General vs. Psychiatric Hospitals

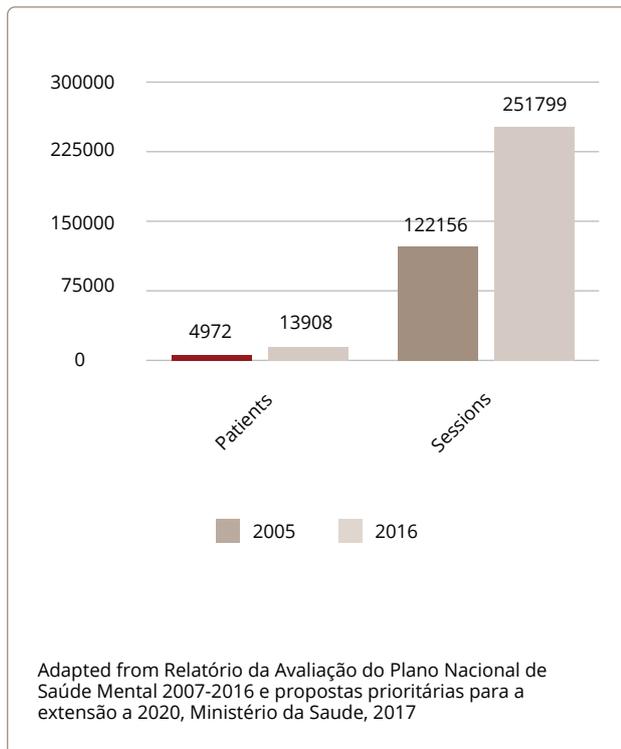


Figure 6. Day Hospitals — National Totals

### Challenges to Implementing Community Psychiatry in Portugal

A number of challenges have been highlighted in various reports by different authors, which can generally be distinguished between a lack of funding or pertaining to other organizational barriers.

First and foremost, several reports have identified that the lack of funding for community-based mental health care services is a crucial barrier to its development. In a report published in 2019, the National Health Council analysed the evolution and current situation of mental health care in Portugal, identifying the scarcity of financial and human resources as a serious threat to the system's development. Payment mechanisms are also considered by the National Health Council as major barriers to the implementation of community-based mental health care. In fact, current payment models reward hospitals for their medical interventions and admissions, without enforcing community-based interventions and failing to create financial incentives to promote their implementation. The coexistence of different payment modalities and the absence of incentive-based payments for treating mental disorders in the primary care system, together with poor communication between different levels of care, can contribute to the asymmetries in patients' treatment [1, 8, 30, 35–37].

Secondly, many authors highlight the poor communication between the different levels of care as a barrier to this transition process, namely between mental health services and primary care, but also between these and the National Network for Continued Mental Health Care, while emphasizing the persistence of a primarily hospital-centred model [8, 38].

An additional hindrance concerns the transition process of moving acute inpatient departments from psychiatric hospitals to LMHS in general hospitals, which is still to be completed. A number of services specified in the legislation are yet to be implemented equally throughout the territory of Portugal, leading to asymmetries in coverage. As an example, some authors have pointed out the lack of operating residential units, capable of granting housing and basic care to chronic mental health patients, previously housed in psychiatric hospitals. In relation to the specific rehabilitation and reintegration programmes, which are being planned, there is still much to be done. Vocational programmes, professional training and the creation of residential

institutions are still scarcely implemented. Estimates from 2015 suggest that of the 4000 to 5000 patients expected to be integrated into the socio-occupational units or residential units, only around 900 were effectively housed [1, 10, 19, 30, 35].

Another concern is the lack of specialized personnel, mainly specialized nurses, as well as limited training of other, non-health professionals to deal with mental health patients [8, 39].

The engagement of patients and caregivers in the transition process is regarded as an important indicator [28]. An article from 2015 analyses the role of patients and family members/caregivers in the deinstitutionalization process. The authors highlight that during the institutionalization process, the opinions of family members and patients are taken into account, albeit with asymmetries. Data on the specific nature of patients' and caregivers' roles in the transition process are scarce and somewhat divergent, however, patients' and caregivers' associations have increasingly more visibility in the public space, advocating and promoting discourse in relation to a range of mental health issues [8, 10].

A number of solutions to overcome these barriers have been suggested, some of which have been implemented within certain services in Portugal.

Firstly, a new payment model for community-based mental health has recently been proposed. This entails a combination of elements of various payment schemes in order to attenuate their respective weaknesses, and implement best practices. This aims to encourage the early detection and treatment of mental health disorders, a community-based follow-up in cases of severe mental illness and the treatment of moderate depression within the primary health care system [37].

Another important matter relates to psychiatry training in Portugal, which comprises a three-month mandatory placement within community psychiatry. Still, inpatient practice is a much longer mandatory placement, with a duration of at least 24 months currently [40]. In Portugal, the views of psychiatric trainees have previously been taken into consideration to improve training, and this should perhaps be extended to the sphere of community psychiatry education. For example, in a survey conducted by psychiatric trainees in 2011, trainees in Portugal expressed the need for forensic psychiatry to be an obligatory rotation in their training

programme and as an area in which to specialize [24]. These views were later acted upon by the Portuguese Medical Council Association, which introduced forensic psychiatry as a mandatory rotation, and created the sub-speciality of forensic psychiatry. Equally, if community psychiatry training is strengthened and extended into the psychiatric trainees' programmes, this would allow future psychiatrists to be better prepared for this model of care, contributing to its effective implementation earlier, while still trainees.

In order to improve and follow the WHO's recommendations, a thorough regional assessment of needs of both mental health patients and available trained personnel is required. Subsequently, it is vital to reform the mental health payment model that considers specific activities and population covered, as well as productivity-related incentives for professionals. This would strengthen the viewpoint proposed in 2009 in the consensus document for community mental health teams, while granting intermediate institutions, such as LMHS autonomy in terms of decision-making and finances, enabling them to monitor and address community needs, quality indicators and the assembly of community-based institutions, stipulated by law [26, 37].

In a 2008 publication, Thornicroft et al. describe a series of common challenges faced in the implementation processes of community-based psychiatry, primarily in Italy and England, while also describing issues central to the development of mental health services. Similar to Thornicroft, various Portuguese authors and institutions have highlighted challenges to the transition process, as described in this paper [10, 15, 27, 30, 35, 38]. Some of these challenges, listed in Table 1, also concern the transition process in Portugal [41].

The proposed solutions relate to general and organizational aspects, not necessarily related to mental health issues, as well as to staff-related challenges, less commonly documented in the literature, yet prevalent in every transition process [42].

In its report from 2019, the National Health Council proposed a series of priority measures to be undertaken. Among them, and following recommendations from the National Mental Health Plan, was the recommendation that the integration of mental health care within primary care, should be viewed as an absolute priority and that integration models should take into account local and

regional specificities. With regard to long-term care, it was deemed as essential to correct asymmetries, to complement the network with its most needed typologies, such as moderate and maximum support residences. It was also considered important to reinforce the coordination and integration of care, including supporting the primary health care treatment of less severe mental health illnesses through financial incentives, increasing staff numbers and training. Reinforcing community-based social institutions could also be beneficial in strengthening community-based mental health care.

Recently in 2020, community mental health teams were created and regulated in the various administrative health regions, both for adult and for child and adolescent psychiatry. These teams are organized according to a systemic and holistic model, ensuring community-centred treatment in conjunction with different levels of care and professional classes, supporting patients' rehabilitation and reintegration, while promoting mental health and preventing illness at an individual level, as well as in a broader context [31]. The teams are allocated to their LMHS and function within decentralized facilities; their multidisciplinary constitution is defined in the decree, as well as their specific objectives and the services they provide (outpatient consultation, psychotherapies and individual psychological follow-ups, group therapy and interventions, domiciliary visits, social support, patient-centred community interventions, etc.). These

teams were created in order to combat the perceived disparities between different mental health services and regions, serving as pilot projects and following evaluation, shall be implemented as a uniform model for application in all LMHS [31]. This is a really important step forward, as it will enable the standardization of community-based action within LMHS, as well as providing specific funding for these projects and allowing for effective analysis to inform future developments [31].

## CONCLUSIONS

The Portuguese model of community-based care was adopted mainly from the historical evolution and tendencies of other European countries. Although community psychiatry in Portugal has already been implemented, it is undergoing continuous improvement and much still needs to be done to perfect it.

The barriers to its effective implementation range from a lack of adequate personal and financial resources to poor communication between the different levels of care and services.

Nevertheless, steps are being taken to strengthen and further implement community psychiatry within the country. Among these measures are the proposals concerning payment models and the attempts to implement case-management models in this area.

The gradual, informed and unrelenting adoption of such measures should eventually contribute to implementing effective community-based mental health care in Portugal.

**Table 1. Barriers and Solutions in relation to implementing community-based psychiatry**

Barriers	Solutions
Inadequate Financing	Introduce new payment models targeting community-based mental health care
Routine changes in staff transitioning to community-based health care	Implement clear timetables, frequent staff meetings, clear communication between different levels of decision-making
Centralized decision makers	Empower local and regional institutions, enabling them to enforce policies adapted to their reality
System Rigidity	Enable community-based services to adopt more flexible practices, in conjunction with LMHS and regional institutions
Lack of training/education	Increase training duration for psychiatry trainees and other mental health professionals
Anxiety and uncertainty affecting staff transitioning from a hospital-centred model to a community-based model	Provide a clear framework enabling staff to work with confidence and encouraging constructive discussion.

This process aims to integrate mental health services into primary care, develop a psychosocial network and provide training for mental health staff, whilst addressing quality indexes.

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# Community-based mental health services in Brazil

## Амбулаторная психиатрическая служба в Бразилии

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### ABSTRACT

**Introduction.** The shift from the hospital-based model of care to community-based mental health services began three decades ago and is still an ongoing process in Brazil.

**Objectives.** To update data on the development of the community mental health services network in Brazil in relation to service availability and structure, manpower, pattern of service use, financing, epidemiological studies and the burden of mental disorders, research and national mental health policy.

**Methods.** Searches were constructed to collect data on indexed databases (Medline, Scielo), as well as governmental, NGOs and medical council sources, reports and the grey literature up until 30th March, 2019.

**Results.** Community mental health services are unevenly distributed in the country. Brazil leads the world in terms of the prevalence of anxiety disorders, ranking fifth for depression prevalence. Violence and suicide rates are two growing factors which exacerbate the prevalence of mental disorders prevalence. An increased reduction of the number of psychiatric beds in the country, in addition to the unbalanced growth of services in the community, has resulted in treatment gaps and the underutilization of services and barriers to treating people with the most severe psychosis. Investment in mental healthcare is still scarce. However, mental health funding is not addressed according to the population's needs and scientific evidence, resulting in a waste of resources and inefficiency. Programmes and service interruptions are common according to each government mandate.

**Conclusion.** Successive changes in ideological perspectives have led to the introduction of policies which have caused fragmentation in the mental health system and services. A lack of evaluation and transparency of services and costs are the main barriers to integrating multiple services and planning long-term developmental phases.

### АННОТАЦИЯ

**Введение.** Процесс перехода от стационарной модели психиатрической помощи к амбулаторной начался в Бразилии тридцать лет назад и продолжается в настоящее время.

**Цели.** Предоставить новые данные о развитии сети амбулаторной психиатрической службы в Бразилии, и осветить вопросы касающиеся доступности и структуры службы, персонала, особенностей использования службы, финансирования, результатов эпидемиологических исследований и оценки бремени психических расстройств, исследовательской работы и национальной политики в сфере психического здоровья.

**Материал и методы.** Проведен поиск в индексируемых базах данных (Medline, Scielo), сведений из правительственных и неправительственных источников, материалов медицинского совета, отчетов и «серой» литературы за период до 30 марта 2019 г.

**Результаты.** Амбулаторные психиатрические учреждения распределены по стране неравномерно. Бразилия занимает 1-е место в мире по распространенности тревожных расстройств и 5-е место по распространенности депрессии. Увеличение числа случаев насилия и самоубийств способствует дальнейшему распространению психических расстройств. Сокращение числа психиатрических коек в стране в сочетании с несбалансированным расширением амбулаторной службы приводит к пробелам в лечении населения, недостаточному использованию услуг и препятствует лечению пациентов с наиболее тяжелыми формами психоза. Финансирование психиатрической службы по-прежнему слабое, кроме того, оно осуществляется без учета потребностей населения и научных данных, что приводит к нерациональной трате ресурсов и неэффективности системы. Существующие программы и работа службы зависят от правящих структур и часто приостанавливаются при смене власти.

**Выводы.** Последовательные идеологические перемены привели к политике, вызвавшей фрагментацию системы психиатрической помощи и психиатрической службы. Главными препятствиями на пути внедрения разнообразных типов услуг и планирования их поэтапной разработки в долгосрочной перспективе является недостаточная оценка работы службы и ее стоимости.

**Keywords:** *community mental health services, Brazil, health policy, mental disorders, mental health, developing countries, health resources*

**Ключевые слова:** *амбулаторная психиатрическая служба, Бразилия, политика в сфере здравоохранения, психические расстройства, развивающиеся страны, медицинские ресурсы*

## INTRODUCTION

Brazil is an upper-middle-income country according to the World Bank classification, located in South America, with a population of nearly 215 million inhabitants and a life expectancy of 76 years. Income per capita is \$8,600 with a GINI coefficient of 0.51. The Federal Brazilian Constitution of 1988 adopted the Social Welfare State, allowing for social rights including free access to education and health.

The Brazilian Universal Health Coverage (UHC) was created in 1988, targeting three key Unified Health System's (SUS) principles: universal free access to health services, equity and comprehensive healthcare. The Federal Brazilian Constitution pledges health as a universal right that should be guaranteed by the state. Before the UHC's implementation, only employed people received healthcare, that is, 21% of the population. In 1990, the law 8080 was enacted, assuming a broader concept of health rather than the absence of disease, but also aiming to promote well-being, quality of life and inequity reduction.

Multiple reports on the abuse and mistreatment of patients in psychiatric hospitals during the '70s and '80s have encouraged the closure of such institutions. Although mental healthcare was included in the SUS in 1988, treatment was mainly delivered under a contract between the government and private psychiatric hospitals, to which 93% of the mental health budget was directed [1].

The Brazilian Mental Health Policy was established primarily after the Declaration of Caracas in 1990[2], based on patients' human rights and delivering mental healthcare in the community [1]. However, the effective reduction in the availability of psychiatric beds occurred after Mental Health Law Number 10.216 was enacted in 2001 to replace hospital-centred care with community mental healthcare [3].

The objective of this manuscript is to update data on the progress of developing community mental health services in Brazil and to discuss the advances, challenges and limitations related to the implementation of national mental health policies.

## MATERIAL AND METHODS

We constructed the searches to find information on the following topics: a) brief historic aspects of the establishment of community mental healthcare in the country, b) description of the main characteristics of community mental health services, c) general characteristics of the mental health system in terms of manpower, costs, financing, beds, treatment and service availability, d) status of mental disorders in the country in terms of prevalence, burden and accessibility to services, e) strengths and weaknesses of the mental health system and policies. Searches were developed to retrieve relevant studies, documents, reports and government databases on national and international databases such as Medline, Scielo, Google Scholar, the Ministry of Health of Brazil website and World Health Organization website up until 30th March, 2019. Articles were selected and included in this overview, according to the relevance and completeness of the information regarding the descriptions and data related to the aforementioned topics. It was not an exhaustive search and it may be missing some related publications.

## RESULTS

### 1. Description of the provision of community mental health services

The shifting from the hospital model to a community mental health model has been developing over the past few decades, characterized by a dramatic reduction in the number of psychiatric hospitals from 87,134 beds in 1994 to 25,097 in 2016 [3]. The “Programa Nacional de Avaliação dos Serviços Hospitalares-PNASH”- a programme to evaluate psychiatric hospitals - was created to assess all psychiatric beds available in the public health system and to cancel any public-private partnership should psychiatric hospitals not meet certain requirements, such as hospital size and number of beds, inappropriate structure and conditions, reports of abuse or human rights infringements and electroconvulsive therapy use, even for eligible patients. This programme was addressed to assess the user’s satisfaction with the services, to establish indicators for the health service’s performance, to implement quality standards of care and to support health managers.

Although Law Number 1631/2015 established the ideal rate of 0.45 psychiatric beds per 1,000 inhabitants [4], the coverage for psychiatric hospitalization dropped by 40%

- from 0.22 to 0.12 per 1,000 inhabitants - between 2005 and 2016, leading to a shortage of psychiatric beds in the country. During this period, there was a tiny increase in the number of psychiatric beds in general hospitals, from 570 in 2013 to 1,117 beds in 2017 [5]. Moreover, there was an uneven distribution of psychiatric beds across the country: 0.012 per 1,000 inhabitants in the northern region and 0.18 per 1,000 inhabitants in the southern region [6].

The Brazilian community mental health system comprises a complex psychosocial network of mental health services (“Rede de atenção psicossocial –RAPS”), created in 2011, with the aim of preventing, treating and promoting the social inclusion of people suffering from mental illness and drug misuse. Recently, a new ministerial ordinance included other services in the RAPS, such as mental health outpatient services (ambulatory), drug rehabilitation centres (“Comunidades terapêuticas”) and psychiatric and day hospitals [7]. In Table 1, all available mental health services are described [8]. People with mild to moderate mental health problems are treated in primary care by the general practitioners under the supervision of mental health specialists. People with moderate to severe mental disorders are treated by mental health specialists in outpatient services – specialized polyclinics with other medical specialities. People with psychosis, alcohol and drug disorders, autism and other severe mental disorders are treated in different types of Centres of Psychosocial Care - CAPS described in Table 1[6]. Therefore, mental health services are integrated into the entire health system. Referrals to mental health services come from the primary care units, first-aid care, emergency care, hospitals, as well as self-referrals.

The growing number of community mental health services increased from 424 Centres of Psychosocial Care (CAPS) in 2004 to 3,013 in 2018. The number of CAPS per 100,000 inhabitants increased from 0.21 in 2004 to 0.86 in 2014 [6]. According to the Ministry of Health’s indicators, a rate of between 0.5 and 0.69 CAPS per 100,000 inhabitants is considered good coverage and rates in excess of this are regarded as excellent coverage. According to the last report in 2015, CAPS are unequally distributed across the country, ranging from 0.38 to 1.57 CAPS per 100,000 inhabitants [6].

There is an unequal distribution of community mental health services across the country as shown in Graphs

**Table 1. Description of services provided by the Brazilian Mental Health Network**

Characteristics	Description	Number of services
CAPS-1	Centre of Psychosocial Care for moderate and severe mental disorders and drugs misuse in a city with over 15,000 inhabitants.	1069
CAPS II	Centre of Psychosocial Care for moderate and severe mental disorders and drugs misuse in a city with over 70,000 inhabitants.	476
CAPS III	Centre of Psychosocial Care for moderate and severe mental disorders and drugs misuse in a city with over 150,000 inhabitants. Includes five psychiatric beds.	85
CAPS ADII	Centre of Psychosocial Care for moderate and severe drugs misuse in a city with over 150,000 inhabitants.	69
CAPS AD III	Centre of Psychosocial Care specifically focused on alcohol and drug misuse, with eight to 12 night beds.	309
CAPS AD IV	Centre of Psychosocial Care for severe alcohol and drug misuse, providing 24-hour mental healthcare in a city with a population greater than 500,000 inhabitants. The number of psychiatric beds ranges from eight to 30.	-
CAPS child	Specifically for children and adolescents with severe mental illness (such as autism).	201
Host health units for adults suffering from drug misuse	Accommodation in houses, with support from professionals for extremely vulnerable crack and other drug users with limited family and social support. Short stays up to six months. (known as "Unidades de Acolhimento")	34
Host health units for children	Accommodation in houses with support from professionals for extremely vulnerable children and adolescents between the ages of 12 and 18 years, suffering from alcohol or drug misuse and with limited social support. (known as "Unidades de Acolhimento")	22
Day hospital care	Specific mental health treatment for certain patients recently discharged from hospital and with intensive care needs (up to 12 hours per day).	649
Psychiatric unit in general hospital	Brief hospitalization for people with acute symptoms, risk of suicide, severe self-care impairment, aggressive behaviours. There are 233 general hospitals with 1,167 psychiatric beds in the country.	233
Drug rehabilitation centres	("Comunidades terapêuticas") Mid-term stay in houses under the supervision of professionals focused on helping patients with alcohol and drug dependence to recover and support them with rehabilitation.	412
Residential service	Housing for patients discharged from long-stays in psychiatric hospitals with minimal or no family support. Two mental health carers provide supervision for up to eight residents.	3470
Psychiatric hospital	Psychiatric, specialized hospitals delivering care outside general hospitals (approximately 25,000 beds)	167
Outpatient care	Specialized outpatient care including psychiatry and other medical specialties for treating moderate and severe mental disorders and other comorbidities.	1991

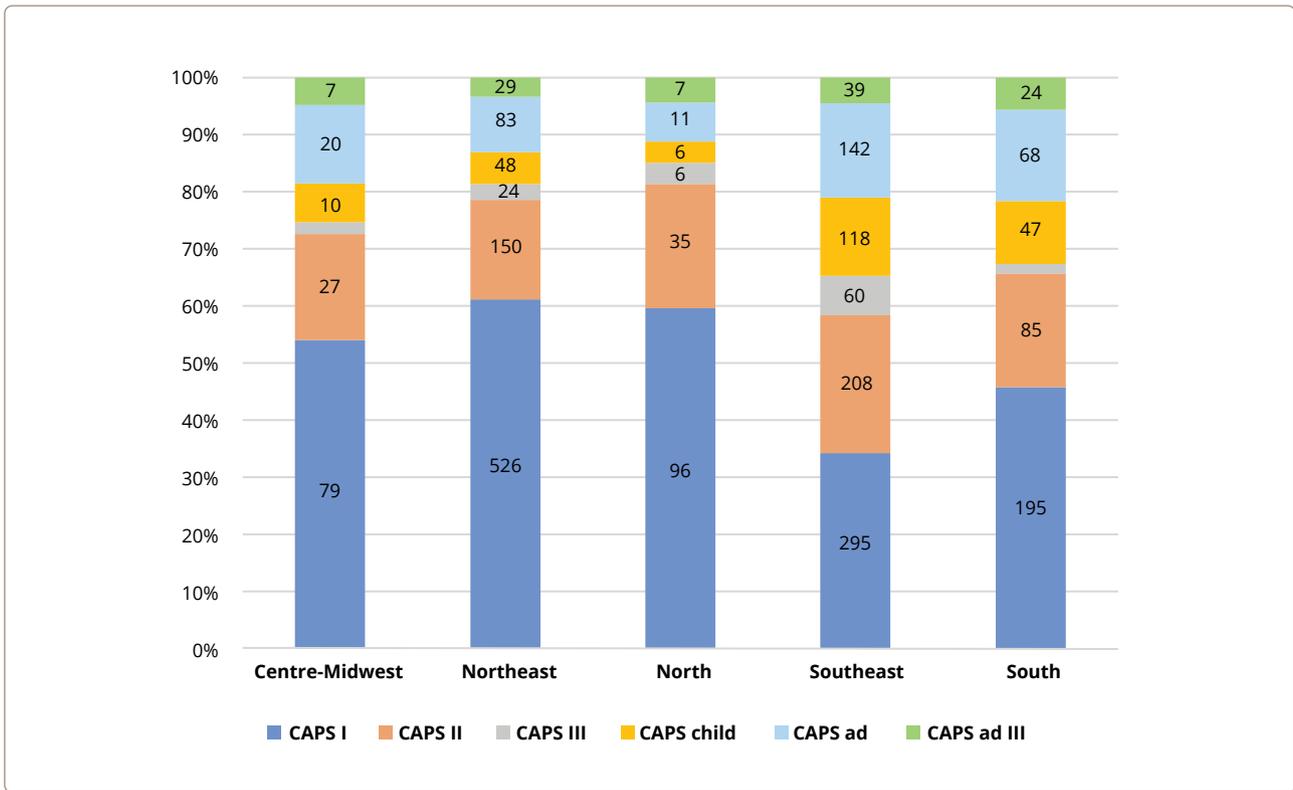


Figure 1. Distribution of Centres of Psychosocial Care in Brazil

1 and 2. The majority of CAPS services are concentrated in the South and in the southern half of the country, where 56% of the population lives. The majority of mental health services are located in the state of Sao Paulo, in the southeast of Brazil. This area accounts for 21% of the Brazilian population and 34% of Brazil's GDP. Psychiatric beds in general hospitals are still scarce in the country and they are mostly concentrated in the South and southern regions (Figure 2). Residential facilities have also been created to accommodate patients discharged from psychiatric hospitals. Each residential service is located close to one CAPS, where mental health treatment is provided. In 2005, 9,000 people were living in Brazilian psychiatric hospitals and in 2014, 4,439 people were still living in 53 psychiatric hospitals in the state of Sao Paulo, in which long-term hospitalization was concentrated [19].

## 2. Service use, mental health needs and population characteristics

### 2.1. Prevalence and burden of mental disorders in Brazil

Mental disorders account for 13% of DALYs in Brazil, and depression is the fourth leading cause of this

burden. In the Americas, Brazil leads the years lived with disability (YLD), with mental disorders accounting for 36% [9]. Brazil has the most cases of anxiety disorders globally and ranks fifth in terms of the number of cases of depression [10]. Anxiety and depression were the fifth and sixth leading causes of YLD in Brazil's GBD 2016 study [10], accounting for 7.5% and 9.3% of YLD [9]. Schizophrenia and bipolar disorders accounted for 1.6% and 1.4% of YLD in Brazil [9].

On the other hand, alcohol and interpersonal violence was the second leading cause of YLD in Brazil in 2016 [11]. Moreover, the behavioural risk factor for alcohol and drug use has almost doubled between 1900 and 2016, accounting for 12.2% of DALYs, and is the leading risk factor among males [11]. In relation to violence and traumatic events, one study [12] in Rio de Janeiro and Sao Paulo has shown a prevalence of traumatic events of 35% and 21%, respectively, and these events were associated with psychiatric disorders, indicating the relevance of social, environmental and cultural factors affecting mental health.

Moreover, suicide is the fourth leading cause of mortality among people between the ages of 15 and

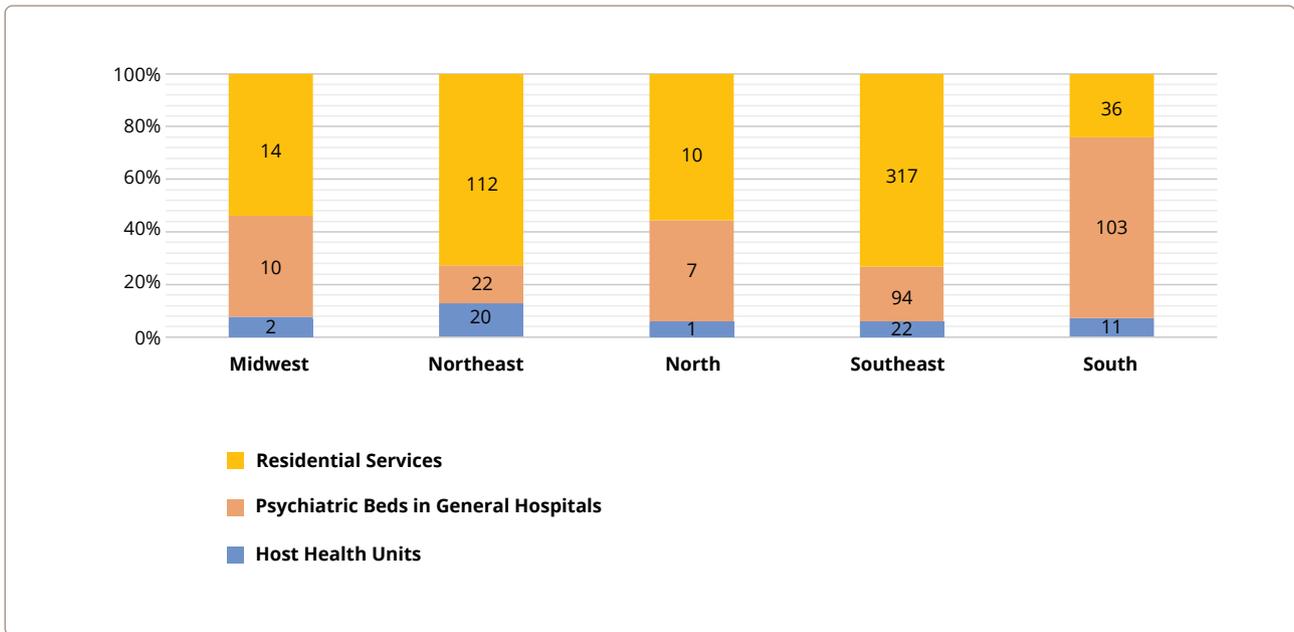


Figure 2. Distribution of host health units, residential services and general hospitals with psychiatric beds in Brazil, 2017

29 [13, 14]. The Brazilian suicide rate was 5.8 deaths per 100,000 inhabitants in 2014 [13]. Women account for 69% of suicide attempts, 58% of them by poisoning. More than 60% of suicide occurred in the South and southern regions of the country, which are the wealthiest regions. The suicide rate is much greater among men than women, especially among older men but also among adolescents: 9.0 per 100,000 males and 2.4 per 100,000 females. The suicide rate among adolescents has increased by 24% within a decade and has been associated with social inequality and unemployment [15, 16]. It is also the leading cause of mortality among the indigenous population between the ages of 10 and 19.

Despite the high prevalence of mental disorders in Brazil, mental health services are underused. Some obstacles hinder the effective implementation of community mental health services. For instance, there is an important communication gap between mental health policies and the population, in relation to the awareness of mental health symptoms and the availability of treatment. One study [17] has shown that these services were used by 10% of people suffering from anxiety disorders, 22% of people with depression and 34% with both disorders. Service use was associated with white people older than 30, with low resilience and living in low homicide rate regions. Another study [18, 19] has shown that only 15% of people with psychotic disorders, discharged from psychiatric hospitals

and living in residential services, received psychosocial interventions from community mental health services, regardless of their need for psychosocial rehabilitation.

### 2.2. Length of time in psychiatric hospitals

The reduction of psychiatric beds and the acceleration of the deinstitutionalization process has resulted in a shortage of psychiatric beds, as well as a reduction in the length of time spent in psychiatric hospitals. The annual admissions per 100,000 inhabitants for a psychiatric hospital and general psychiatric bed unit were on average 216 and 60.8, respectively [20]. The length of time of hospitalizations was less than one year in 63% of admissions, and financial incentives were offered to shorten the length of time of hospitalizations [6].

### 2.3. Quality of mental healthcare

Mental health policies tend to focus on reducing the length of hospitalization and monitoring the coverage and access to services, as well as the number of patients seen by doctors, rather than evaluating treatment goals and the effectiveness of treatments. There are some isolated initiatives to improve the technical efficiency of services, however, mental health indicators are not used in the country. Health cost management is still challenging and an evaluation of wasted resources is not routinely taken into account.

### 2.3.1. Staff

There is a shortage of mental health professionals in Brazil, especially in the poorest regions of the country. In 2014, the ratios of mental health professionals per 100,000 inhabitants were 3.40 psychiatrists, 3.22 psychologists, 13.99 social workers, 3.05 nurses, 1.16 occupational therapists and 4.15 were made up of other doctors [20]. According to the last Brazilian Medical Council survey [21], there were 10,396 psychiatrists in the country, corresponding to 5.01 per 100,000 inhabitants, a 30% increase over the last five year period, although the need for psychiatric staff is estimated to be double this number. However, psychiatrists account for 2.7% of all medical specialities in the country but the distribution of professionals is still unequal across different regions: 2.1% in the North, 7.8% in the Midwest, 12.6% in the Northeast, 23.1% in the South and 53.4% in southern regions. Therefore, the variation of the number of psychiatrists in the country ranges from 0.69 to 12.84 per 100,000 inhabitants.

### 2.3.2 Medication and mental health interventions

Psychotropics are subsidized primarily by the federal government, especially those drugs with a high cost. In this regard, atypical antipsychotics correspond to 93% of public expenses in terms of high-cost drugs. There are 14 antipsychotics available in the SUS, five of which are atypical antipsychotics. There is a shortage of studies assessing the cost-effectiveness and value of these drugs in the country and a huge variation in prices, even from the perspective of the government [22]. On the other hand, fewer antidepressants are available in the health system, despite their lower price and a high prevalence of depression and anxiety in the country [23]. Lithium carbonate, anticonvulsants and anticholinesterases and benzodiazepines are also available in the public health system. Only one guideline has been implemented to regulate the use of antipsychotics in treating schizophrenia and bipolar disorders.

One study [24] has found a 6.5% incidence of psychotropic use among Brazil's general population, with a female/male ratio of 3:1: antidepressants (2.7%), anorectics (1.65%), tranquillizers (1.61%) and mood stabilizers (1.23%). General practitioners issued 46% of such prescriptions and 86% of these drugs were paid for by the patient and family.

Non-medical mental health interventions vary in terms of type, quantity and quality and they are delivered at all levels of care. One study [25] evaluated 10 CAPS in the city of Sao Paulo and identified 457 different mental health activities, highlighting a wide range of heterogeneity among these services. Educational programmes, such as 'Unplugged' or the Brazilian version 'Tamojunto' were implemented to prevent the use of alcohol and drugs among adolescents, although, the outcome was the converse of expectations, resulting in an increase of 30% in terms of the risk of consumption of such drugs in this population [26]. Recently, the programme was cancelled and, for the first time, the current Ministry of Health is financing an effectiveness study using scientific evidence to further analyse the appropriateness of this programme in the country.

### 2.3.3 Social inclusion

Some programmes aim to promote the social inclusion of people with mental health disorders in the community. In this regard, the "Return Home Programme" ("De volta para casa"), created in 2003 by the Ministry of Health, consists of a monthly financial benefit (BRL 412.00), offered to 4,349 people discharged from long-term hospitalization in psychiatric institutions and returning to live with their families [6]. The annual costs of this programme are, on average, BRL 20 million.

In 1991, a law advocating inclusion in the workplace of people with any type of disability was enacted, although it was not specified which type of intellectual deficiency was included. In this regard, an enterprise with 100 employees or more should employ between 2 and 5% of people with a physical or intellectual deficiency. The term mental deficiency was included in Law 8213/91, in 1999, however, the majority of people with mental disorders remained unemployed. In 2012, the complementary Law 12.764, extended this right to people on the autism spectrum, however those with schizophrenia were not covered by these laws.

### 2.3.4. Financing

Health expenditure corresponded to almost 9% of Brazilian GDP in 2015, of this 5.2% was spent by families and private institutions [27]. One-third of the population has private health insurance and spends on average BRL 440.00 per month.

Public health expenditure in Brazil corresponded to 3.8% of GDP in 2018, and the federal government invested 1.8% of GDP in health in 2017. The federal government spent BRL 117 billion on health, of which two-thirds were intended for medium and high complexity level care (secondary and tertiary) and the remaining third for primary care and medication [28]. On average, annual public health expenditure per capita is estimated at around BRL 1,200.00. Health expenditure is also funded by the states and municipalities, respectively, corresponding to 12% and 15% of their revenues.

There are no official data available concerning the mental health budget in Brazil, although previous studies have estimated the percentage of the health budget allocated to mental health, to be around 2 to 2.5%; the Atlas survey of 2014 reported a federal investment of \$ 43.16 per capita in mental health [20]. In 2017, the Brazilian Ministry of Health assigned daily tariffs to psychiatric hospitals (up to 90 days) according to the number of psychiatric beds: BRL 82.40 per bed per day (up to 160 beds), BRL 70.00 (between 160 and 240 beds), BRL 63.11 (between 241 and 400 beds) and BRL 59.00 (more than 400 beds) [29]. It also created a new service, CAPS AD IV; the monthly investments for implementing these services varied from BRL 33,000.00 to BRL 99,000.00 according to the number of psychiatric beds.

Few studies are aimed at estimating the direct costs of mental health services and treatments. One study estimated the costs of 20 residential services in Sao Paulo and found the mean annual costs per resident to be \$19,621.44 in 2017 [19, 30], corresponding to double the Brazilian per capita income. The federal government financed 73.4% of these costs and the remainder was funded by local government. Residential services corresponded to 90% of the total package of care for patients with mental disorders, discharged from long stays in psychiatric hospitals. Residential services costs were related to geographical regions and to the length of time residents lived in psychiatric hospitals and used residential services [19]. The mean and standard deviation of psychotropic costs per month and per resident in this sample was BRL 216.07±380.40 for the year 2011. Psychotropic costs were mainly influenced by atypical antipsychotics polytherapy use, and the latter was the main cost driver of direct health costs [18].

Another study relating to the estimation of CAPS-AD costs in a city located in the state of Sao Paulo, found

that of the monthly cost of BRL 64,017.54, 62.1 % was funded by the federal government [31, 32]. On average, direct health costs per capita of patients with alcohol and drug dependence in this service were \$149.00 per month.

On the other hand, the federal government funded 20% of direct health costs (medication and clinical treatment) of daily psychiatric hospitalization, excluding hotel costs [33]. On average, the daily psychiatric hospitalization costs were BRL 371.00 per capita for the year 2015, with hotel costs accounting for half of these costs.

## DISCUSSION

Few studies have evaluated mental health services in Brazil; one systematic review identified 35 studies, all focused on the South and southern regions [34]. The main findings of this review showed some advances in relation to patients' participation in CAPS' activities, good crisis management and a high level of family satisfaction with services. In contrast, mental health professionals exhibited dissatisfaction with regard to intense workload and high demand, a lack of professional skills and training, and unsatisfactory work conditions.

Moreover, the lack of integration of mental health services and primary care was raised in this review and other publications [34, 35], emphasizing the need to overcome barriers, such as a lack of professional training, a lack of professionals within primary care, obstacles to referral and counter-referral among services and no clear policies directed towards the health and related sectors.

Psychiatric reform in Brazil was mainly influenced by Basaglia's ideological views, allowing some policymakers to establish mental health policies, refusing the need for hospitalizations in cases of acute episodes with moderate to severe risks. Therefore, policies were not based on scientific evidence and population needs. In this regard, the accelerated reduction of psychiatric beds without appropriate community support caused harm to those who remained without access to treatment. The number of psychiatric hospitals and psychiatric beds in general hospitals is still insufficient to cover demand [36]. Instead, the number of psychiatric beds available in the country accounts for half of those in high-income countries. The Ministry of Health has been alerted to the fact that 50,000 people with severe mental disorders are in prison as a consequence of this rapid psychiatric reduction and inefficient strategies for treating people discharged from

hospitals [7, 37]. There is also an important treatment gap in cases of anxiety and depression disorders in the country, although these are highly prevalent in primary care. Estimates of 12-month anxiety prevalence have shown that 23% of people with anxiety in the city of Sao Paulo received treatment, and 10% of them received adequate treatment [38]. Despite the high prevalence of symptoms of these disorders in primary care ranging between 51% and 64% [39], no specific programme or policy is targeting them. The main obstacles in many regions of the country are lack of service access and trained professionals to provide appropriate treatment [40]. Treatment for these disorders is efficacious, cost-effective [41] and financially feasible [23], although mental disorders have not been a priority, despite the high numbers of people suffering from such disorders.

Mental healthcare research is still scarce in terms of the lack of information relating to services evaluation, treatment effectiveness and health costs [34]. There is no tradition in the country for decision making to be based on national scientific evidence when drawing up health policies. CONITEC (Comissão Nacional de Incorporação de Tecnologias), a committee for health technologies' assessment, has established that cost-effectiveness studies are one of the requirements when considering the inclusion of new treatment in the public system. However, these studies are modelling studies, based on international data and conducted by pharmaceutical companies with clear conflicts of interest. There are few empirical data on the costs and effectiveness of treatments and services, and the majority of policymakers and decision makers are not trained in health economics. A study among stakeholders identified 10 priorities in mental health research, such as studies on the cost-effectiveness of antipsychotics, evaluation of specific interventions for alcohol and drug use and qualitative studies exploring the barriers to mental health treatment and services [42].

## **FUTURE DEVELOPMENTS AND CONCLUSION**

The implementation of community mental healthcare is still an ongoing process, with adjustments being made according to a heterogeneous perspective, with every new government mandate. The lack of a long-term plan of action for mental healthcare leads to service and programme interruptions and consequently, results in a waste of resources each time a new mandate starts.

A lack of transparency on services information and costs is the main barrier to further developments. There is a need for integrating multiple services and for planning long-term developmental phases [14]. Moreover, combining the evidence resulting from national research and mental health policies should be aligned to address the needs of vulnerable groups.

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# Community mental healthcare in Lebanon

## Амбулаторная психиатрическая служба в Ливане

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### ABSTRACT

Lebanon is a medium-income country in the Eastern Mediterranean which has seen a surge in interest in mental health over the past two decades following years of stagnation. The mental health needs of the country at primary care level and for severe psychiatric disorders are underserved. Political instability, chronic underfunding and widespread stigma have all contributed to maintaining a traditional model of private clinics affiliated with inpatient and long-stay psychiatric units. A number of initiatives have recently been launched to cater for patients with psychotic disorders and also to offer partial hospitalization for others with mood-related conditions. In parallel, the Ministry of Public Health, with international funding, has been instrumental in its efforts to standardize care at a national level, particularly for early detection and treatment in primary care settings. The priorities of the national mental health programme are consistent with the global trend in shifting services to the community. Hurdles remain, in line with those facing countries with similar socio-demographics and resources. These include limited third-party coverage of mental health, absence of training opportunities in multidisciplinary community settings and some clinicians' reluctance to update their ways of working. Development of a local workforce, familiar with evidence-based models of care and dedicated to providing a patient-centred approach in the least restrictive settings, is essential for consolidating community care in Lebanon. This would be reinforced by (overdue) legislation and implementation of a mental health law.

### АННОТАЦИЯ

Ливан – страна со средним уровнем доходов, расположенная в восточной части Средиземноморья. В последние 20 лет, после долгого периода стагнации, в Ливане наблюдается рост интереса к вопросам психического здоровья. Потребности страны в психиатрической помощи на уровне первичного звена здравоохранения, а также при лечении тяжелых психических расстройств удовлетворяются недостаточно. Политическая нестабильность, хроническое недофинансирование, повсеместная стигматизация больных – все эти факторы вносят вклад в поддержание традиционной модели, когда частные клиники существуют при психиатрических стационарах и стационарах длительного пребывания пациентов. Недавно в стране началась реализация ряда инициатив, нацеленных на помощь пациентам с психотическими расстройствами, а также на обеспечение частичной госпитализации пациентов с аффективными расстройствами. Параллельно с этим Министерство здравоохранения страны, опираясь на международное финансирование, успешно реализует программу стандартизации психиатрической и психологической помощи на национальном уровне, уделяя особое внимание мерам по раннему выявлению расстройств и лечению в системе первичной медицинской помощи. Приоритеты национальной программы по охране психического здоровья согласуются с общемировой тенденцией приближения помощи к месту жительства пациента. Тем не менее, как и в странах со сходными социально-демографическими характеристиками и ресурсами, в Ливане сохраняется ряд проблем. В частности, это проблемы, связанные с ограничениями страхового покрытия психических расстройств, отсутствием

обучения работников в условиях междисциплинарных команд в амбулаторном звене и нежеланием некоторых врачей осваивать новые методы работы. Для развития в Ливане системы помощи по месту жительства необходимо увеличение численности персонала, знакомого с научно обоснованными методами и работающего в пациент-центрированном подходе в минимально ограничивающих пациента условиях. Содействовать этому должен закон о психиатрической помощи, необходимость в разработке и принятии которого давно назрела.

**Keywords:** *community mental health, psychiatric services, Eastern Mediterranean, Lebanon, global mental health*

**Ключевые слова:** *амбулаторная психиатрическая помощь, психиатрическая служба, Восточное Средиземноморье, Ливан, глобальное психическое здоровье*

## INTRODUCTION

Lebanon, located within the WHO-defined Eastern Mediterranean region, is an upper middle-income country of more than 5.5 million people. Mental and substance use disorders are among the leading causes of the health burden in Lebanon, with an estimated rate of disability-adjusted life years amounting to 1872 per 100,000 population [1] and a suicide mortality rate of 3.3 per 100,000 population [2]. It has been estimated that approximately one in four people in Lebanon suffers from at least one mental disorder [2]. War traumas, civil conflicts and overall political turmoil have historically contributed to high prevalence rates of mental illness in Lebanon [2–4]. With ongoing national and regional economic and political instability, such estimates are likely to continue increasing in the foreseeable future. Furthermore, the ongoing conflict in neighbouring Syria poses added challenges to mental health service access within the refugee population, which has increased population numbers by around 30% [5]. Surprisingly, only a fifth of people in Lebanon with mental disorders have sought medical care, and the vast majority cite low perceived need for treatment as a barrier [6]. Prolonged delays in seeking adequate mental health (MH) care among people in Lebanon have also been described [7]. As will be discussed in detail later, Lebanon's mental health service delivery model is mostly that of an overarching private sector, offering centralized hospital-based care to those who perceive the need for and can afford the expense of mental healthcare.

With an escalating national burden of mental and substance use disorders, along with a slowly increasing awareness of psychiatric illnesses but an unmatched service supply, it is high time to examine

the role of community-based mental healthcare (CBMH) in the context of Lebanon. The aim of this review is to describe the significance of introducing or expanding CBMH in Lebanon while exploring the local and national opportunities and challenges of such an undertaking.

## BRIEF HISTORICAL PERSPECTIVE

The history of specialist psychiatric hospitalization is relatively recent in Lebanon, with the opening of the Lebanon Hospital for the Insane at Asfouriyeh in August 1900, under British leadership. This hospital closed its doors in 1983 due to a combination of political and financial circumstances. In the early twentieth century, French missionaries established another mental hospital, the Hospital of the Cross (Deir El Saleeb), miles north of the capital, Beirut. In 1959, shortly after its establishment, Dar Al-Ajaza Al-Islamiya (the Islamic Nursing Home) inaugurated a division for mental healthcare, mostly in the form of chronic residential care [8]. All institutions delivered asylum-based care that was in line with the standards of the time and appropriate for the perceived needs of society. Yet, the stigmatization surrounding psychiatric hospitalization meant that Asfourieh and Deir El Saleeb became associated with horror and desolation in the popular imagination. In fact, aside from opening the substance detoxification unit at Dahr El Bachek Hospital (2014) and the inpatient unit at Rafik El Hariri Hospital (2018) during the last ten years, the government has made no attempt to develop the state sector, preferring instead to subsidize inpatient beds in private hospitals [9]. This has meant that for decades, care provision was outsourced without oversight and potential reform of the mental health sector all but stalled.

## **OVERVIEW OF THE LEBANESE MENTAL HEALTH SYSTEM**

Mental health systems in Lebanon are governed by a decree law (ACT#72) enacted in 1983, which specifies the organizational structure of MH services, along with measures to protect and regulate human rights, guardianship issues and access to in-hospital care for the most vulnerable groups [10]. Another law (ACT#673) pertains to substance use and focuses on supply reduction, penal provisions and drug control, while classifying substance use as a crime with sanctions.

The Lebanese MH system is fragmented, with most MH services being provided through the private sector with specialized outpatient and inpatient care. At the present time, mental health is poorly integrated with primary healthcare centres or dispensaries [11]. Dedicated outpatient mental health services mostly comprise private clinics for psychiatric or psychological care, either in independent practices or within academic hospitals. Lebanon has eight psychiatric wards (all units within general hospitals), which equates to 1.5 psychiatric beds per 100,000 population and five active mental hospitals (28.52 beds/100,000 population). Among the mental hospitals, Deir El Saleeb is the largest, offering 1000 psychiatric beds [12], followed by Dar El Ajaza, offering 377 psychiatric beds [8]. Of note, among those discharged from mental hospitals, less than 25% have been found to access follow-up outpatient care within one month of discharge.

Apart from distribution of MH services by sector, the MH workforce is generally limited in Lebanon. With a total of 1346 governmental and non-governmental MH professionals nationally, there are only 23 MH workers per 100,000 population in Lebanon (compared to a median of 70 MH workers/100,000 population in high-income World Bank countries). For every 100,000 persons in Lebanon, there are 1.21 psychiatrists, 3.14 nurses and 3.3 psychologists. Despite these shortcomings, Lebanon has made great progress in improving mental health resources compared to the rest of the Arab world. In fact, Lebanon made the most significant improvement between 1998 and 2007 in terms of increasing the availability of psychiatric beds, psychiatrists, psychiatric nurses and social workers [13].

In 2017, Lebanon spent 5171.24 LBP/capita (equivalent to 3.43 USD/capita) on mental health (compared to 21.7 USD and 11.8 USD per capita in the WHO European and

Americas regions, respectively). Moreover, Lebanese MH services are poorly and disparately financed, with persons paying at least 20% towards the cost of MH services or psychotropic drugs. In fact, a third of the population in Lebanon is not health-covered (excluding Syrians and Palestinians living in camps who are covered by different United Nations agencies). Only 5% of total governmental health expenditure is allocated to mental health services (50% of which is allocated to inpatient care). Moreover, within the private sector, almost all private insurance and mutual funds do not cover MH services.

## **THE URGENT NEED FOR COMMUNITY SERVICES**

Perhaps the most pressing need for CBMH in Lebanon stems from the obvious imbalance between supply and demand for mental health services. To add to this, the lack of a regulated national healthcare referral system implies that people seeking mental healthcare, more often than not, bypass primary healthcare services, accessing professional mental health clinics directly. Given the prevalence of mental illness in Lebanon, along with the paucity of a specialized mental health workforce, the existing specialized MH care model is headed towards burnout.

Currently, MH services are concentrated in the capital, Beirut, or to a limited extent, within large academic institutions across the country. The obvious implication of this is a lack of conveniently accessible MH services for communities at a distance from the capital. It is not uncommon for MH professionals in Beirut to treat patients who have travelled over 30 miles to access quality care. Apart from the direct burden of such travel, this health-seeking behaviour in the long run is bound to increase the risk of caregiver burnout, non-compliance and possibly a deterioration of the clinical condition.

MH care in Lebanon is expensive, understandably so as it is usually offered by specialized MH professionals owing to the inadequate and/or insufficient integration of mental health within the primary care model. With psychotropic drugs not covered fully by healthcare plans (governmental or private), this further exacerbates the financial burden of mental illness on patients and those involved in their care.

Stigma towards mental illness remains a barrier to care in Lebanon and the Eastern Mediterranean Region generally. As such, many of the severely ill patients

(or their families) shy away from MH care services to avoid being labelled “crazy”. Alternatively, lack of MH awareness (about the existence of mental illness or the availability of scientific treatments) might lead many to seek treatment through spiritual or religious healers. Unfortunately, mainstream local media tends to be sensational more than informative, thereby conveying extreme views on the nature of and evidence-based treatment for mental disorders.

Currently, any patient in Lebanon who presents at an emergency department, and who warrants close psychiatric follow-up, will be recommended for inpatient admission, simply due to the lack of a follow-up system to bridge inpatient and outpatient care. As a result, and in light of the difficult MH financing situation, most of these patients will be discharged from the ED against medical advice [14]. Partial hospitalization or intensive outpatient programmes therefore have a critical role to play in closing this significant gap in mental healthcare.

### **EXISTING COMMUNITY MH SERVICES**

Specialist care programmes for MH disorders have been set up in many countries, including Europe, Australia and, more recently, in the United States. These programmes usually offer early assessment services, inpatient and outpatient accommodation, and day treatment visits. They encompass a team of psychiatrists, psychologists, nurses and case managers to ensure appropriate and continuous patient care. Studies have shown that patients in specialist care programmes have fewer hospital admissions, diminished negative symptoms and a better quality of life, compared to those receiving standard care. Additionally, these programmes have been found to have positive effects on relapse and readmission rates among patients, and improved social and occupational functioning [15].

In Lebanon, psychotic disorders, including schizophrenia and related conditions, are the most prevalent in psychiatric hospitals. However, deficits still exist in the treatment of these patients. There is minimal interaction between primary care and MH sectors in this country, and primary care staff are not trained at recognizing or providing support for this patient population. It is thus essential that new MH services are established which aim to reduce delays in treatment, educate families about psychosis, reduce admission rates and finally put in place long-term plans to maintain progress.

The only specialist programme targeting patients with severe mental disorders is the Psychosis Recovery Outreach Program (PROP), established at the American University of Beirut Medical Center (AUBMC) in February 2016 [16]. Its primary goal is to adapt evidenced-based models of care to the Lebanese setting. Affordability for patients is an essential parameter since private or public reimbursement for psychiatric services is limited. Additionally, patients enrolled in the programme are provided with a once-a-week drop-in visit, free of charge, with home nursing visit services, which became available as of May 2017. The programme includes individual supervision sessions as well as weekly group meetings where patient updates are discussed. Professionals (psychiatrists, psychologists and nurses) acquire understanding of the various roles of their colleagues to ensure shared ownership of the caseload. Referral numbers are increasing due to public awareness campaigns and information dissemination. To date, almost 70 patients have benefited from PROP services; these patients initially presented with challenging conditions and may well have been hospitalized without this programme. The PROP offers flexibility for patients and clinicians and an opportunity to create a research database for this clinical population.

Another more recently established programme is the partial hospitalization programme (PHP), also at the American University of Beirut Medical Center. This programme functions as a bridge between full inpatient admission and community treatment. It primarily targets patients with severe mood disorders and complex presentations who require intensive intervention to mitigate risk and enable a strong therapeutic relationship to be maintained. The daily programme operates between 8 a.m. and 3 p.m. on weekdays and is delivered mostly in a group format, coupled with individual therapy and frequent psychiatric reviews. Although it has only been running since February 2019, it has been well received by patients and caregivers and has led to a reduction in the length of inpatient admissions (avoiding them altogether in some cases).

Community health services are growing along with increased public awareness in Lebanon and efforts to reduce social stigma. However, resources such as financial support and availability of professionals are still very limited.

## **OPPORTUNITIES FOR DEVELOPMENT**

The deficit in demand-commensurate CBMH services in Lebanon does not mean that the country and culture are not, in fact, equipped to establish such models of MH care.

The brain drain continues to prevail throughout predominantly educated sections of society, with most graduating physicians seeking training opportunities in the West. A significant proportion of these physicians do return to establish their careers in Lebanon upon completion of clinical training abroad. As such, practising psychiatrists in Lebanon who have followed this training route have already been exposed to and are equipped to establish large-scale CBMH services across the nation, provided funding is made available. With the MOPH's 2015–2020 MH strategy (in line with the WHO's MH GAP programme), the scaling up of MH services (including financing and PHC integration) is being given national priority, in the hope that this translates into creation and expansion of CBMH services.

The tight-knit nuclear family structure prevalent across Lebanon plays an important role in welcoming the idea of and helping to implement CMBH models nationally. Most patients with moderate to severe mental illness are cared for by nuclear family members who offer support across multiple domains: psychological, financial, vocational and housing. Although the CBMH model is not formally applied, specialized outpatient and inpatient MH care has informally touched upon many aspects of CBMH. Most patients with moderate-severe illness present at MH clinics or inpatient wards accompanied by family members. Family meetings for psychoeducation and collective treatment-plan development are customary in most inpatient units within general hospitals and are generally appreciated by both patients and families alike.

## **ANTICIPATED CHALLENGES ASSOCIATED WITH IMPLEMENTING CBMH IN LEBANON AND SUGGESTIONS FOR OVERCOMING THESE**

The most significant barrier to achieving quality CBMH across Lebanon, and across most LMICs, is the lack of funding [17, 18]. Apart from the MOPH's relatively recent commitment to broadening and standardizing MH services generally, the financing of CBMH specifically remains a challenge. As such, efforts must be made to seek funding from UN agencies or WHO members who are well aware of the efficiency and efficacy of CBMH models.

Transgenerational stigma associated with mental illness needs to be addressed so that people will be more inclined to seek access to MH care when this is indicated [17]. CBMH models are most efficient when catering for large numbers, and as such, media and NGOs play a crucial role in responsibly disseminating evidence-based information on mental illness to communities on a large scale.

Research into psychotic disorders, for example, is still embryonic in Lebanon, with only a handful of publications (not yet a double-digit figure). This includes epidemiological and intervention-based studies. Local funding opportunities are unlikely to cover significant research in this field. Researchers rely on international grants targeting low- and middle-income countries (LMIC). These are rarely specific to MH and are highly competitive. Establishing reliable clinical databases that can be used for future research is easier in a multidisciplinary community-based model. With the existing presence of knowledge translation and policy information tools, data gathered from such mental healthcare processes can then be used to generate more specific MH targeted national policies [19].

It has also been noticed that non-governmental organizations and MH advocates put less emphasis on schizophrenia and related disorders compared to disorders that are considered "less severe". It has been hypothesized that this is due to a public that connects more with common causes such as anxiety, depression and suicidality. The public health burden of severe mental disorders remains understudied and underreported.

The MH workforce deficit might pose a challenge when it comes to establishing CBMH. As such, medical doctors, registered nurses and social workers must be given sufficient incentive to specialize in psychiatric care. In the absence of a funded nationwide public initiative to shift care from hospitals to the community, the incentive for developing CBMH in a health economy driven by private practice has to combine affordability for the patient with a sustainable business model for the clinician. This effort relies primarily on convincing psychiatrists, who are currently often the exclusive providers of care, of the benefits of the CBMH model while guaranteeing them a pivotal role within it. The MH needs of the nation will continue to grow over the coming years in parallel to the increase in population but also due to increased awareness of the importance

of mental health and the need to address it. There is no indication that the number of psychiatrists graduating each year can fill the gap between need and demand without a radical shift in practice. Unfortunately, given the dearth of local training opportunities in CBMH, up-and-coming psychiatrists are bound to replicate modes of practice within their comfort zone. They will still rely on the clinic-inpatient dichotomy that has proven its inadequacy for a number of psychiatric disorders.

Moving towards a community-based MH paradigm can translate into better care, provided at a more affordable cost for the end user and the provider. It also provides opportunities for development of new roles and positions for MH professionals from a variety of disciplines, as has happened globally. MH nursing is the branch to benefit the most as it will no longer be limited to acute inpatient settings. Nurses equipped with relevant skills for the assessment and management of psychiatric conditions can form the backbone of CBMH, enabling psychiatrists to widen their caseload without compromising the quality or frequency of clinical contact. Nurses are now seeking higher-level training and better opportunities for pay and professional reward. If these are not provided soon in Lebanon, we will run the risk of losing out to the GCC countries, Europe or beyond. Other professionals are also required for full implementation of community services. These include social workers trained in addressing mental health, occupational therapists and also various levels of support workers. The field of clinical psychology is undergoing reform as licensing has come into force over the last few years. While there is still much work to be done to ensure the quality of psychological care, this is a positive step forward. Psychologists are now expected to demonstrate adequate supervision before establishing themselves in independent practice. This is an opportunity for them to come into contact with a wider variety of patients and with evidence-based interventions being applied in academic institutions. In parallel, universities and postgraduate training programmes should be encouraged to incorporate community MH into their curriculum or provide specialist modules for those interested in pursuing a career in the field. Ultimately, we aim to achieve CBMH models tailored to different communities with differing psychiatric needs. More effort needs to be dedicated to community services for children and adolescents, LGBT communities, substance users and patients with neurocognitive impairments, among

others. Such an undertaking requires close collaboration with existing outpatient services and NGOs serving as a link to the relevant communities. For instance, the iCAN programme (intensive Child and Adolescent Neuropsychiatric Disorders Treatment Program) at the AUBMC already offers intensive outpatient services for children and adolescents with mood and anxiety disorders [20]. The Agnes Varis Healing Program for Substance Use Disorders at the AUBMC is another outpatient model of care for individuals struggling with substance use [21].

Finally, any successful community intervention needs to take into consideration the local geographical and logistical conditions while building on the experience of more developed nations [22]. Although Lebanon is a small country, it is densely populated and is lacking in terms of the availability of public transportation. Access to services outside the capital, Beirut, has been a prominent issue for many patients. CBMH could easily be established in the four or five population centres outside Beirut, to provide care for the surrounding areas. Sidon, Tyre, Tripoli and Zahle have the resources and workforce to house such services initially while CBMH expands nationwide and becomes the primary method of care delivery for the majority of patients with mental health conditions.

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# Islamophobia, mental health and psychiatry: South Asian perspectives

Исламофобия, психическое здоровье и психиатрия:  
взгляд из Южной Азии

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## ABSTRACT

Asia is the largest and the most populous continent on earth. South Asia has a population of around 1.8 billion, thus constituting about one fourth of humanity. India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, the Maldives and Afghanistan are the countries in South Asia and many of them are Muslim-majority nations. Although India is predominantly a Hindu nation with a total population of 1.4 billion, there are more Muslims in India than in Pakistan and other South Asian nations. Hindus, Muslims, Christians, Sikhs and followers of other religions have lived peacefully in South Asia for centuries. However, certain incidents of communal violence and other untoward occurrences in South Asia suggest that Islamophobia is present here too. The authors discuss demography, cultures and the possible effect of Islamophobia on the mental health of the people of South Asia.

## АННОТАЦИЯ

Азия – самая большая и густонаселенная часть света. Население Южной Азии составляет 1,8 млрд человек – около 1/4 населения всего мира. Индия, Пакистан, Бангладеш, Шри-Ланка, Непал, Бутан, Мальдивы и Афганистан – страны Южной Азии, и во многих из них преобладают мусульмане. Несмотря на то, что большинство населения Индии (1,4 млрд человек) составляют индуисты, в Индии проживает больше мусульман, чем в Пакистане или других странах Южной Азии. Индуисты, мусульмане, христиане, сикхи и последователи других религий веками мирно живут на территории Южной Азии. Тем не менее отдельные случаи межобщинного насилия и иные инциденты дают основания полагать, что и в нашем регионе есть место исламофобии. Авторы статьи рассматривают демографические, культурные аспекты, а также возможное влияние исламофобии на психическое здоровье жителей Южной Азии.

**Keywords:** *Islamophobia, Muslim Phobia, Muslim Mental Illnesses, Hate Crimes, Psychiatry, Discrimination, Mental Health, South Asia*

**Ключевые слова:** *исламофобия, мусульmanoфобия, психические заболевания у мусульман, преступления на почве нетерпимости, психиатрия, дискриминация, психическое здоровье, Южная Азия*

## INTRODUCTION

*“Usually the term phobia refers to the psychological fear of the human mind from something that poses a threat. But when a species starts using the term fear against a biological portion of itself, there is nothing more demeaning than this.”*

— Abhijit Naskar (The Islamophobic Civilization)

The origin of Islam as a religion/civilization in the year 610 CE in Saudi Arabia, added a novel religious faith and culture to the many existing contemporary religions [1]. Over a period of time, Islam attracted people across the boundaries of nations, geographical locations, cultures and creeds, and has spread rapidly in the past 1,400 years emerging as the second largest religious group in the world, today constituting 24% of the world population [2].

In contrast, in the past few decades there has been a rise in anti-Muslim sentiment and global hatred [3]. The basic principle of Islam remains unchanged since its inception and there could be several reasons for the rising anti-Muslim sentiment. One reason could be the difference between the basic principles of Islam and the way it is followed. There is a strong possibility that, due to a lack of religious knowledge, poverty and ignorance, the followers of Islam may have distorted Islamic rituals and culture [4–6]. The repercussions of inflexible attitudes and cultures of various religions may be responsible for rising anti-Muslim sentiment. The other reason could be that others misunderstand Islam's principles, practices, cultures and rituals. In addition, there might be various reasons such as cross-border terrorism, economic exclusion, war for sovereignty and materialistic gains, along with maintenance of supremacy between countries of the region, e.g., between India and Pakistan, giving religious colours to these conflicts [7].

Fortunately, despite wide variation in religious beliefs, with the cohesiveness and respect of cultural differences and religious views, the South Asian society has been considered resistant to religious hatred for centuries [8], but this bond seems to be weakening. The recent increase in religious intolerance in South Asia is a matter of serious concern.

South Asia is already facing various challenges in raising the standard of living of its people and in terms of economic growth, social progress and cultural development [9]. Alongside these existing challenges, rising Islamophobia

deserves special attention as a major threat to health outcomes and health disparities in South Asia with the largest population of Muslims in the world [10]. There is a need for intervention with social psychiatry initiatives to prevent rising Islamophobia and religious intolerance which acts as a persistent chronic stressor for the whole community. This will also prevent the emergence of mental health problems due to Islamophobia.

## DEMOGRAPHY OF SOUTH ASIA AND THE MUSLIM POPULATION

Eight countries, Afghanistan, Bangladesh, Bhutan, the Maldives, Nepal, India, Pakistan, and Sri Lanka, together form South Asia and are known as the South Asian Association for Regional Cooperation (SAARC) [11]. This area constitutes 3.4% of the world's land surface area with one fourth (1.8 billion) of the world's population. Thus, it is the most densely populated geographical region in the world with a significant proportion of Muslims [9, 12].

South Asia has many major religions such as Hinduism, Islam, Christianity, Jainism, Buddhism and Sikhism. About 63% (about one billion) of the population of South Asia are Hindus, 31% (600 million) are Muslims and the rest are Buddhists, Jains, Christians and Sikhs [13, 14]. The Hindus, Buddhists, Jains, Sikhs and Christians are concentrated in India, Nepal, Sri Lanka and Bhutan, whilst the Muslims are concentrated in Afghanistan (99%), Bangladesh (90%), Pakistan (96%) and the Maldives (100%) [14]. Among countries with a dominant non-Muslim population, Muslims constitute 14.5% of India, 12.61% of Sri Lanka and 4.4% of Nepal. It is to be noted that, in Muslim dominated countries, Hindus constitute 2% of the population of Pakistan, 9% of the population of Bangladesh and less than 1% of the population of Afghanistan [9]. This religious demography of South Asia could be one of the reasons for religious discrimination in this region. Although there is a dearth of official/scientific data, as per reports in electronic/print media, Islamophobia is presumed to be present here as well.

## ISLAMOPHOBIA: CONCEPT, CAUSES AND PREVALENCE

### Concept of Islamophobia

The concept of Islamophobia emerged from Western nations [3, 15], where Muslims are a minority.

Unfortunately, it is spreading rapidly to encompass the whole of the world including Muslim dominated Asian regions. Furthermore, despite the huge Muslim population, there is a dearth of scientific research and official data from developing and Asian countries regarding the consequences of rising Islamophobia for Muslims and other communities [3].

Islamophobia is defined as an intense dislike or fear of Islam and its followers, especially as a political force; hostility or prejudice towards Muslims [16]. The term Islamophobia emerged in the 1970s and later gained widespread currency. It reached public policy prominence in Western countries after the 1997 report by the Runnymede Trust Commission on British Muslims and Islamophobia entitled "Islamophobia: A Challenge For Us All" [15].

The introduction of the term was justified by the report's assessment that "anti-Muslim prejudice has grown so considerably and so rapidly in recent years that a new item in the vocabulary is needed" [17]. In recent times, Islamophobia has been conceptualized as social stigmatization of Islam and Muslims, dislike of Muslims as a political force and a distinct construct referring to anti-Muslim stereotypes, racism, or xenophobia [18,19]. Although, anti-Muslim sentiment is increasingly common globally, it has taken a form of social stigma in the Western world where Islamophobic sentiment has already gained scientific attention, particularly after the terrorist attacks of 11. September, 2001 [3].

### **Causes and Prevalence of Islamophobia**

The term Islamophobia gained prominence following terrorist attacks such as 9/11 in the United States, the Taliban's fundamentalist proscriptions and restrictions in Afghanistan, the Charlie Hebdo attack in France and the emergence of the self-proclaimed Islamic State group (ISIS) which allegedly showed videos of the beheading of their prisoners who were often journalists [20, 21].

The concept of Islamophobia became a global theme. With the advancement of communication/information technology and the role played by the media, Muslims were often described as fanatics, irrational, primitive, belligerent and dangerous for modern society and other religions [22]. There was negative portrayal of Muslims in many countries including those in Asia, which influenced the attitudes of common people [23].

In South Asia, the series of various heinous terrorist attacks, especially in India, e.g., 2000 Red Fort attack, 2001 Indian Parliament attack, 2008 Mumbai attack, 2008 bombing series in Delhi and 2016 Uri attack in Kashmir, mostly sponsored by cross-border terrorist organizations, fuelled the concept of Islamophobia [24–26]. India is the largest and fastest growing economy in this region with an 82% share of the South Asian economy. It is the only member of the powerful G-20 major economies from the region. Any terrorist activity against India is widely covered, it negatively affects the whole of South Asia [9] and it contributes to the rising tide of Islamophobia. Similarly, the 2002 beheading in Pakistan of the American journalist Daniel Pearl, the 2002 Karachi bus bombing carrying French engineers, the 2003 and 2006 attacks targeting the U.S. consulate in Karachi, the 2016 Lahore suicide bombing targeting Christians and several other such incidents where extremist Muslim organizations were primarily responsible, further expanded the concept of Islamophobia [27]. Some of the attacks in Pakistan and Afghanistan are believed to be attacks against other sub-groups within the Muslim community itself. The 2011 killing of Osama bin Laden, the head of the Islamist group Al-Qaeda, may also have contributed to the rise of Islamophobia in the West [28].

The religious demography of South Asia is important from the point of view of rising Islamophobia [29]. In some of the populous countries in the region, nationalism is sometimes judged by the hostility towards the neighbouring country and its predominant religion [30, 31]. In this way, the minority populations of both the countries, i.e., Hindus in Pakistan and Muslims in India, are at greater risk of discrimination by the majority. This could be one of the major reasons for the alleged rising Islamophobia and hate crimes against Muslims in India, and similarly, the rising hate crimes against Hindus in Pakistan.

At present, the concept of Islamophobia seems to be ingrained in the lifestyle of Western societies [32]. A post-9/11 poll in the United States reported that 60% of Americans had unfavourable attitudes toward Muslims. Many Americans relate to Muslims with fear-related terms such as violence, fanatic, radical, war and terrorism [33]. While Muslim immigration may be the cause for Islamophobia in the West, the large number of minority Muslims in some countries in South Asia could be the cause in this region. [34]

Although the common perception is that Islamophobia is growing in South Asia too, there is a lack of scientific evidence to support this argument [23]. Many believe that there has been a growing feeling of unease and insecurity amongst Muslims in India [35]. A recently published meta-analysis [23] examining the role of the media in the construction of a Muslim and Islamic identity, showed that Muslims are generally negatively framed and their civilization, i.e., Islamic faith, is predominantly portrayed as a violent civilization/religion. Similar views have been put forward by China about the media portraying negative stereotypes of Muslims [36]. In the present era of technology, where any true/false information can reach across the globe within a fraction of a second, social media platforms have been a viable medium to spread hatred among communities. There are thousands of groups/web pages by people with a similar mindset/religion who share and spread negatively framed news against people of other faiths [37, 38]. It is well known that when one set of people of a particular faith/group post provocative or inaccurate news on social media, others will reciprocate in a spirit of revenge, with the consequence of an exponential increase in hatred. Negative media campaigns have the potential to generalize Islamophobic attitudes towards the global Muslim community. This leads to feelings of insecurity among minority Muslims, and a distorted self-perception as non-peace loving people. To add to this, recent terrorist activities are usually linked with extremist elements of the Muslim communities, both globally and in South Asia [27]. Consequently, there can be reciprocal negative psychological responses against common Muslims by the majority, based on widespread news/media coverage of such terrorist activities.

### **ISLAMOPHOBIA AND MENTAL HEALTH PROBLEMS**

The recent rise in terrorism has led to widespread fear of Islamophobia among followers of Islam and other religions. The constant fear, agony, hatred, apprehension, etc., will definitely have a psychological impact on all people, as human beings are socially inseparable.

Islamophobia can negatively influence health by disrupting many systems, i.e., individual (stress reactivity and identity concealment), interpersonal (social relationships and socialization processes) and structural (institutional policies and media coverage) [3]. However, there is a dearth of scientific data on this topic from South

Asian countries. Like many traumatic events, e.g., family disputes, interpersonal conflicts, death of loved ones, earthquake, major road traffic accidents, chronic physical diseases and wars, the impact of Islamophobia will also be traumatic on the concerned individuals and groups.

Islamophobia can also be a source of stress. Although, the seeds of psychological problems may be implanted well before birth in the form of genetic predisposition, significant environmental stressors, social support and coping skills play important roles in the causation/precipitation of the majority of mental health problems [39, 40]. Stress has been reported to play a major aetiological role in acute stress reaction and adjustment disorders, and a precipitating role in schizophrenic episodes [41]. Hence, it could be inferred that a variety of mental disorders are associated with significant stress [39, 42, 43]. Islamophobia acts as a significant source of stress as it encompasses a range of anti-Muslim sentiments varying from derogatory remarks, discrimination and stigmatization to hate and targeted crimes against Muslims [44].

Stressors have a major influence on mood, sense of wellbeing, behaviour and health [45]. From a psychological point of view, psychological defence mechanisms may have significant adverse effects among Muslims regarding Islamophobia. Introjection occurs when a person internalizes the beliefs of other people, i.e., Muslims would start to see themselves in the negative way that they are portrayed by the media. On the other hand, the psychological defence mechanisms which may play a role against Muslims among the general population are rationalization, symbolization and reaction formations. The majority may develop the belief that since most of the terrorist attacks across the world have somehow been linked with Muslim organizations, Muslims can be considered as a symbol of terrorism and thus hate crimes against Muslims could, to a certain extent, be justified. Hate crimes like mob lynching may be a significant risk factor for stress-related disorders in people from a concerned community, e.g., acute stress reactions, grief reactions, insomnia and adjustment disorders among close family members, post-traumatic stress disorders among survivors or witnesses [46, 47].

In physical disorders, the majority of laboratory investigations are carried out to look for the causes/aetiologies of various disorders. In psychiatry, a detailed history and assessment focuses on delineation

of specific stress or perpetuating factors. There are many scales to measure various types of significant stress in psychiatric patients such as the Perceived Stress Scale [48] and the Holmes-Rahe Stress Inventory [49]. These scales measure the types and severity of stress. These scales also explore the degree to which situations in one's life are appraised as stressful. In this regard, scales have also been developed to measure Islamophobia regarding fearful attitudes towards, and avoidance of Muslims and Islam, arguing that Islamophobia should "essentially be understood as an affective part of social stigma towards Islam and Muslims, namely fear" [50, 51].

Mental disorders or psychological stress are associated with various physical disorders like hypertension, diabetes mellitus, obesity, peptic ulcer disease, etc. [52-55]. The Centre for Disease Control and Prevention in the United States has estimated that stress accounts for about 75% of all visits to the doctor [56]. In Islamophobia, there are no adequate resources to cope with the stressor, leading to the perception of being under stress [64]. Thus, there may be serious health problems due to rising Islamophobia in South Asia.

Furthermore, this rising intolerance to religious cultures/beliefs around the world may have an adverse effect on the personality of growing children and adolescents [57]. The growing phase of childhood and adolescence is itself a period of stress, in which children are dealing with the challenges of going through puberty, meeting changing expectations, school performance and coping with new feelings. Most children meet these challenges successfully and grow into healthy adults while others may have a harder time coping with their problems. The rising incidence of hate speeches/crimes along with feelings of discrimination and stigmatization will have a negative impact on mental health. Exposure to stress during childhood and adolescence has lasting neurobiological effects with psychological consequences, e.g., deregulation of affect, anxiety and mood disorders, provocative and aggressive behaviours, the avoidance of intimacy, disturbances in attachment, post-traumatic stress disorder and depressive symptoms [58-60].

Islamophobia can affect other aspects of life too. However, there is no scientific research that can reveal the impact of Islamophobia in terms of discrimination in the health service, workplace, job opportunities and

in terms of the increased scrutiny in South Asian countries on the basis of appearance and religious background [61, 62]. Literature from Western countries regarding how Islamophobia affects the mental health of Muslims [20, 63] indicates that religious prejudice in the form of Islamophobia is a major obstacle to Muslims' integration because it increases the incongruity between majority and minority members' acculturation attitudes. In the West, various forms of religious stigma can affect Muslims' national identity and engagement in the public and private sphere in distinct ways. In the absence of scientific data, we are unable to draw such conclusions for South Asia.

Communal and religious harmony is important for the social, cultural and economic growth of countries. It is also imperative to protect the human rights of all and especially of minorities.

## **CONCLUSION**

South Asia has a huge and diverse population and Islamophobia is a matter which needs attention and further study in this region. The media often portrays Muslims negatively. Islamophobia is associated with significant stress and anxiety and the prevalence of mental health problems could be expected to increase, affecting Muslims and other communities. Islamophobia is also likely to colour the phenomenology of mental disorders.

Mental health is of low priority and its role on human and societal wellbeing is underestimated in most developing countries. Many South Asian countries are already fighting joblessness, poverty, illiteracy, cultural myths, superstition and inadequacy of medical facilities. The rise of Islamophobia will add another major challenge and there is a need to study the perceptions of an Islamophobic society, experiences of religious discrimination and negative representations of Muslims. The recent rise in hate crimes against Muslims in South Asia calls for a public health perspective that considers the stigmatized identity of Muslims and the health implications of Islamophobic discrimination.

Islamophobia can be a double-edged sword, with demoralizing effects on the psychology of human beings irrespective of their religious faith. The more it rises, the more severe will be the after-effects and there will be an increased likelihood of psychological illness and violation

of human rights. The prompt awareness and tackling of rising Islamophobia will promote social, economic and personal growth of the people of South Asia.

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