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Research Article

# Disability of the population in mental disorders

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## ABSTRACT

**RELEVANCE:** The original article analyzes the disability of the population with mental disorders. Disability due to mental and behavioral disorders in the Russian Federation in the period 2004–2021 was studied. The mental health of the population reflects the level of public health, being an indicator of social well-being. Currently, every 10<sup>th</sup> inhabitant of the planet suffers from mental disorders, and every fourth will meet with them at one time or another period of life.

**THE PURPOSE OF THE STUDY:** was to analyze the trends in disability in mental disorders in four groups: 1, 2, 3 and children.

**RESULTS:** In a retrospective analysis, there was a first-time identified disability of the population with behavioral syndromes associated with physiological disorders and physical factors in group 1 was not encountered, in the second group it occurred in 2011, in 2012, in 2014, in group 3 — in 2016, in 2021, in children in 2011, 2016, 2018, 2019, 2020, in 2021. It was established that the greatest disability was provided by mental retardation with a pronounced upward trend in general disability for the first group, newly diagnosed disability — for the first, third and children. In the demographic structure of mental retardation, men predominated, children ranked second, women third.

**CONCLUSION:** There is a need to develop programs of medical and social assistance for disabled people with mental disorders. It is necessary to form medical and psychological measures for primary prevention, as well as to improve the quality of public education on mental health issues.

**Keywords:** disability; emotional disorders; mental disorders; mental retardation; public health; social welfare; working age.

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Научная статья

# Инвалидность населения при психических расстройствах

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## АННОТАЦИЯ

**Актуальность.** В оригинальной статье проведен анализ инвалидности населения при психических расстройствах. Изучена инвалидность вследствие психических расстройств и расстройств поведения в Российской Федерации в период 2004–2021 гг. Психическое здоровье населения отражает уровень общественного здоровья, являясь индикатором социального благополучия. В настоящее время каждый 10-й житель планеты страдает психическими расстройствами, а каждый 4-й встретится с ними в тот или иной период жизни.

**Цель исследования:** анализ тенденций инвалидности при психических расстройствах по четырем группам: 1–3-я и дети.

**Результаты.** В ретроспективном анализе впервые выявленная инвалидность населения при поведенческих синдромах, связанных с физиологическими нарушениями и физическими факторами, в 1-й группе не встречалась, во 2-й встречалась в 2011, 2012 и 2014 гг., в 3-й группе — в 2016 и 2021 гг., у детей — в 2011, 2016, 2018–2021 гг. Установлено, что наибольшую инвалидизацию обеспечивала умственная отсталость с выраженной тенденцией роста общей инвалидности для 1-й группы, впервые выявленной инвалидности — для 1-й, 3-й и детей. В демографической структуре умственной отсталости мужчины преобладали, дети занимали второе место, женщины — третье.

**Заключение.** Возникает необходимость в разработке программ медико-социальной помощи для инвалидов при психических расстройствах. Необходимо сформировать медицинские и психологические меры первичной профилактики, а также повысить качество просвещения населения по вопросам психического здоровья.

**Ключевые слова:** инвалидность; общественное здоровье; психические нарушения; социальное благополучие; трудоспособный возраст; умственная отсталость; эмоциональные расстройства.

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## BACKGROUND

The mental health of the population reflects the level of public health, which is an indicator of social well-being. Currently, every 10<sup>th</sup> person on the planet suffers from mental disorders, and every 4th person has had one at one time or another in their lives [1]. Mental and behavioral disorders rank first among morbidities and permanent disabilities [2, 3].

Mental illnesses often lead to profound social and psychological maladjustment and cause disability in most cases [4, 5]. For many years, approximately 75% of people of working age have been the first to experience primary disabilities [6]. In Russia, the total number of patients with disabilities due to mental disorders accounts for >8% of the total of all diseases\*. S.A. Truschelev, Z.I. Kekelidze, and N.K. Demcheva [7] reported that nearly every second patient with a newly diagnosed mental or behavioral disorder experienced disability. Disability related to mental illness has traditionally been considered in four groups: groups 1–3 and pediatric group. I.A. Vladimirova [8] noted that mental retardation is the main cause of disability in pediatric patients with mental pathology. Group 3 has moderate deviations in mental health, is considered capable, and has the right to work on an equal basis with most people. In group 2, the psyche of patients is impaired to a pronounced degree; however, they can take care of themselves and relatives and work in a specially equipped place for no more than 3 h a day. Group 1 has a complete lack of legal capacity, does not have the right to work, and needs a guardian [9]. B.A. Kazakovtsev [10] established that to identify criteria for the efficiency of primary prevention measures, correlations between indicators of the primary incidence of mental disorders and indicators of the effectiveness of federal and regional targeted programs implemented in Russia to combat socially significant diseases must be established. Moreover, medical and social assistance programs for people with disabilities and mental disorders are needed. Medical and psychological measures for primary prevention are necessary, and the quality of public education on mental health issues must be improved.

*This study aimed to analyze trends in disability due to mental disorders in four groups: groups 1–3 and pediatric group.*

## MATERIALS AND METHODS

The *study* was conducted to examine the population with disabilities due to mental disorders in groups 1–3 and pediatric group. The *study* focused on a complex

\* Decree of the Government of the Russian Federation of December 1, 2015 No. 1297 "On approval of the state program of the Russian Federation "Accessible Environment" for 2011–2020."

of theoretical, methodological, and practical issues related to the medical and social assessment of disability trends due to mental disorders in four groups of patients (groups 1–3 and pediatric group).

This empirical study was conducted by employees of the Department of Economics and Health with a postgraduate education course at the Astrakhan State Medical University of the Ministry of Health of Russia and the head of the psychiatric service of the L.A. Vorokhobov City Clinical Hospital No. 67 in 2021–2022. A database was created in Microsoft Excel, and data were statistically analyzed using Statistica version 21.0. The results of the study were subjected to statistical processing using Statistica version 13 (StatSoft, serial number JPZ8071452917ARCN20ACD-9), which was installed on a personal computer with a Microsoft Windows 10 operating system. The study results are presented in the figures.

## RESULTS AND DISCUSSION

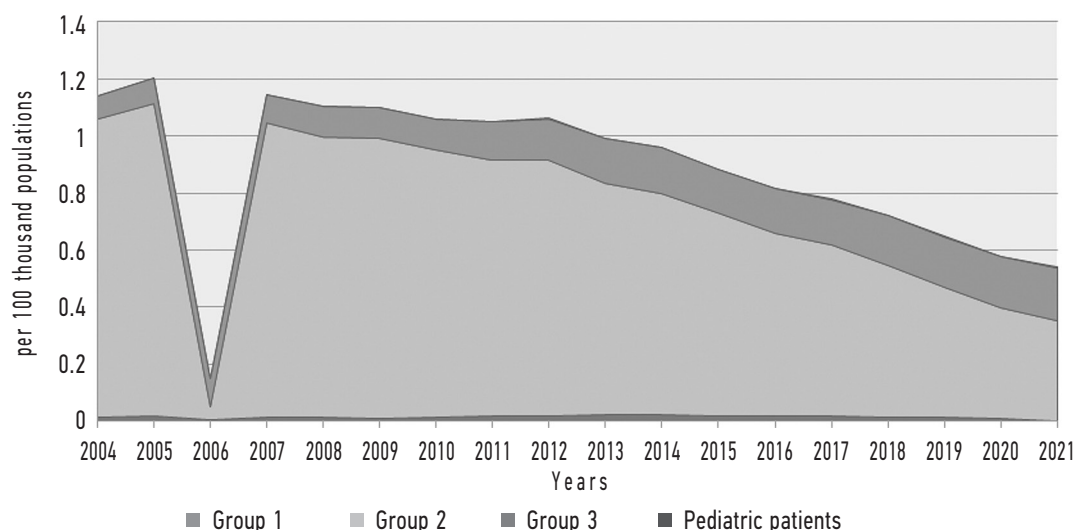
The long-term study of mental disorders in the population of the Russian Federation showed stable trends in the general disability of the population with schizophrenia and schizotypal and delusional disorders from 2004 to 2021 (per 100 thousand population), namely, an increase from 0.78 to 1.39 in group 1 ( $r = 0.85$ ) and from 1.78 to 3.78 group 3 ( $r = 0.86$ ), a reduction from 25.32 to 19.14 in group 2 ( $r = -0.9$ ), and an increase from 0.47 to 0.57 in the pediatric group ( $r = 0.58$ ) ( $p < 0.05$ ).

The prevalence of the newly diagnosed disabilities showed similar trends from 2004 to 2021 (per 100 thousand population), with an unstable increase from 0.006 to 0.01 in group 1 ( $r = 0.05$ ), sustainable growth from 0.09 to 0.55 in group 3 ( $r = 0.81$ ) and from 0.47 to 0.57 pediatric group ( $r = 0.67$ ), and a steady decrease from 0.76 to 0.16 in group 2 ( $r = -0.79$ ).

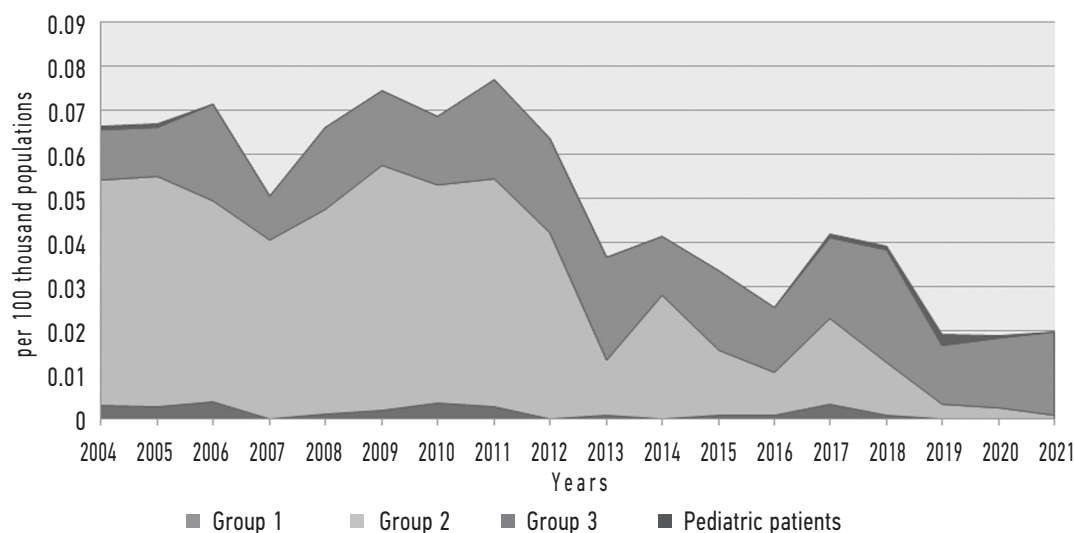
In the population with disabilities due to mental disorders, schizophrenia, schizotypal, and delusional disorders were predominant in women (54.01%), occurred in a slightly smaller proportion in men (44.37%), and recorded minimally in pediatric patients (1.61%).

No changes in the prevalence of general disability of the population with mood disorders (affective disorders) from 2004 to 2021 (per 100 thousand population) were found in group 1 (0.01 in both 2004 and 2021), a steady downward trend was noted from 1.04 to 0.35 in group 2 ( $r = -0.53$ ), and an unstable growth trend was found from 0.0009 to 0.01 in the pediatric group ( $r = 0.24$ ) (Fig. 1).

The prevalence of newly identified disability due to mood disorders (affective disorders) from 2004 to 2021 (per 100 thousand population) demonstrated an unstable decrease from 0.003 to 0 in group 1 ( $r = -0.06$ ), from 0.05 to 0.0009 in group 2 ( $r = -0.32$ ), and from 0.0009 to 0 in the pediatric group ( $r = 0.53$ ) and a steady increase from 0.01 to 0.02 in group 3 ( $r = 0.97$ ) (Fig. 2).



**Fig. 1.** Prevalence of general disability due to mood disorders (affective disorders) per 100,000 populations



**Fig. 2.** Prevalence of newly diagnosed disability due to mood disorders (affective disorders) per 100,000 populations

In populations with disabilities due to mood disorders (affective disorders), women dominated (69.2%), with men noticeably ranking second (28.8%) and children representing a minimal share (2.1%) (Fig. 3).

The prevalence of general disability in the population with neurotic, stress-related, and somatoform disorders from 2004 to 2021 (per 100 thousand population) demonstrated an unstable increase from 0.0009 to 0.036 in group 1 ( $r = 0.31$ ), a steady downward trend from 0.089 to 0.018 in group 2 ( $r = -0.76$ ), an unstable downward trend from 0.017 to 0.0008 in group 3 ( $r = -0.53$ ), and a steady downward trend from 0.006 to 0.0 in the pediatric group ( $r = -0.62$ ).

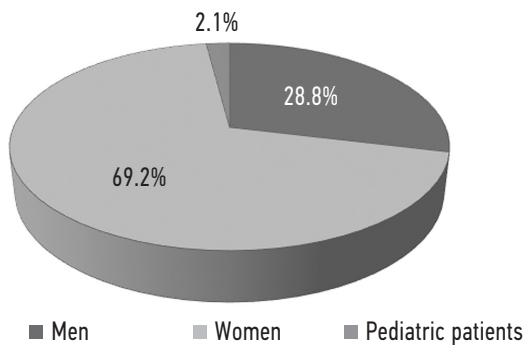
The prevalence of newly diagnosed disability in the population with neurotic, stress-related, and somatoform disorders from 2004 to 2021 (per 100 thousand population) was practically zero in group 1, but a steady downward trend from 0.007 to 0.0008 was noted in group 2

( $r = 0.03$ ) and an unstable downward trend from 0.004 to 0.0008 in group 3 ( $r = -0.61$ ) and from 0.004 to 0.0 in the pediatric group in 2021 ( $r = -0.49$ ).

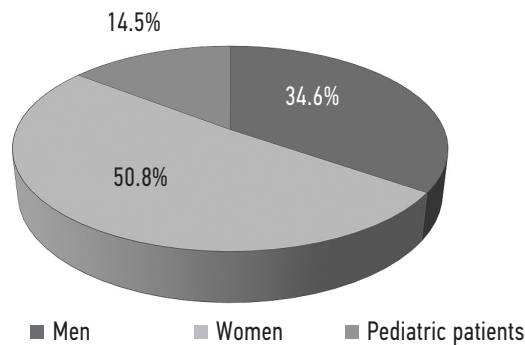
Among the population with disabilities due to neurotic, stress-related, and somatoform disorders, women dominated (50.8%), with men noticeably ranking second (34.6%) and children representing a minimal share (14.5%) (Fig. 4).

In 2004–2021, the prevalence of general disability in the population with personality and behavioral disorders with adult onset was decreasing, as it changed from 0.004 to 0.003 in group 1, from 0.18 to 0.041 in group 2, from 0.006 to 0.002 in the pediatric group, and remained unchanged (0.03) in group 3 ( $r = -0.61$ ).

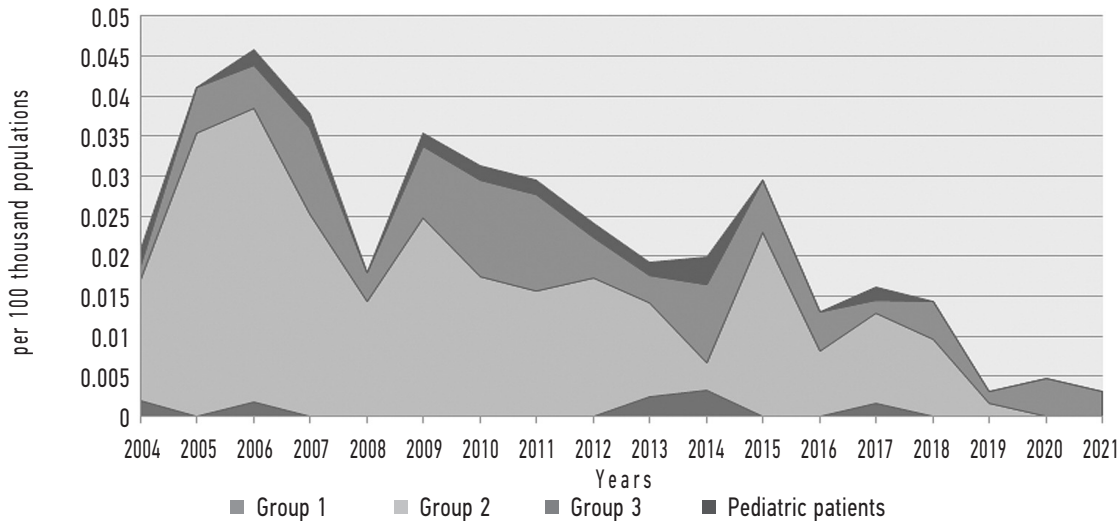
In 2004–2021, the prevalence of newly diagnosed disabilities in the population with personality and behavioral disorders with an adult onset was decreasing, changing from 0.002 to 0.0 in group 1, from 0.02 to 0.0 in group 2,



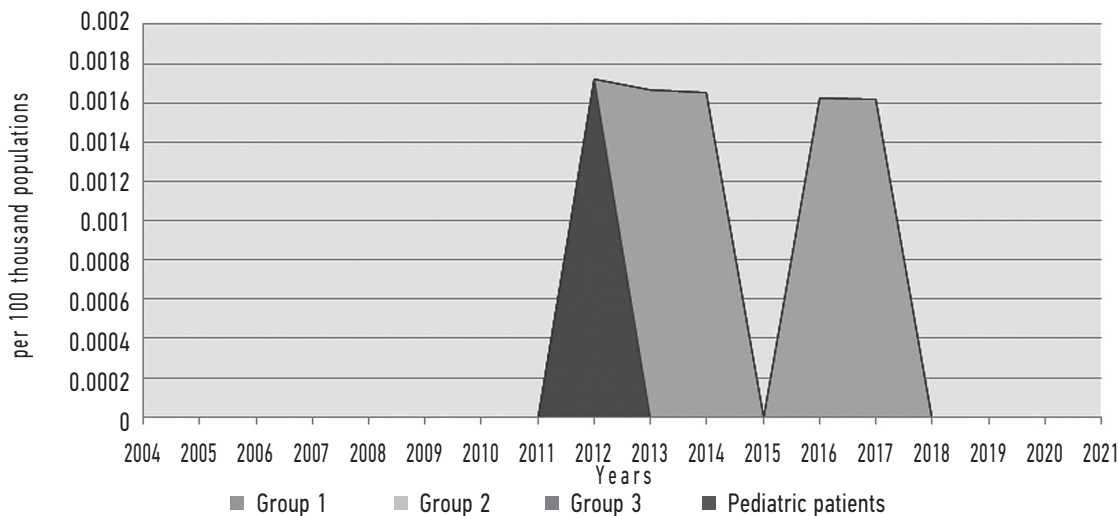
**Fig. 3.** Demographic structure of general disability in mood disorders (affective disorders)



**Fig. 4.** Demographic structure of disability in neurotic, stress-related, and somatoform disorders



**Fig. 5.** Prevalence of newly diagnosed disability due to personality and behavioral disorders in adulthood per 100,000 populations

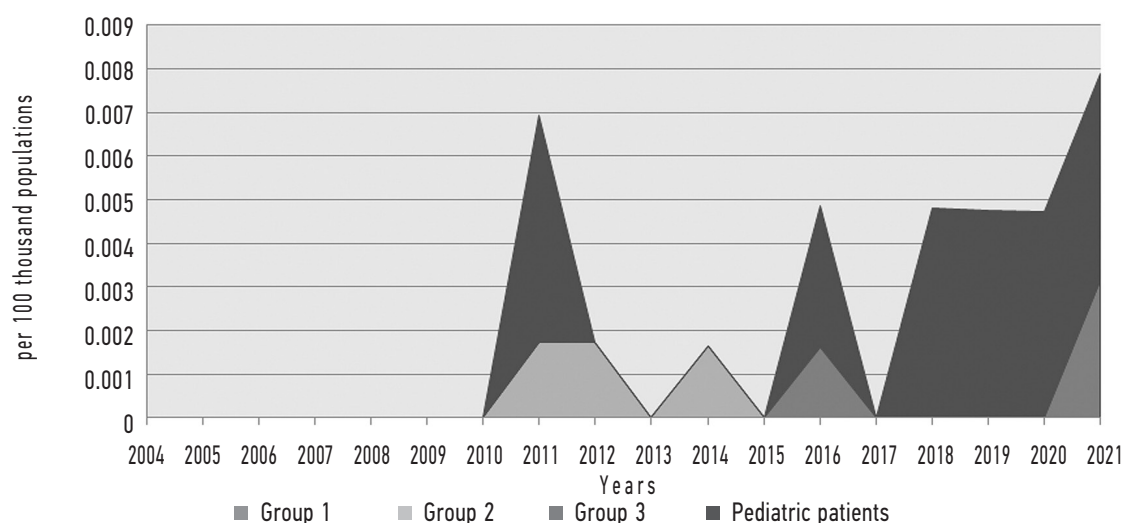


**Fig. 6.** Prevalence of general disability due to behavioral syndromes associated with physiological disorders and physical factors per 100,000 populations

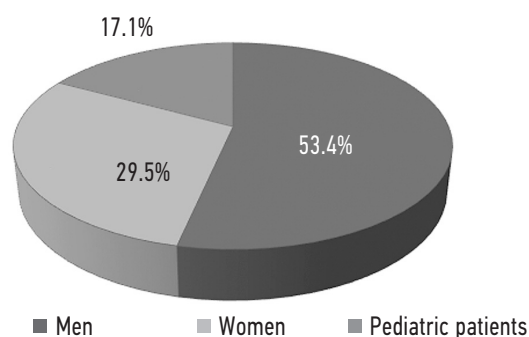
and from 0.002 to 0.0 in the pediatric group, and increasing steadily from 0.02 to 0.03 in group 3 ( $r = -0.87$ ) (Fig. 5).

Among populations with disabilities due to personality and behavioral disorders with an adult onset, men predominated (75.7%), followed by women (16.2%) and pediatric patients (9.05%).

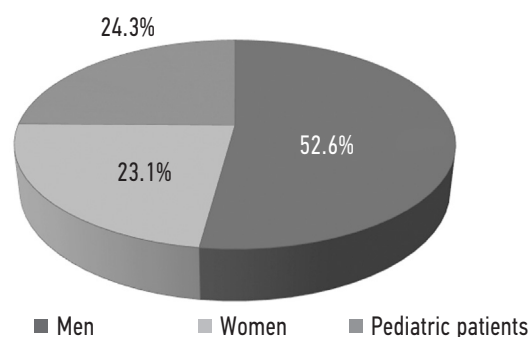
Disabilities due to behavioral syndromes associated with physiological disorders and physical factors were registered only in group 1 in 2012, amounting to 0.02 per 100 thousand population, and in group 2 with 0.0017 each in 2013 and 2014 and 0.0016 each in 2016 and 2017. These categories were not recorded in group 3 and the pediatric group (Fig. 6).



**Fig. 7.** Prevalence of newly diagnosed disability due to behavioral syndromes associated with physiological disorders and physical factors per 100,000 populations



**Fig. 8.** Demographic structure of disability due to behavioral syndromes associated with physiological disorders and physical factors



**Fig. 9.** Demographic structure of general disability with mental retardation

Newly identified disabilities in the population with behavioral syndromes associated with physiological disorders and physical factors were not detected in group 1. In group 2, it was recorded in 2011 (0.0017), 2012 (0.0017), and 2014 (0.0016). In group 3, it was registered in 2016 (0.0016) and 2021 (0.0032). In the pediatric group, it was identified in 2011 (0.005), 2016 (0.003), 2018 (0.005), 2019 (0.005), 2020 (0.005), and 2021 (0.005) (Fig. 7).

In the population with disabilities due to behavioral syndromes associated with physiological disorders and physical factors, men dominated (53.4%), followed by women (29.5%) and children (17.1%) (Fig. 8).

In 2004–2021, the prevalence of general disability of the population with mental retardation (per 100 thousand population) had stable trends, that is, an increase from 1.65 to 2.1 in group 1 ( $r = 0.9$ ) and from 2.2 to 2.6 in the pediatric group ( $r = 0.88$ ) and a decrease from 4.6 to 3.02 in group 2 ( $r = -0.87$ ) and from 0.77 to 0.73 in group 3 ( $r = -0.82$ ).

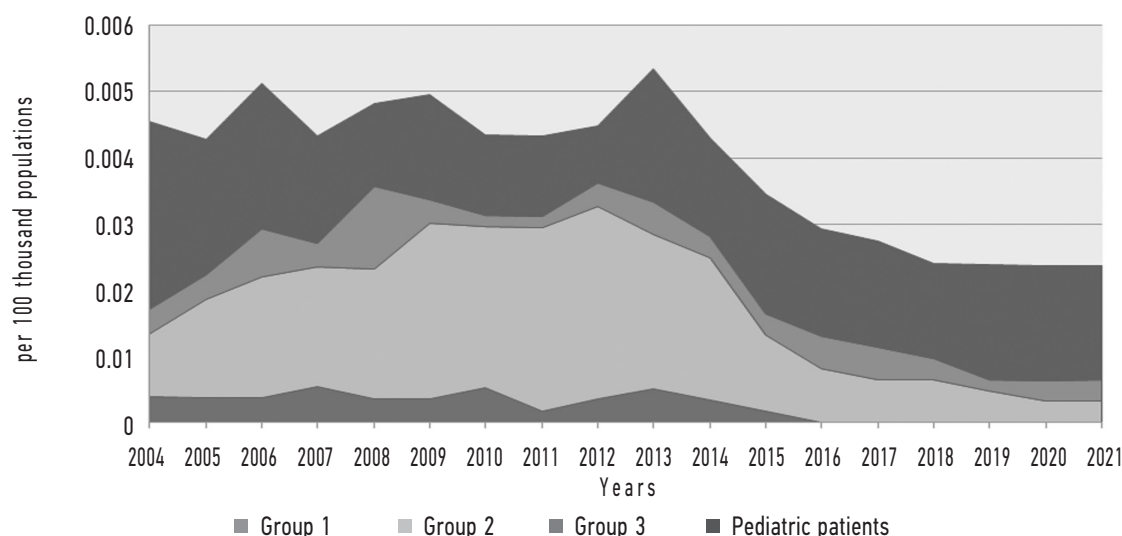
In 2004–2021, the prevalence of newly diagnosed disability due to mental retardation (per 100 thousand population) had a steady growth trend, i.e., from 0.01 to

0.02 in group 1 ( $r = 0.72$ ), from 0.02 to 0.03 in group 3 ( $r = -0.7$ ), and from 0.23 to 0.27 in the pediatric group ( $r = 0.6$ ) and a steady downward trend from 0.06 to 0.02 in group 2 ( $r = -0.83$ ).

Among populations with mental retardation, men predominated (52.6%), women ranked second (23.1%), and pediatric patients ranked third (24.3%) (Fig. 9).

The prevalence of general disability in the population with emotional and behavioral disorders, usually with childhood and adolescent onset, had a steady downward trend in 2004–2021, i.e., from 0.004 to 0.003 in group 1 ( $r = -0.81$ ) and from 0.009 to 0.003 in group 2 ( $r = -0.6$ ) and an unstable trend from 0.004 to 0.003 in group 3 ( $r = -0.4$ ) and from 0.03 to 0.02 in the pediatric group ( $r = -0.3$ ) (Fig. 10).

The disability first identified to be due to emotional and behavioral disorders, usually with childhood and adolescent onset, was registered only in 2010 (0.002) in group 1, and the prevalence decreased steadily from 0.004 to 0.0 in group 2 ( $r = -0.6$ ) and increased unsteadily from 0 to 0.003 in group 3 and from 0.004 to 0.005 in the pediatric group.



**Fig. 10.** Prevalence of general disability due to emotional disorders and behavioral disorders, usually beginning in childhood and adolescence, per 100 thousand populations

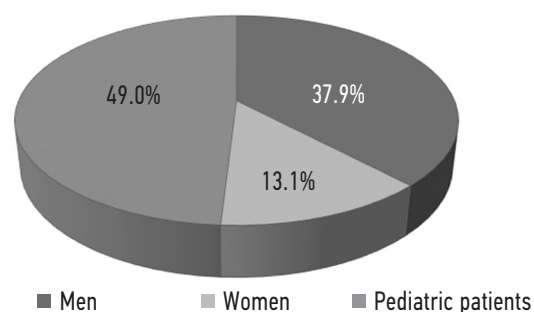
In the population with disabilities due to emotional and behavioral disorders, usually with childhood and adolescent onset, pediatric patients predominated (49.0%), men ranked second (37.9%), and women ranked third (13.1%) (Fig. 11).

## CONCLUSIONS

Thus, the most severe disability was registered with mental retardation, with a pronounced upward trend in general disability for group 1 ( $1.6\text{--}2.1^{0/000}$ ) and the pediatric group ( $2.2\text{--}2.6^{0/000}$ ) and newly diagnosed disability for group 1 ( $0.01\text{--}0.02^{0/000}$ ), group 3 ( $0.02\text{--}0.03^{0/000}$ ), and the pediatric group ( $0.23\text{--}0.27^{0/000}$ ). Among patients with mental retardation, men predominated (32.15%), pediatric patients ranked second (24.8%), and female patients ranked third (23.1%).

Mental disorders ranked second in terms of the level of general disability, including schizophrenia, schizotypal, and delusional disorders, with a steady growth trend in group 1 ( $0.006\text{--}0.01^{0/000}$ ), group 3 ( $0.09\text{--}0.55^{0/000}$ ), and pediatric group ( $0.47\text{--}0.57^{0/000}$ ). Among the population with disabilities due to mental disorders, schizophrenia, schizotypal, and delusional disorders were registered predominantly in women (54.01%), in a slightly smaller proportion of men (44.37%), and to the least extent in pediatric patients (1.61%).

Personality and behavioral disorders in adulthood ranked third in terms of the level of general disability, with a downward trend in group 1 ( $0.004\text{--}0.003^{0/000}$ ), group 2 ( $0.18\text{--}0.041^{0/000}$ ), and pediatric group ( $0.006\text{--}0.002^{0/000}$ ) and stabilization in group 3 ( $0.03\text{--}0.03^{0/000}$ ). Among populations with general disability due to personality and behavioral disorders with an adult onset, men predominated (75.7%), female patients ranked second (16.2%), and pediatric patients ranked (9.05%).



**Fig. 11.** Demographic structures of disability in disorders of psychological (mental) development

The prevalence of disability due to neurotic, stress-related, and somatoform disorders ranked fourth, with an unstable increase from 0.0009 to 0.036 (per 100 thousand population) in group 1, a steady downward trend from 0.089 to 0.018 in group 2, and from 0.006 to 0.0 in the pediatric group and an unstable downward trend from 0.017 to 0.0008 in group 3. In the population with disabilities due to neurotic, stress-related, and somatoform disorders, female patients dominated (50.8%), men noticeably ranked second (34.6%), and pediatric patients ranked third (14.5%).

The prevalence of general disability caused by emotional and behavioral disorders, usually with childhood and adolescent onset, ranked fifth with a steady downward trend in 2004–2021, that is, from 0.004 to 0.003 in group 1 and from 0.009 to 0.003 in group 2, and an unstable trend from 0.004 to 0.003 in group 3 and from 0.03 to 0.02 in the pediatric group. In the population with disabilities due to emotional and behavioral disorders, usually with childhood and adolescent onset, pediatric patients predominated (49.0%), men ranked second (37.9%), and women ranked third (13.05%).

Disability due to mood disorders (affective disorders) ranked sixth; demographically, women dominated (69.2%), with men noticeably ranking second (28.8%), followed by children (2.05%). No changes in the prevalence were found in group 1, with values remaining 0.01 in 2004–2021; however, a stable downward trend in the prevalence was noted, that is, from 1.04 to 0.35 in group 2, and an unstable growth trend from 0.0009 to 0.01 was noted in the pediatric group.

Disability due to behavioral syndromes associated with physiological disorders and physical factors ranked seventh among mental disorders. This disability was registered only in 2012 in group 1, amounting to 0.02 (per 100 thousand population) and in 2013 and 2014 with 0.0017 and in 2016 and 2017 with 0.0016 in group 2. This disability was not recorded in group 3 and the pediatric group. In the population with disabilities due to behavioral syndromes associated with physiological disorders and physical factors, men dominated (53.4%), women

noticeably ranked second (29.5%), and pediatric patients ranked third (17.09%).

Therefore, medical and social assistance programs are needed for patients with disability caused by mental disorders. Medical and psychological measures of primary prevention must be formulated, and the quality of public education on mental health issues should be improved.

## ADDITIONAL INFORMATION

**Funding:** The study received no external funding.

**Conflict of interest:** The authors declare no conflict of interest.

**Ethical considerations:** This study was approved by the local ethics committee.

**Author contributions:** All authors made significant contributions to the study and preparation of the article and read and approved the final version before publication.

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