

Dynamics of Mental Health Disorder Prevalence in Himachal Pradesh

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Abstract

Background: Mental health disorders contribute substantially to the global disease burden. Himachal Pradesh, with its geographic and sociocultural diversity, faces unique challenges in addressing these conditions. To examine temporal trends in the incidence and severity of mental health disorders across 2014, 2022, and 2023.

Methods: A retrospective analysis was conducted using patient registers from the Department of Psychiatry, Indira Gandhi Medical College and Hospital, Shimla. Patients were classified by diagnostic category and severity (low, moderate, high). Year-wise differences were tested using the Kruskal–Wallis test, and chi-square tests were used to assess associations with disorder type and severity ($p < .01$).

Results: Significant year-wise differences were observed for schizophrenia and psychotic disorders, substance-related disorders, sleep disorders, mood disorders, and anxiety and stress disorders ($p < .01$). The overall disorder burden also varied significantly across years ($\chi^2 = 57.631$, $p < .001$). Severity analysis revealed a rising trend, with high-severity cases increasing from 20.2% in 2014 to 28.5% in 2023. Substance-related disorders rose sharply from 14.9% in 2014 to 44.8% in 2023, while miscellaneous disorders increased steadily from 24.0% to 41.0%. Neurodevelopmental, somatic, developmental, behavioural, and cognitive disorders showed relative stability.

Conclusion: The findings indicate substantial shifts in both the prevalence and severity of mental health disorders in Himachal Pradesh, with sharp increases in substance-related, mood, anxiety, and high-severity cases. These results underscore the need for context-specific interventions, strengthened service delivery, and policies prioritizing early detection and management..

Keywords Himachal Pradesh, mental health disorders, prevalence, severity, temporal trends.

INTRODUCTION

Given the significant global burden of mental health disorders, the World Health Organization (WHO) has emphasized that “there can be no health without mental health.” (Prince et al. 2007). In 2019, approximately one in eight individuals worldwide were affected by a mental disorder, with anxiety and depression being the most prevalent conditions (Fan et al., 2019; World Health Organization, 2022). The COVID-19 pandemic further exacerbates this challenge, leading to a sharp increase in the prevalence of anxiety and depressive disorders (Santomauro et al., 2021; World Health Organization, 2022). Acknowledging the critical role of mental health in reducing the overall disease burden, India introduced its first National Mental Health Policy in 2014, followed by the Mental Health Act of 2017, aimed at ensuring equitable, affordable, and universal access to mental health services (Sagar et al., 2020).

Himachal Pradesh, located in the northern region of India, is a predominantly mountainous state characterized by diverse topography, ranging from the Shivalik hills to the higher Himalayan ranges. The state comprises 12 districts and 21,253 villages, with a population that is largely rural in composition. Its geographical setting, while picturesque, poses challenges for the accessibility and delivery of health care services, making the health infrastructure particularly significant in ensuring equitable access to care. The health facilities in Himachal Pradesh reflect a tiered structure designed to serve both rural and urban populations. At the grassroots level, there are 2,102 rural subcenters and 12 urban subcenters that provide essential health services. These are supported by 549 rural and 25 urban primary health centers (PHCs), which serve as the first points of contact for medical consultation and preventive care. Furthermore, 98 rural and 4 urban community health centers (CHCs) function as referral units for PHCs, and offer specialized care and diagnostic services. Secondary-level health services are

provided through 89 sub-divisional and district hospitals, along with 9 dedicated district hospitals across the state. At the tertiary level, Himachal Pradesh hosts 6 medical colleges that contribute not only to advanced treatment and specialty care but also to medical education and research (Ministry of Health and Family Welfare Statistics Division, Government of India, 2022-23).

Himachal Pradesh, with its considerable sociocultural and demographic diversity, presents unique challenges in addressing the burden of mental health disorders. Effective policies and interventions must therefore be sensitive to local contexts rather than adopting a one-size-fits-all approach. Understanding the distribution and temporal trends of mental disorders across districts is essential for designing contextually appropriate and evidence-based responses. While earlier research has highlighted the overall burden of mental disorders in India, including some insights from Himachal Pradesh (Math et al., 2010; Chauhan et al., 2019), systematic evidence on the magnitude, patterns, and severity of these disorders at the district level remains scarce. This gap limits the ability of policymakers and healthcare providers to allocate resources effectively and develop targeted interventions. Addressing this need, the present study aimed to investigate temporal trends in the prevalence of mental health disorders in Himachal Pradesh and to assess their association with varying levels of severity, thereby contributing to a more nuanced and actionable understanding of the state's mental health landscape.

1.1 Methods

This retrospective study was conducted at the Department of Psychiatry, Indira Gandhi Medical College and Hospital (IGMCH), Shimla. Data were extracted from patient registers for the years 2014, 2022, and 2023 following formal institutional approval. Patients residing outside of Himachal Pradesh and those who requested confidentiality of their records were excluded. It is also possible that some cases remained unreported due to reliance on traditional healers or treatment sought at other hospitals. All eligible patients were classified into major diagnostic categories and stratified by severity level (low, moderate, high). The year of reporting was considered the independent variable, while diagnostic category and severity level were treated as dependent variables. The Kruskal–Wallis test was employed to assess year-wise differences, and chi-square tests were applied to examine associations between year, severity, and selected disorder categories. A significance threshold of $p < .01$ was maintained. Ethical clearance was obtained from the Institutional Ethics Committee of IGMCH.

1.2 Results

1.2.1 Year-wise Differences in Mental Health Disorders (Kruskal–Wallis Test)

This table evaluates whether the mean ranks of different categories of mental health disorders varied significantly across 2014, 2022, and 2023. The Kruskal–Wallis test results highlighted which disorders demonstrated significant temporal shifts and which remained stable.

Table 1: Kruskal-Wallis test for significant differences among year-wise mean ranks with respect to the factors of mental health disorders

Mental Health Disorders	Years			Chi-Square value	P value
	2014	2022	2023		
Schizophrenia and Psychotic Disorders	182.64	208.01	184.44	12.72	<.002**
Neurodevelopmental Disorders	31.5	33.33	28.12	1.389	0.499
Somatic Symptom and Related Disorders	160.94	192.86	174.54	4.659	0.097
Substance-Related Disorders	870.81	1098.5	1133.12	58.643	<.001**
Sleep Disorders	51.6	62.47	35.77	26.982	<.001**
Miscellaneous and Other Mental Health Disorders	288.63	311.61	316.32	2.288	0.319
Mood Disorders	737.67	879.19	799.16	22.053	<.001**
Anxiety and Stress Disorders	188.68	210.36	146.82	32.037	<.001**
Developmental and Behavioural Disorders	26	25.73	26.1	0.006	0.997
Cognitive Disorders	11	11.92	11	0.833	0.659
Overall Disorders	2475.63	2923.88	2811.13	57.631	<.001**

Note: ** denotes significance at the 1% level

Table 1 presents the results of the Kruskal–Wallis test, which was applied to examine year-wise differences in the mean rank of various categories of mental health disorders. Significant differences were detected for schizophrenia and psychotic disorders ($\chi^2 = 12.72$, $p < .002$), substance-related disorders ($\chi^2 = 58.643$, $p < .001$),

sleep disorders ($\chi^2 = 26.982$, $p < .001$), mood disorders ($\chi^2 = 22.053$, $p < .001$), and anxiety and stress disorders ($\chi^2 = 32.037$, $p < .001$), indicating that the prevalence of these conditions varied considerably across 2014, 2022, and 2023. The analysis of overall disorders also revealed a highly significant difference ($\chi^2 = 57.631$, $p < .001$), suggesting substantial shifts in the overall burden of mental health disorders over time. However, neurodevelopmental disorders ($\chi^2 = 1.389$, $p = 0.499$), somatic symptoms and related disorders ($\chi^2 = 4.659$, $p = 0.097$), miscellaneous and other mental health disorders ($\chi^2 = 2.288$, $p = 0.319$), developmental and behavioural disorders ($\chi^2 = 0.006$, $p = 0.997$), and cognitive disorders ($\chi^2 = 0.833$, $p = 0.659$) did not significantly differ, indicating relative stability across the years.

1.2.2 Associations between Year and Mental Disorders (Chi-square Test)

This table examines the relationship between years and severity levels of mental health disorders—low, moderate, and high. The analysis revealed significant changes over time, reflecting a trend toward greater severity in recent years.

Table 2 Chi-square test for the association between year and level of mental disorders

Year	Level of Mental Disorders			Total	Chi-Square	P Value
	Low	Moderate	High			
2014	395 (36.6) [24.1]	465 (43.1) [19.3]	218 (20.2) [14.4]	1078 (100.0) [19.4]	57.883	<.001**
2022	498 (25.3) [30.4]	890 (45.2) [36.9]	580 (29.5) [38.2]	1968 (100.0) [35.4]		
2023	746 (29.6) [45.5]	1056 (41.9) [43.8]	719 (28.5) [47.4]	2521 (100.0) [45.3]		
Total	29.4 (100.0) [100.0%]	43.3 (100.0) [100.0]	27.2 (100.0) [100.0]	100.0 (100.0) [100.0]		

- Note:**
1. The value within () refers to the row percentage
 2. The value within [] refers to the column percentage
 3. ** Denotes significance at the 1% level

Table 2 presents the results of the chi-square test for associations between year and level of mental disorders. In 2014, 43.1% of individuals were classified as moderate, 36.6% as low, and 20.2% as high. The column percentages show that 24.1% of all low-level cases, 19.3% of moderate cases, and 14.4% of high-level cases were concentrated in that year, indicating that moderate disorders were relatively more pronounced, while high-level cases were fewer. In 2022, the pattern shifted, with the moderate level rising to 45.2%, the high level increasing to 29.5%, and the low level dropping to 25.3%. Column wise, 38.2% of the high-level cases, 36.9% of the moderate cases, and 30.4% of the low-level cases occurred in that year, reflecting a clear increase in severity, particularly at the high level. In 2023, the distribution remained highest at the moderate level (41.9%), followed by 29.6% at the low level and 28.5% at the high level. The column percentages indicate that 47.4% of the high-level cases, 45.5% of the low-level cases, and 43.8% of the moderate cases were concentrated in that year, showing that 2023 accounted for the largest share across all severity levels.

Overall, across the three years, 43.3% of the patients were classified as moderate, 29.4% as low, and 27.2% as high. The chi-square value (57.883, $p < .001$) is statistically significant at the 1% level, leading to the rejection of the null hypothesis. These findings confirm a significant association between year and the severity of mental disorders, with a clear trend toward increasing severity, particularly in the moderate and high severity categories.

1.2.3 Associations between Year and Specific Disorders (Substance-Related and Miscellaneous)

This table focuses on the association between years and two specific categories of disorders: substance-related disorders and miscellaneous mental health disorders. The findings indicate a sharp increase in substance-related cases and a steady upward trend in miscellaneous disorders, both of which reach significance.

Table 3: Chi-square test for associations between year and substance-related disorders and between miscellaneous and other mental health disorders

Year	Total Substance-Related Disorders	Total Miscellaneous and Other Mental Health Disorders
2014	112 (100.0) [14.9]	65 (100.0) [24.0]
2022	304 (100.0) [40.4]	95 (100.0) [35.1]
2023	337 (100.0) [44.8]	111 (100.0) [41.0]
Total	753 (100.0) [100.0]	271 (100.0) [100.0]
Chi-Square	103.363	43.003
P Value	.001**	.002**

Note: 1. The value within () refers to the row percentage

2. The value within [] refers to the column percentage

3. ** Denotes significance at the 1% level

Table 3 presents the chi-square test results for the association between year and two categories of mental health disorders: substance-related disorders and miscellaneous and other mental health disorders. Substance-related disorders accounted for 14.9% of the cases in 2014, increasing sharply to 40.4% in 2022 and 44.8% in 2023. A chi-square value of 103.363 with a p-value of .001 indicates a highly significant association at the 1% level, reflecting a marked increase over time, with the highest concentration occurring in 2023. However, miscellaneous and other mental health disorders constituted 24.0% of the cases in 2014, increasing moderately to 35.1% in 2022 and 41.0% in 2023. The chi-square value of 43.003 with a p-value of .002 also demonstrated a significant association at the 1% level. While the increase in this category is less pronounced, the results indicate a steady upward trend across years. Overall, substance-related disorders have escalated sharply, whereas miscellaneous disorders have shown a more gradual but consistent increase.

1.3 Discussion

The findings reveal significant year-wise variations in major categories of mental health disorders, with a clear trend toward increasing severity. Schizophrenia and psychotic disorders, mood disorders, anxiety and stress disorders, substance-related disorders, and sleep disorders showed notable increases, suggesting that the mental health burden is both intensifying and diversifying. These patterns align with global evidence of rising anxiety, depression, and substance-related problems in the post-pandemic era, driven by psychosocial stressors, economic instability, and lifestyle changes (WHO, 2022; Vigo, Thornicroft, & Atun, 2016).

Substance-related disorders exhibited a particularly sharp increase, more than doubling between 2014 and 2023, consistent with reports from India and other low- and middle-income countries linking increased substance use to unemployment, stress, and weakened community support (Ambekar et al., 2019). Similarly, the rise in sleep, mood, and anxiety disorders aligns with studies highlighting the impact of digital overexposure, sedentary lifestyles, and reduced social cohesion on mental well-being (Patel et al., 2018).

Conversely, neurodevelopmental, developmental and behavioral, cognitive, and somatic disorders remained relatively stable, reflecting their chronic and early-onset nature, which makes them less sensitive to short-term sociopolitical or economic changes. This is consistent with longitudinal research showing stability in

neurodevelopmental conditions, while mood and substance-related disorders are more reactive to contextual stressors (Kessler et al., 2007).

Chi-square analysis of severity levels indicated that moderate disorders predominated in 2014, whereas high-severity cases increased in 2022 and 2023. This suggests that although more individuals are accessing care, many may present at later stages of illness, reflecting delays in help-seeking and systemic barriers to early intervention in India (Gururaj et al., 2016). The concentration of high-severity cases in 2023 may also indicate the cumulative effects of the pandemic, climate-related uncertainties, and economic pressures.

Finally, the upward trend in “miscellaneous and other disorders” may reflect diagnostic overlap or the recognition of conditions outside traditional categories, underscoring the need for broader diagnostic frameworks that account for cultural and contextual expressions of distress (Jacob, 2020).

While this study provides valuable insights, several limitations should be noted. The analysis was limited to three discrete years (2014, 2022, and 2023), restricting the ability to capture continuous trends and potentially exaggerating changes linked to specific events, such as the COVID-19 pandemic. Reliance on secondary hospital-based records may have excluded undiagnosed cases or individuals seeking care outside formal institutions. Variations in diagnostic practices and record-keeping across years could have influenced observed differences, particularly in the “miscellaneous” category. The study’s regional focus limits generalizability, as demographic, cultural, and healthcare access factors may differ elsewhere. Classification of severity into low, moderate, and high categories may obscure within-group variation. Finally, unmeasured social, economic, and environmental factors, including unemployment, migration, and climate-related stressors, may have contributed to the observed trends and were not directly assessed.

1.4 Conclusion

The findings demonstrate significant temporal shifts in the burden, type, and severity of mental health disorders in Himachal Pradesh over the study period. Disorders such as schizophrenia, psychotic disorders, substance-related conditions, mood disorders, anxiety, stress, and sleep disturbances showed marked increases, while neurodevelopmental, somatic, developmental, behavioural, and cognitive disorders remained relatively stable. The sharp rise in substance-related disorders, which nearly tripled between 2014 and 2023, alongside the growth in mood and anxiety disorders, highlights emerging public health challenges. The severity of cases also escalated considerably, with high-severity disorders becoming increasingly prominent in recent years. These patterns suggest an urgent need for strengthened mental health services, early detection programs, and targeted interventions addressing substance use and high-severity cases, to mitigate the rising mental health burden in the region.

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Contributions

Randhir Singh Ranta contributed to the conceptualization, methodology, data collection, data analysis, manuscript writing, statistical analysis and review. Vikranth Charak was involved in the conceptualization, methodology, data collection, data analysis, manuscript writing, and revisions. Kiran Chauhan contributed to the conceptualization and manuscript writing, data analysis, statistical analysis and also supported the review and revisions of the manuscript. Tanuj Sharma provided supervision and contributed to the review, statistical analysis and revisions of the manuscript. Sakshi Sharma participated in data collection, data analysis and assisted in the review of the manuscript.

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