**Decoding the Depths: A Holistic Exploration of Mental Health in India (1990-2022)**

**Submitted for**

**DATA VISUALIZATION AND DASHBOARD**

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| INTRODUCTION AND RELATED WORK This report focuses on the versatile landscape of mental health, decrypting the sophisticated tapestry of factors that are responsible for the quality of life of an individual across the nation. WHO estimated that globally over 450 million people suffer from mental disorders. Currently, mental and behavioural disorders account for about 12 percent of the global burden of diseases.[2] By thoroughly studying data from 1990 to 2022, this report aims to interpret various trends, patterns, and the impact of economic, cultural, and healthcare variables on different mental health disorders.  Through a very coordinated approach, this study navigates the extensiveness of various mental health disorders, which range from depression to various types of anxiety disorders like schizophrenia and eating disorders. Without mental and psychological well-being individuals cannot attain a healthy status.[3] The report puts emphasis on various statistical analyses, visualizations, and various assessments to find various insights that contribute to a complete cognition of mental health dynamics. By putting more emphasis on various divergences, emerging trends, and potential contributing factors, this campaign seeks to aware public discourse, guide various policy formations, and build a more sympathetic and decisive approach toward mental health in our country.  In the 16 studies, anxiety and depression were the most commonly measured outcome.[4] The prominent risk factors for anxiety and depression emerging from this study comprised time spent, activity, and addiction to social media.[4] In our generation, anxiety has become one of the most common healthcare problems. Common Mental Health Problems: Psychological Strain and Burnout Psychological strain and burnout are one of the most common health issues that can detrimentally impact a person’s well-being and productivity. Psychological strain generally defines as the mental and emotional distress which is caused by various types of prolonged stress, while burnout can be defined as the state of emotional, mental and physical tiredness resulting from prolonged stress. As used in organizational research, strain is the result of a prolonged stress response, whereby an individual is exposed to a stressor (i.e., an event, stimulus, or situation that requires attention and/or response), or a series of stressors, that results in a stress reaction (i.e., physiological response, characterized by heightened psychological and physical arousal, triggered by the sympathetic nervous system) (Pratt & Barling 1987).[5]Both these conditions can occur due to various reasons like fatigue, anxiety, irritation, and lack of concentration. Examining this strain and burnout requires a patient approach, comprising of different stress management techniques, lifestyle adjustments, and seeking professional help whenever necessary.[5] School Based Interventions to Improve Mental Health The steadily increasing prevalence of mental disorders among children and young people is a concern, having serious adverse consequences both at an individual and a societal level.[6] In scenarios like these, school-based interventions play a vital role in promoting mental health and contentment among students. These interventions can comprise of various types of mental health concerns, including eating disorders, anxiety, depression, burnout and stress. Effective school-based interventions are extensive and diverse, comprising of various social-emotional learning programs, mental health education, counselling services, and mutual aid groups. By building a supportive and comprehensive school environment, these interventions can ultimately empower students to build adaptability, coping skills, and self-confidence, contributing to their overall mental and physical well-being. SOFTWARE USED  * Python * Jupyter Notebook * Microsoft Excel * Anaconda Navigator * Power-Bi  METHODOLOGY   **Fig 2.1** Flow Chart     * **Identification of Data** The first objective should be to understand the objective before collecting the dataset. Once you can analyse the core objective and understand the type of data you need to collect you will be on the right trajectory. * **Data Pre-processing** Once the data has been collected, you need to pre-process it. Data pre-processing is the process of cleaning and preparing your data for analysis. It comprises removing duplicate data, correcting errors, removing NULL values, and formatting the data in a consistent way. * **Conducting Exploratory Data Analysis** Exploratory Data Analysis is the process of analysing your data to understand its characteristics and identify insights and trends from it. EDA can be used to identify outliers, clean the data, and develop assumptions accordingly for further analysis. * **Visualizing the Data** Data Visualization is the process of creating graphical representations from your processed data. Data Visualization can be used to represent your findings to others and to identify patterns and insights that may not be apparent in the raw data.   **Documentation** The final step is the documentation and presentation of your insights to everyone. Documentation is important for dependability and for making sure that others can easily understand your work. Presentation is important for conveying your findings to others and for getting feedback on your valuable work. EXPERIMENTAL RESULTSPrevalence of Depression Disorders in India (1990-2022) **Table 1.1** Prevalence of Depression Disorders in India (1990-2022)        **Fig 2.2** Line plot for Prevalence of Depression Disorders in India (1990-2022)  The line plot shows the prevalence of depressive disorders in India from 1990 to 2022 displaying a dynamic and evolving mental health landscape. Distinctly, the data shows a drastic peak in depressive disorder prevalence during the mid-1990s to the early 2000s, followed by instabilities and a potential stability or modest increase in recent years. This ephemeral pattern highlights the multifaceted nature of mental health, which is mostly influenced by various factors over a subsequent period. The plot serves as a visual guide to the long-term trajectory, accentuating the importance of understanding mental health dynamics for effective public health interventions. Moreover, in-depth analysis and consideration of circumstantial variables are necessary for unraveling the root causes and creating targeted strategies to address the disparate challenges posed by depressive disorders in the Indian population. Disability-Adjusted Life Years (DALYs) for Mental Health Disorders in India (1990-2022) **Table 1.2** Disability-Adjusted Life Years (DALYs) for Mental Health Disorders in India (1990-2022)        **Fig 2.3** Heatmap for disability-Adjusted Life Years (DALYs) for Mental Health Disorders in India (1990-2022)  The heatmap optically represents the Disability-Adjusted Life Years (DALYs) for mental disorders in India from 1990 to 2022. Moreover, there is a recognizable upward trend, displaying an increase in DALYs over the years. The darker shades on the heatmap in recent years suggest a pretty high burden of mental disorders. Noteworthy peaks were observed around 2015 and 2018 which shows critical periods of increased disability. The continuous rise displays the persistence of mental health challenges in India. Assessing specific years and patterns can provide insights into potential influencing factors and the need for targeted interventions. This heatmap becomes a valuable asset for policymakers and public health professionals to focus their objective on palliating the growing impact of mental disorders in the country. What is DALY? Daly or Disability-Adjusted Life Year, is a metric used in the public health sector to calculate the overall burden of disease. It merges the years of healthy life lost due to various reasons like premature mortality and the years lived with a disability, One DALY represents the loss of one year of full health of an individual. The notion enables us the compare the impact of different diseases and conditions on a specific population, guiding healthcare allocation. By considering both mortality and morbidity, DALY provides an effective measure that reflects the overall health challenges faced by a community, aiding in the assessment and improvement of various public health strategies. Comparative Prevalence Trends of Schizophrenia and Bipolar Disorder in India (1990-2022) **Table 1.3** Comparative Prevalence Trends of Schizophrenia and Bipolar Disorder in India (1990-2022)      **Fig 2.4** Scatter Plot for Comparative Prevalence Trends of Schizophrenia and Bipolar Disorder in India (1990-2022)    **Fig 2.5** Comparative Line Chart of Alcohol Usage Disorder vs. Drug use Disorder (1990-2022)  The scatterplot compares the prevalence of schizophrenia and bipolar disorder in India from 1990 to 2022 reveals several insights. During analysis, it was observed that, both disorders exhibit pervasiveness rates, with different patterns. The scatterplot displays potential correlations or trends between the two disorders, thereby granting a preliminary assessment of their coincidence or divergent trajectories. Any clustering or discrepancy in data points displays noteworthy shifts in the prevalence of these mental health conditions over time. However, understanding the scatter’s overall pattern and density of points could suggest periods of parallel increase or decrease in both disorders’ commonness. Prevalence of Depressive Disorders in India: Comparative Analysis by Gender (1990-2022) **Table 1.4** Prevalence of Depressive Disorders in India: Comparative Analysis by Gender (1990-2022)        **Fig 2.6** Prevalence of Depressive Disorders in India: Comparative Analysis by Gender (1990-2022)  The comparative line chart between the male and female population displays the commonness of depressive disorders in India from 1990 to 2022. During our observation, some notable patterns were observed. Both genders displayed increasing trends in depressive disorder frequency, with females displaying a higher rate than males on a consistent basis. The huge gap between male and female prevalence suggests notable gender-specific factors influencing mental health. The graph underscores the necessity of gender-sensitive mental health interventions and policies. Analyzing these trends can assist different healthcare professionals and policymakers in building specific strategies to tackle unique challenges faced by both genders. Moreover, continuous research and development into the socio-cultural, economic, and biological factors responsible for the detected disparities is mandatory for extensive mental health support and prevention efforts. Prevalence of Mental Disorders in India: Age-Standardized Percentages Over Two Decades (1990-2022) **Table 1.5** Prevalence of Mental Disorders in India: Age-Standardized Percentages Over Two Decades (1990-2022)        **Fig 2.7** Bar Plot for Prevalence of Mental Disorders in India: Age-Standardized Percentages Over Two Decades (1990-2022)  The bar plot displays the commonness of mental disorders in India from the year 1990 to 2022 displays a relatively stable trend with very minor fluctuations. During this time, the prevalence remains within the aggregate range of 13.7% to 14.6%. The persistent values suggest that, on average, around 14% of the population is generally affected by different mental disorders. These disorders generally comprise bipolar disorders, depression, schizophrenia, anxiety, psychosis, and phobias. Advanced analysis, comprising of different factors like demographic variations, specific mental health conditions, or changes in informative criteria over some time, would be mandatory to derive a more thorough understanding of mental health trends in India. The graph calls for a thorough evaluation of mental health data to create informed and regulated policies to tackle this issue. Prevalence of Mental Disorders in India: Age-Standardized Percentages Over Two Decades (1990-2022) **Table 1.6** Prevalence of Mental and Substance Use Disorders in India: Age-Standardized Percentages by Gender (1990-2022)        **Fig 2.8** Line plot for Prevalence of Mental and Substance Use Disorders in India: Age-Standardized Percentages by Gender (1990-2022)  The line chart displays the prevalence of mental and substance use disorders in India from 1990 to 2022. Both male and female ubiquity displays a relatively stable trend, with very subsidiary fluctuations over two decades. Female prevalence consistently overshadows male prevalence, displaying a major gender discrepancy. The overall consistency suggests that, on average, the percentage of the population affected by these disorders has not encountered major fluctuations. The chart emphasizes the need for ongoing attention to mental health, specifically addressing gender-specific factors influencing this commonness. The graph serves as a foundation for the introduction of specific interventions and policies aiming to address mental health challenges in the population.  Transforming Perspectives: Navigating Mental Health Challenges in India and Beyond  With discussions being normalized about mental health and presenting different versions of it over social media, we have come a long way and we have substantial lengths to take steps to remove the stigma and to increase entrée to mental health. Mental health should not only be seen as a response to problems of stressed and depressed minds rather than as something to be recommended for everyone to improve for a positive change and betterment.  It is very important to understand the fact that accepting mental health problems and seeking help from counselors and therapists is better than seeing them transform into worse scenarios. If taken care of in the early stage and visiting counselors would provide a helpful and understanding environment to feel free to talk about mental health problems and coping strategies to improve their mental well–being. The most proactive approach would be fostering a culture of understanding and support for developing resilience and working towards a healthier and balanced life.  Addressing in particular about a country like India requires a comprehensive approach that addresses several aspects of overall mental well-being.  India is now a burning issue and calls for urgent attention.[2] It has been observed that the increasing gap between rising aspiration and its non-fulfillment is leading to higher stress in various segments of Indian society.[2] Awareness campaigns could help make people understand that mental health is as important as physical health and that both physical health and mental health go hand in hand so it is necessary to acknowledge mental health problems and normalize them in society. Integrating mental health into the school curriculum could be a better option for fostering awareness among individuals at an early stage.  There is an urgent need for simple, easily, available diagnostic tests and low-cost treatment to provide better primary health care.[3] Psychiatric epidemiologists need to reorient their research in such a way that the true burden of mental disorders is estimated at the community level.[3] A collective effort from healthcare professionals, social workers, government, communities, and individuals is required to create a supportive environment for improved mental outcomes and better mental- well-being for both the individuals and society as a whole. CONCLUSION The data that we have presented in different tables and the comprehensive reports puts an emphasis on the critical importance of addressing mental health issues in our country. The standardization for discussions on mental health on different social media platforms shows progress, still it underscores the substantial journey that is in front of us to remove the stigma covering mental health and making sure it is accessible for everyone to provide appropriate support.  The report puts emphasizes a standard shift in perceiving mental health, pushing us for a proactive approach rather than a reactive response to different types of mental health issues like stress and depression. It underlines the significance of mental well-being for everyone, positioning mental health care not just a cure for existing disorders but an effective strategy for positive transformation and overall improvement of an individual.  The immediate attention which is required for mental health in India is highlighted, pointing out the increasing stress levels due to various personal and professional reasons. The immediate call for different awareness campaigns becomes necessary to make everyone understand the equal importance of mental health as well as physical health. Including mental health education into the school curriculum can be a crucial step to foster awareness and understanding from an early age.  The report concludes by stressing the need for early-door available diagnostic tests and affordable treatment options for an individual to enhance primary mental health care. It encourages for a collective effort involving healthcare professionals, social workers, government, educational institutions, and different communities to create a supportive surrounding that focuses on improving the mental outcomes and overall well-being for both individuals and the society. REFERENCES [1] “Effects of Mental Health on Student Learning.”  [2] V. B. Shiva Reddy, A. Gupta, A. Lohiya, and P. 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