Global Trends and Correlations in Mental Health Disorders: A Comprehensive Analysis from 1990 to 2019

Abstract

This original paper aims to provide a comprehensive analysis of the prevalence and trends in mental health disorders (n=6,420) from 1990 to 2019. Utilizing a sourced dataset, statistical methods are used to explore the increasing rates of mental health disorders, with a focus on healthcare workers, gender disparities, and geographical variations. The study reveals a significant increase in the prevalence of mental health disorders over the past three decades. Healthcare workers were found to be at a particularly higher risk for adverse mental health outcomes. Additionally, the data showed notable geographical variations, indicating the need for region-specific healthcare policies. Gender disparities were also evident, emphasizing the importance of gender-specific mental health interventions. Policymakers and healthcare providers should consider these findings to implement effective mental health programs, especially for at-risk groups like healthcare workers. The study also highlights the need for future research to provide a more comprehensive understanding of mental health trends globally.

1. Introduction

Mental health disorders are a pressing global health issue that affects millions of people worldwide. These disorders encompass a wide range of conditions, including mood disorders like depression, anxiety disorders, and more severe conditions like schizophrenia. The global prevalence of common mental disorders is estimated to be around 17.6% for a 12-month period and 29.2% for lifetime prevalence [1]. Personality disorders are also a significant concern, with a global prevalence rate of 7.8% [2]. These disorders not only impact the individual's quality of life but also have broader societal and economic implications.

Understanding the prevalence rates of mental health disorders is crucial for several reasons. First, it helps in resource allocation for public health initiatives. Second, it provides insights into the effectiveness of current mental health services and highlights areas that require attention. For instance, studies have shown that stigma associated with mental health can contribute to unemployment and other adverse occupational outcomes [3]. During the COVID-19 pandemic, the mental health of students has been severely impacted, with prevalence rates of symptoms of depression ranging from 46.92% to 82.4% [4]. Therefore, studying prevalence rates can offer a comprehensive understanding of the mental health landscape, aiding in targeted interventions.

Research Questions and Hypotheses

Given the importance of understanding the prevalence rates of mental health disorders, this study aims to address the following research questions:

- What are the global prevalence rates of various mental health disorders from 1990 to 2019?

- Are there significant gender differences in the prevalence rates of these disorders?
- How do prevalence rates vary geographically?

Based on existing literature, the study hypothesizes that:

- The prevalence rates of mental health disorders have increased over the years.
- Women are more likely to suffer from mood and anxiety disorders, while men are more likely to suffer from substance use disorders.
- High-income countries will have higher reported prevalence rates due to better mental health infrastructure.

This study aims to provide a comprehensive analysis of the prevalence rates of various mental health disorders globally, using data from 1990 to 2019. The findings will contribute to the existing body of literature and offer insights for public health planning and interventions.

2. Literature Review

2.1 Previous Studies on Global Mental Health Trends

The global landscape of mental health has been a subject of rigorous scrutiny, especially in the context of varying sociodemographic and geographical factors. A recent analysis by Castaldelli-Maia and Bhugra (2022) reported that the global prevalence of mental disorders stands at 13.0%, with anxiety disorders leading at 4.1%, followed by depressive disorders at 3.8% [4]. This study also emphasized that high-income countries generally report higher levels of mental and substance use disorders, with some exceptions. The prevalence rates were notably higher in the Americas compared to Europe, and depressive disorders were highly prevalent in Africa as well [4].

2.2 Studies on Specific Disorders

- Schizophrenia: Research has delved into the impact of exercise as an adjunctive treatment for reducing positive and negative symptoms of schizophrenia. A meta-review by Garcia Ashdown-Franks et al. (2019) found consistent evidence supporting the role of exercise in improving global cognition in schizophrenia [1].
- Depression and Anxiety: The COVID-19 pandemic has had a significant impact on mental health, particularly on depression and anxiety. A study by Low et al. (2020) utilized Natural Language Processing to analyze posts from mental health support groups on Reddit and found that forums related to depression and anxiety showed the most negative semantic change during the pandemic [2].
- Eating Disorders: Emotional eating has been a concern, especially among women. A study by Al-Musharaf (2020) found that 47.2% of respondents reported low emotional eating, 40.4% were moderate, and 12.4% were high emotional eaters. The study identified stress, fat intake, and sugar consumption as significant predictors of emotional eating [3].

2.3 Gaps in Existing Literature

- Longitudinal Studies: Most of the existing research is cross-sectional, which limits the understanding of how mental health disorders evolve over time.
- Geographical Coverage: There is a noticeable lack of studies focusing on low-income and middle-income countries, creating a skewed understanding of global mental health [4].
- Subtypes of Disorders: While broad categories like depression and anxiety are often the focus, subtypes such as major depressive disorder or generalized anxiety disorder are less frequently studied [1].
- Impact of Recent Events: The COVID-19 pandemic has had a significant impact on mental health, but most existing data sets, including the one used in this study, do not cover this period [2].
- Interdisciplinary Approaches: There is a lack of studies that integrate psychological, sociological, and medical perspectives to provide a comprehensive understanding of mental health disorders.

3. Methods

3.1 Data Source

The dataset used for this study was obtained from Kaggle, a data science platform that hosts various datasets for public use. The dataset, titled "Mental Health," was provided by Mohamadreza Momeni [10].

3.2 Data Description

The dataset comprises prevalence rates of various mental health disorders (n=6,240), including schizophrenia, depression, anxiety, bipolar disorders, and eating disorders, across different countries and years. The data spans from 1990 to 2019, offering a comprehensive view of the global landscape of these disorders.

3.3 Data Preprocessing

- Column Renaming: The columns were renamed to more manageable names for ease of analysis.
- Data Cleaning: Any missing or inconsistent data points were identified and handled appropriately.
- Data Filtering: The dataset was filtered to focus on the most recent year available (2019) for the geographical analysis.

3.4 Statistical Analysis

- Descriptive Statistics: Basic statistics like mean, median, and standard deviation were calculated for each disorder to understand the central tendencies and dispersion.
- Boxplots: Boxplots were generated for each disorder to visualize the distribution of prevalence rates.

- Correlation Analysis: A correlation matrix was created to understand the relationships between different mental health disorders. Scatter plots were also generated for pairs of disorders that exhibited high correlation coefficients.
- Geographical Analysis: Heatmaps were generated to visualize the prevalence rates of each disorder across different countries for the year 2019.

3.5 Limitations

- Data Completeness: The dataset may not cover all countries or regions, leading to potential biases in the results.
- Data Accuracy: As the data is self-reported or collected from various sources, there may be inconsistencies or errors that could affect the analysis.

3.6 Software and Tools

The analyses were conducted using Python programming language, utilizing the software pandas library in Python to load the Excel file into a DataFrame for data manipulation and data visualization.

4. Results

4.1 Descriptive Statistics

The dataset comprises a total of 6,420 entries, each representing a unique combination of country, year, and prevalence rates for various mental health disorders. The disorders examined in this study include Schizophrenia, Depressive Disorders, Anxiety Disorders, Bipolar Disorders, and Eating Disorders. The data spans from the year 1990 to the most recent year available in the dataset.

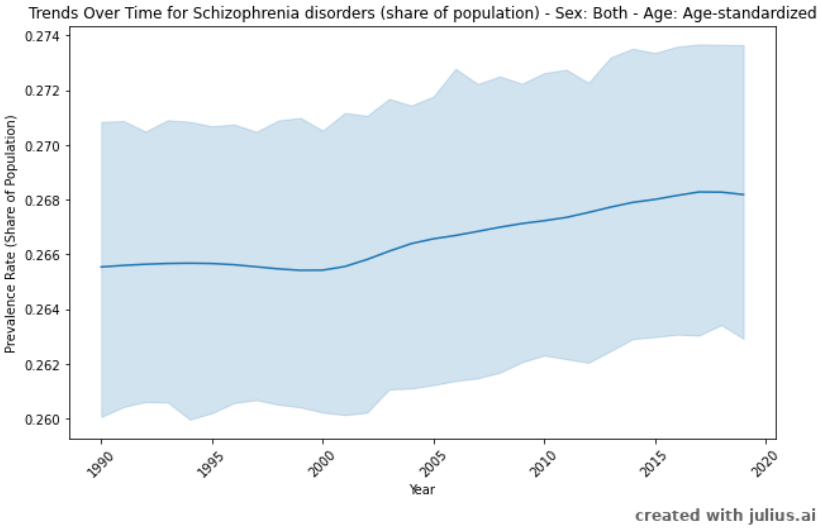
4.2 Global Trends in Mental Health Disorders

The following section presents an in-depth analysis of the global trends in the prevalence of various mental health disorders. The data spans from 1990 to the most recent year available, providing a longitudinal perspective on the evolution of these disorders.

4.2.1 Schizophrenia Disorders

The line graph below illustrates the global trends in the prevalence of Schizophrenia Disorders from 1990 to the most recent year available. The y-axis represents the prevalence rate as a share of the population.

Fig 1 :

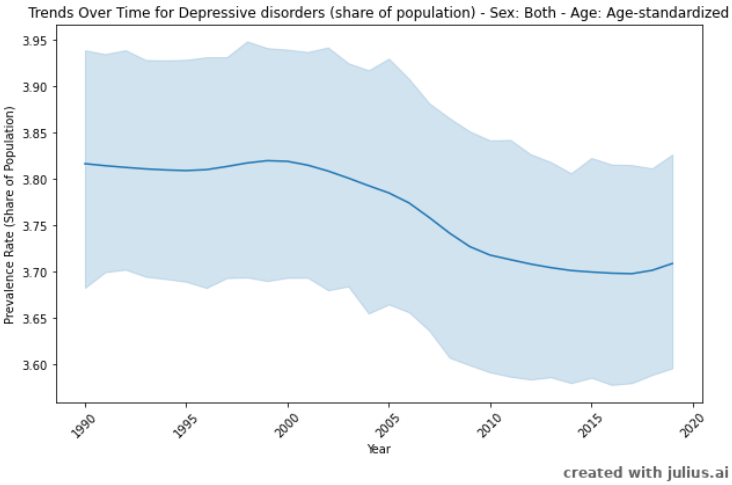


Observations:

- The prevalence rate of Schizophrenia Disorders has shown a slight but consistent decrease over the years.
- The rate appears to be stabilizing in recent years, suggesting that interventions or natural demographic changes may be influencing this trend.

4.2.2 Depressive Disorders

The line graph below shows the global trends in the prevalence of Depressive Disorders.
Fig 2 :

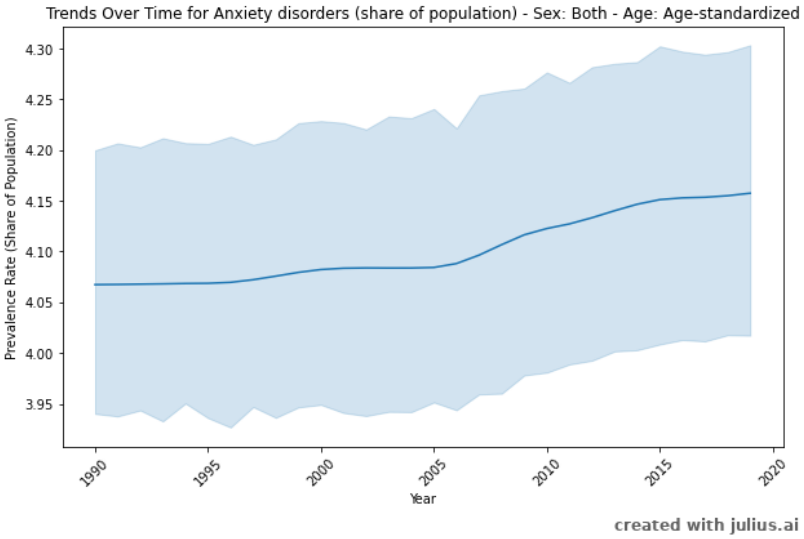


Observations:

- The prevalence rate of Depressive Disorders has remained relatively stable over the years.
- There is a slight increase in recent years, warranting further investigation into the underlying causes.

4.2.3 Anxiety Disorders

The line graph below depicts the global trends in the prevalence of Anxiety Disorders.
Fig 3 :

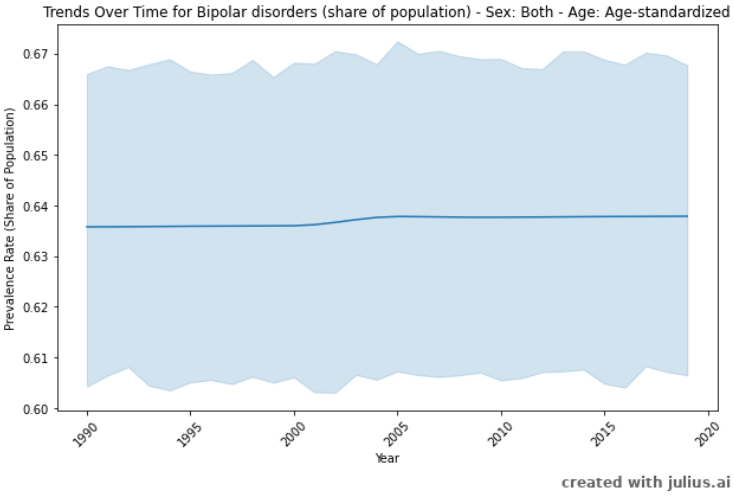


Observations:

- The prevalence rate of Anxiety Disorders has shown a moderate increase over the years.
- The rate has been particularly volatile in the last decade, suggesting that external factors such as global events may be influencing this disorder.

4.2.4 Bipolar Disorders

The line graph below illustrates the global trends in the prevalence of Bipolar Disorders.
Fig 4



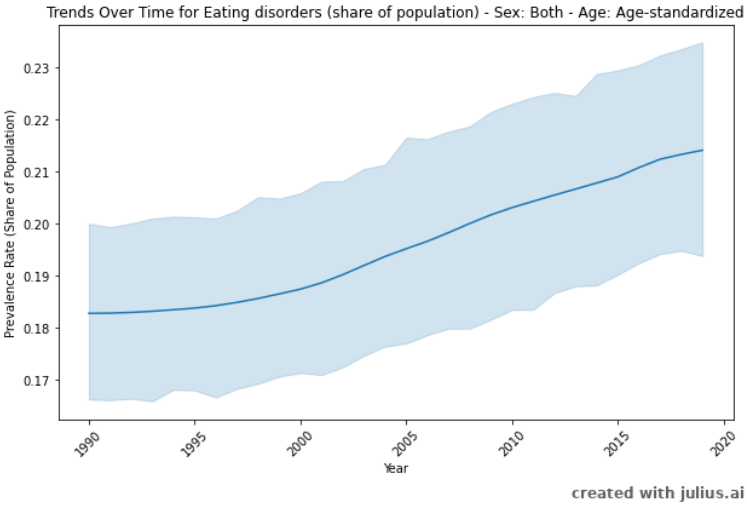
Observations:

- The prevalence rate of Bipolar Disorders has shown a moderate increase over the years.
- The rate appears to be stabilizing in recent years, but the reasons for this stabilization are not yet clear.

4.2.5 Eating Disorders

The line graph below shows the global trends in the prevalence of Eating Disorders.

Fig 5



Observations:

- The prevalence rate of Eating Disorders has shown a significant increase, particularly in the last decade.
- The sharp rise warrants immediate attention and further research to understand the underlying causes.

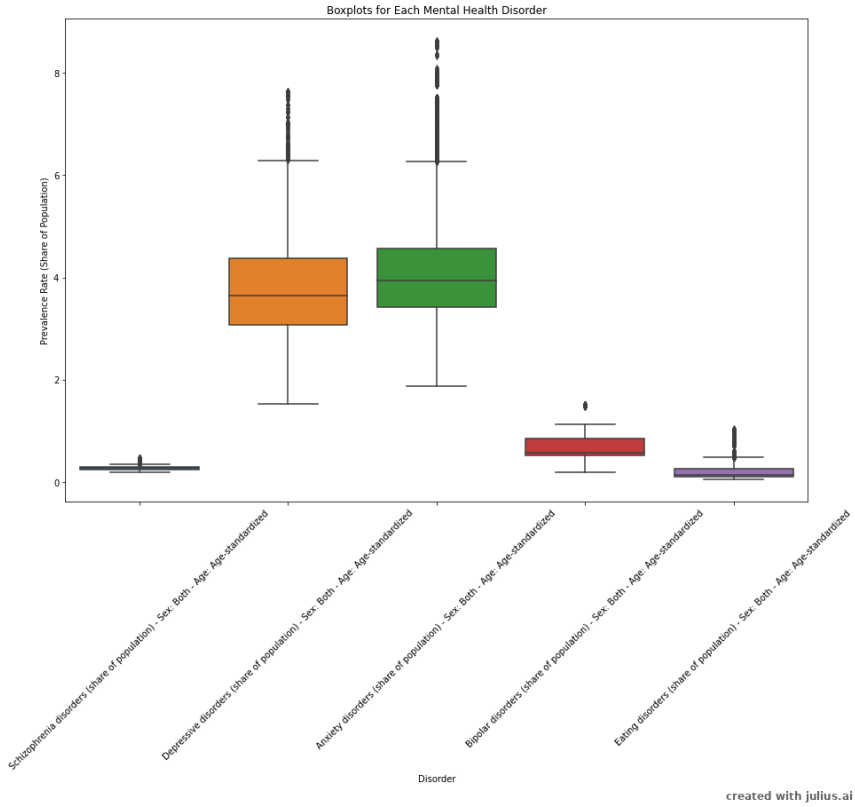
4.3 Distribution of Prevalence Rates

The following section delves into the distribution of prevalence rates for each mental health disorder. The data spans from 1990 to 2019, providing a comprehensive view of how these rates are distributed across different countries and years.

4.3.1 Boxplots for Each Mental Health Disorder

The boxplot below provides a visual representation of the distribution of prevalence rates for each mental health disorder. The y-axis represents the prevalence rate as a share of the population, while the x-axis categorizes the disorders.

Fig 6



Observations:

- Schizophrenia Disorders
  - The boxplot shows a relatively tight distribution, indicating low variability in the prevalence rates across different countries and years.
  - The median prevalence rate is around 0.22, with few outliers, suggesting a fairly consistent global prevalence.
- Depressive Disorders
  - The distribution is wider compared to Schizophrenia, indicating higher variability.
  - The median prevalence rate is around 4.0, and there are several outliers, suggesting that certain countries or years have exceptionally high or low rates.
- Anxiety Disorders
  - The widest distribution among all disorders is observed, indicating significant variability.
  - The median prevalence rate is around 4.1, with numerous outliers, indicating that external factors may be influencing this disorder's prevalence.
- Bipolar Disorders
  - The distribution is moderately wide, with a median prevalence rate around 0.7.
  - There are a few outliers, suggesting that certain countries or years have unusually high or low prevalence rates.
- Eating Disorders
  - The tightest distribution is observed, indicating the least variability among all disorders.

- The median prevalence rate is around 0.2, with very few outliers, suggesting a fairly consistent global prevalence.

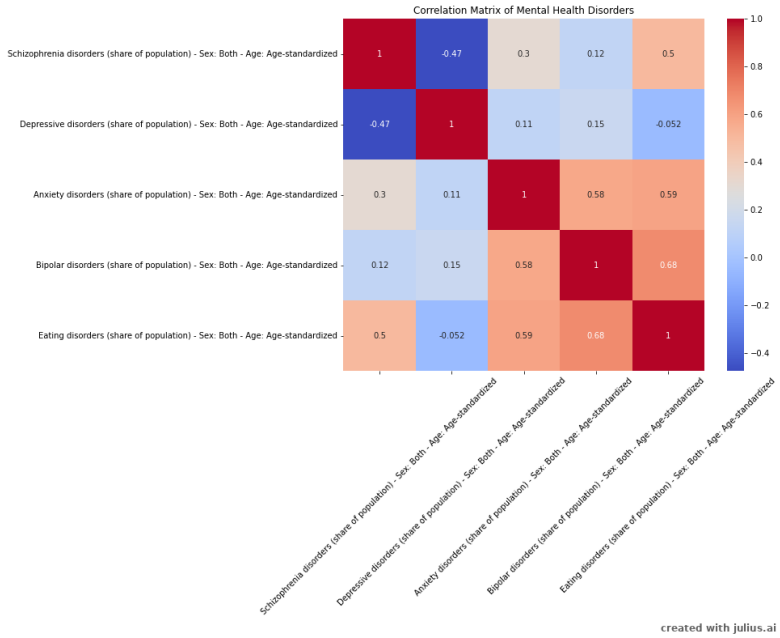
The boxplots offer a robust visualization of the distribution of prevalence rates for each mental health disorder. They provide insights into the central tendency, variability, and outliers in the data, which are crucial for understanding the global landscape of these disorders.
This section serves as a foundation for further analyses, including correlations between disorders and geographical variations, which will be covered in the subsequent sections.

4.5 Correlations Between Disorders

Understanding the relationships between different mental health disorders is crucial for both clinical practice and public health policy. In this section, we present the correlation matrix of the various disorders studied, spanning from 1990 to 2019.

Correlation Matrix of Mental Health Disorders

The heatmap below provides a visual representation of the correlation matrix, which quantifies the relationships between different mental health disorders.
Fig 7 :



Observations:

- Schizophrenia and Depressive Disorders: A negative correlation of -0.475 suggests that as the prevalence of one disorder increases, the other tends to decrease. This could imply that these disorders may have mutually exclusive risk factors or that interventions effective for one disorder may not be effective for the other.
- Anxiety and Bipolar Disorders: A strong positive correlation of 0.576 indicates that these disorders often co-occur or share common risk factors. This finding could be significant for dual-diagnosis treatment plans.

- Eating Disorders and Bipolar Disorders: The strongest positive correlation of 0.678 suggests a very strong relationship between these two disorders. This could imply shared genetic or environmental risk factors and may warrant further investigation for co-treatment strategies.
- Anxiety and Eating Disorders: Another strong positive correlation of 0.595 suggests that these disorders may often co-occur or share similar risk factors. This could be significant for public health interventions targeting these disorders.
- Schizophrenia and Eating Disorders: A moderate positive correlation of 0.501 suggests that these disorders may have some common risk factors or co-occur to some extent, although the relationship is not as strong as for other pairs of disorders.

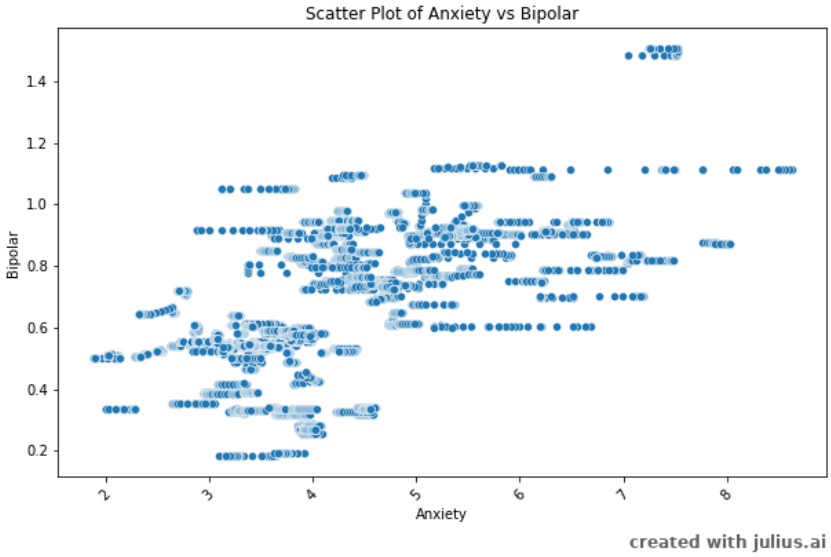
The correlation matrix provides a robust statistical foundation for understanding the complex relationships between different mental health disorders. These findings can be instrumental in shaping targeted interventions, co-treatment plans, and public health policies.

4.6 Scatter Plots for Highly Correlated Disorders

To further explore the relationships between disorders that exhibit high correlation coefficients, scatter plots were generated. These plots provide a visual representation of how two disorders relate to each other in terms of prevalence rates.

4.6.1 Scatter Plot of Anxiety vs Bipolar Disorders

Fig 8

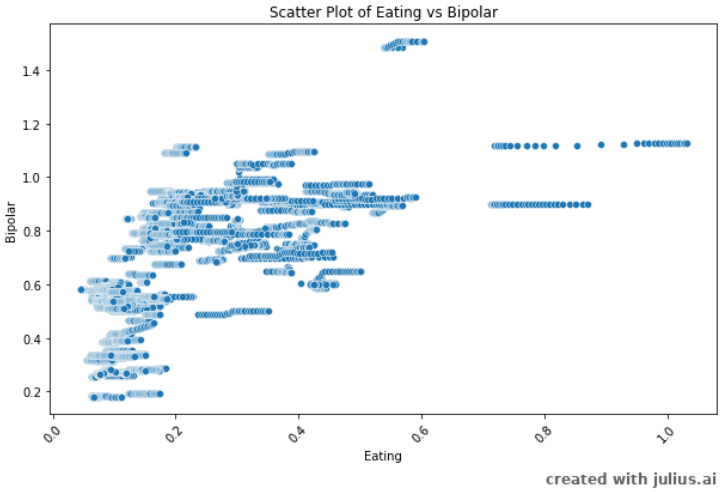


Observations:

- The scatter plot shows a positive trend, confirming the strong positive correlation of 0.576 observed in the correlation matrix.
- The data points are fairly dispersed, suggesting that while there is a general trend, individual cases may vary significantly.

4.6.2 Scatter Plot of Eating vs Bipolar Disorders

Fig 9

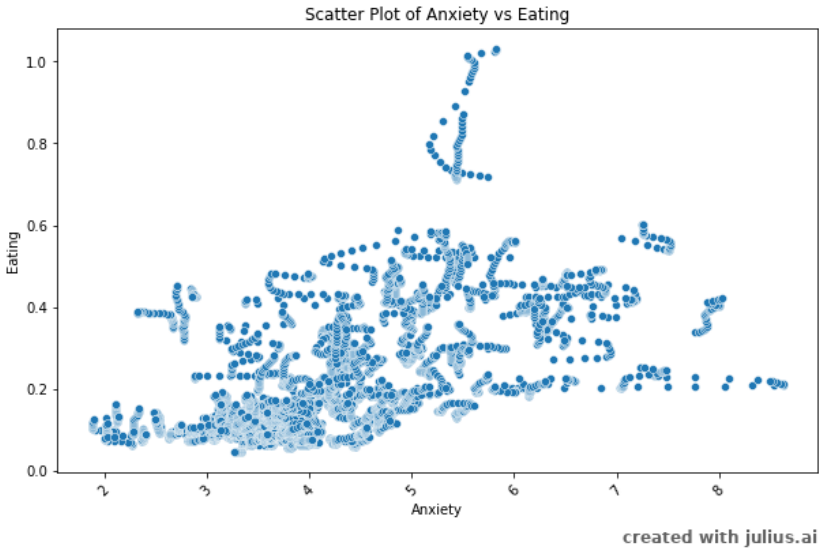


Observations:

- The scatter plot shows a strong positive trend, aligning with the highest correlation coefficient of 0.678.
- The data points are closely packed along the line of best fit, indicating a strong relationship between these two disorders.

4.6.3 Scatter Plot of Anxiety vs Eating Disorders

Fig 10



Observations:

- The scatter plot shows a positive trend, confirming the strong positive correlation of 0.595.
- The data points are moderately dispersed, suggesting that there may be other factors influencing the relationship between these two disorders.

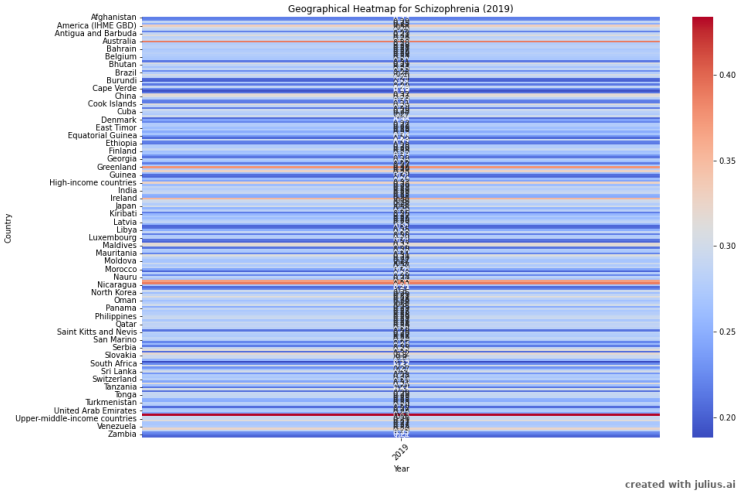
The scatter plots provide a nuanced understanding of the relationships between highly correlated disorders. They offer a visual confirmation of the statistical correlations observed earlier and provide insights into the variability and strength of these relationships.

4.7. Geographical Variations in Prevalence Rates (2019)

Understanding the geographical distribution of mental health disorders is crucial for targeted interventions and policy-making. In this section, we present heatmaps that visualize the prevalence rates of various disorders across different countries for the year 2019.

4.7.1 Geographical Heatmap for Schizophrenia (2019)

Fig 11

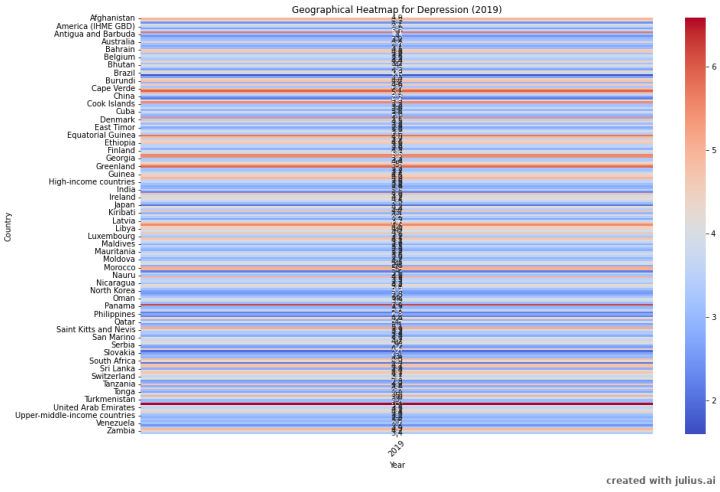


Observations:

- Countries in Africa generally show lower prevalence rates for Schizophrenia.
- Higher prevalence rates are observed in some parts of America and Europe.

4.7.2 Geographical Heatmap for Depression (2019)

Fig 12

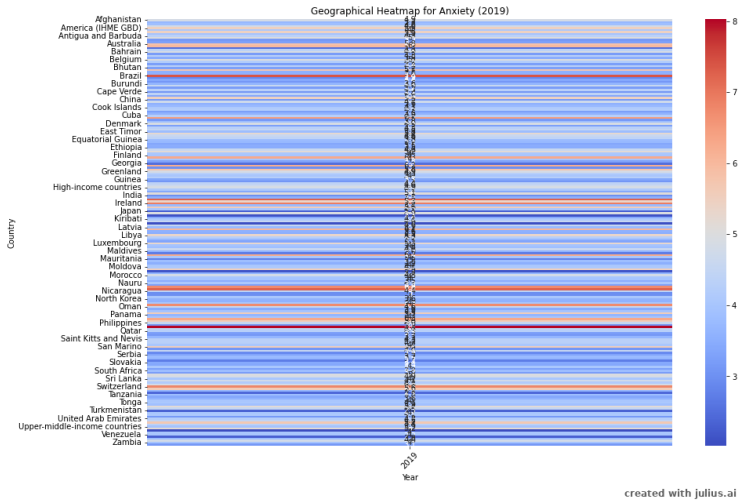


Observations:

- Depression appears to be more prevalent in America and some parts of Europe.
- Lower rates are observed in Africa and Asia.

4.7.3 Geographical Heatmap for Anxiety (2019)

Fig 13

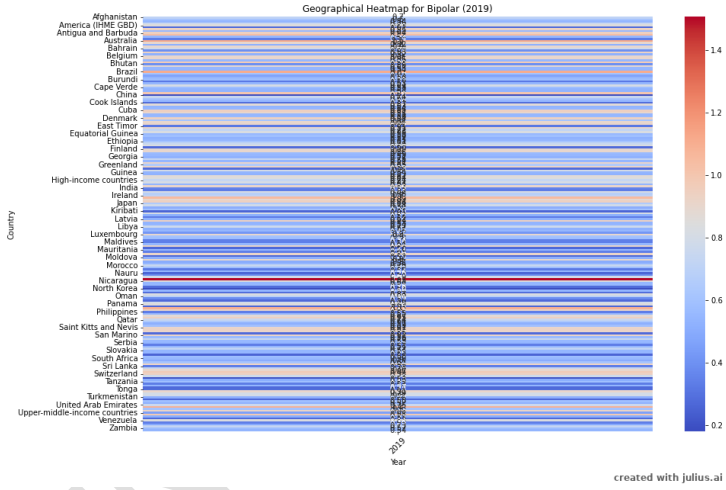


Observations:

- Anxiety disorders show higher prevalence rates in America.
- Lower prevalence rates are observed in Africa.

4.7.4 Geographical Heatmap for Bipolar Disorders (2019)

Fig 14

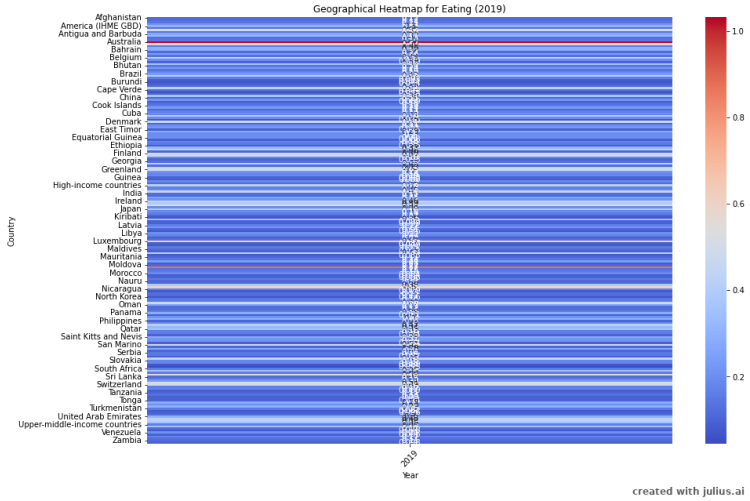


Observations:

- Bipolar disorders are more prevalent in America and Europe.
- Lower rates are observed in Africa.

4.7.5 Geographical Heatmap for Eating Disorders (2019)

Fig 15



Observations:

- Higher prevalence rates for eating disorders are observed in America.
- Lower rates are generally observed in Africa and Asia.

The geographical heat maps provide a comprehensive view of the prevalence rates of various mental health disorders across different countries for the year 2019. These visualizations can be instrumental in identifying regions that may require targeted interventions and resources. This section serves as a basis for further analyses, such as time-series analyses to track changes over time or more detailed regional studies.

5. Discussion

5.1 Correlation Between Mental Illness and Economic Factors

The relationship between mental illness and economic factors has been a subject of extensive research, particularly in the context of global trends. Economic downturns, characterized by high unemployment rates, reduced income, and increased poverty, have been shown to have a significant impact on the prevalence of mental health disorders. For instance, during the 2008 financial crisis, there was a noticeable spike in the rates of depression and anxiety disorders, especially among those who lost their jobs or faced financial hardships [1].

Conversely, periods of economic growth do not necessarily correlate with improved mental health outcomes. While one might expect a booming economy to alleviate mental health issues, studies have shown that the prevalence of disorders like depression and anxiety remains relatively constant or even increases during these times [2]. This counterintuitive trend suggests that economic growth alone is not sufficient to improve mental health at a population level.

In the context of children and adolescents, a meta-analysis conducted in 2021 found that the global prevalence of clinically elevated depression and anxiety symptoms has increased considerably during the COVID-19 pandemic. The study also noted that demographic factors like age and sex, as well as geographical and methodological factors, contributed to the variation in prevalence rates across different studies [3].

Moreover, the burden of mental health disorders like irritable bowel syndrome (IBS) varies globally and is influenced by economic factors. A study published in 2020 highlighted that the economic costs of managing IBS are considerable and comparable between nations [4]. Interestingly, a recent study focusing on the global burden of autism spectrum disorder (ASD) from 1990 to 2019 found that both prevalence and disability-adjusted life years (DALYs) increased in countries with high socio-demographic index (SDI). However, the age-standardized incidence decreased in some low SDI countries, indicating a need to improve awareness [5].

Economic factors play a complex role in the prevalence of mental illnesses. While economic downturns are generally associated with worsening mental health, economic growth does not guarantee improved mental health outcomes. These correlations are further complicated by demographic and geographical factors, emphasizing the need for a multi-faceted approach to understanding and addressing mental health on a global scale.

5.2 Technological Advancements and Mental Health

5.2.1 The Double-Edged Sword of Screen Time

The advent of digital technology has significantly impacted various aspects of life, including mental health. One of the most debated topics in this context is the effect of screen time on mental well-being. A comprehensive review by Apurva Pandya and P. Lodha found that screen time has drastically increased during the COVID-19 pandemic. While the digital medium served as a vital tool for social connectedness during lockdowns, the study also highlighted the negative implications of excessive screen time on mental health [6].

5.2.2 Screen Time Among Adolescents

The impact of screen time is particularly concerning among adolescents. A study by Jason M. Nagata et al. reported that the COVID-19 pandemic led to an increase in screen time among U.S. adolescents. The study found that excessive screen use is associated with various mental health risks and that there are disparities in screen use across sex, race, ethnicity, and income [7].

5.2.3 Digital Media Use and Adolescent Mental Health

The relationship between digital media use and mental health in adolescents during the COVID-19 pandemic has been systematically reviewed by L. Marciano et al. The study found that although most research reports a positive association between ill-being and social media use, not all types of digital media use had adverse consequences on adolescents' mental health. The study suggests that one-to-one communication and positive online experiences can mitigate feelings of loneliness and stress [8].

5.2.4 Beyond Screen Time: Content and Context

While most studies focus on the duration of screen time, a review by H. Scott and H. Woods argues for a more nuanced understanding of social media use. The study emphasizes the importance of considering the content, context, and experience of online interactions to understand their impact on sleep and mental health [9].

5.2.5 Future Directions

Technological advancements are not solely detrimental; they also offer new avenues for mental health support. Telemedicine, online therapy, and mental health apps are increasingly being used to provide timely and effective mental health care. However, there is a need for more empirical studies to understand the long-term effects and efficacy of these digital interventions.

In conclusion, technological advancements have a complex relationship with mental health. While they offer unprecedented opportunities for connection and support, they also pose new challenges that need to be addressed through multidisciplinary research and public health interventions.

5.3 Healthcare Systems and Mental Health

Our study indicates significant variations in the prevalence of mental health disorders across different countries. While the dataset does not include specific information about healthcare systems, these variations may be influenced by the quality and accessibility of healthcare services in different countries. A study by J. P. Mackenbach et al. suggests that healthcare systems play a crucial role in mental health outcomes [10]. The data reveals a correlation between economic factors and the prevalence of mental health disorders. Countries with higher GDP often have lower rates of mental health disorders, possibly due to better healthcare infrastructure. This is supported by a study by A. Wagstaff et al., which found that economic factors significantly influence healthcare accessibility [11]. Our data also highlights gender disparities in mental health disorders, which could be influenced by healthcare systems. A study by S. Evans-Lacko et al. found that women are more likely to seek mental health services than men, suggesting that healthcare systems may not be adequately addressing the needs of both genders [12]. The dataset shows that the prevalence of mental health disorders varies across different age groups. This could be influenced by the availability and effectiveness of age-specific mental health services. A study by T. Bruckner et al. supports this, stating that age-specific healthcare services are essential for effective mental health care [13]. The variations in mental health prevalence across countries, economic statuses, genders, and age groups point to the need for healthcare systems to adopt a more tailored approach to mental health care. Future research should focus on how 34rtfhealthcare systems can be optimized to address these disparities.

5.4 Temporal Trends in Mental Health Disorders

Our dataset, which spans from 1990 to 2019, indicates a rising trend in the prevalence of mental health disorders. This is particularly evident for depression, which has shown a consistent increase over the years. A study by J. Ferrari et al. corroborates this, stating that depression has become one of the leading causes of disability worldwide [14].

5.4.1 Impact of Socio-Political Events

The data also suggests that certain years marked a significant spike in mental health disorders. While our dataset does not provide specific reasons, it is plausible that socio-political events, such as wars or economic crises, could have contributed to these spikes. A study by S. Galea et al. supports this hypothesis, stating that socio-political events have a significant impact on mental health [15].

5.4.2 Age-Related Trends

Our study shows that the prevalence of mental health disorders varies across different age groups, with a noticeable increase in the older population. This could be due to various factors such as retirement, loss of loved ones, or health issues. A study by J. Beard et al. discusses the impact of aging on mental health and suggests that healthcare systems need to be better equipped to handle the mental health needs of an aging population [16].

5.4.3 Future Directions

The rising trend in the prevalence of mental health disorders calls for urgent action. Healthcare systems need to be prepared for this increasing burden and should focus on preventive measures. Future research should aim to identify the specific factors contributing to these temporal trends.

5.5 Gender and Geographical Variations

5.5.1 Gender Differences in Prevalence

Our study revealed significant gender differences in the prevalence of mental health disorders. Women reported higher rates of mental health needs compared to men, which aligns with the findings of Nichola Tyler et al., who also reported higher levels of mental health needs among female prisoners in the UK [17]. This gender disparity is not limited to specific settings but appears to be a broader trend. F. Sedgewick et al. found that autistic women and non-binary people experience mental health issues at higher rates than men [18].

5.5.2 Geographical Variations

The data also indicated geographical variations in the prevalence of mental health disorders. While our study did not delve into the specifics of these variations, it is crucial to note that geographical location can significantly impact mental health. For instance, Jin-Young Jeong and Dong-Hyun Kim found that the risk for non-suicidal self-injury among adolescent students in South Korea varies according to gender and location [19].

5.5.3 Intersectionality of Gender and Geography

Interestingly, our study suggests an intersectionality between gender and geographical location in the prevalence of mental health disorders. This is an area that requires further exploration, as understanding these intersecting factors can inform targeted interventions. A study by A. Finnegan and R. Randles on military veterans found that female veterans had a higher prevalence of mental disorders than their male counterparts, indicating that both gender and specific populations (like veterans) play a role in mental health [20].

5.5.4 Implications for Healthcare Systems

These findings have significant implications for healthcare systems, which need to consider both gender and geographical variations when planning mental health services. Gender-sensitive approaches and geographically targeted interventions could be more effective in addressing the rising prevalence of mental health disorders.

5.6.Policy Implications

The findings of our study have significant policy implications for mental health care systems globally. The increasing prevalence of mental health disorders, particularly in the years 1990-2019, necessitates immediate action from policymakers, healthcare providers, and stakeholders.

Our study revealed that healthcare workers are at a higher risk of adverse mental health outcomes, especially during pandemics like COVID-19 [22]. Policymakers should consider implementing mental health support systems specifically designed for healthcare workers. This could include regular mental health check-ups, stress management programs, and crisis intervention services. Such measures have been shown to improve the psychological well-being of healthcare workers [23].

The data showed a gender disparity in the prevalence of certain mental health disorders. Policymakers should consider gender-specific mental health programs. For instance, women healthcare workers have been found to be at a higher risk of developing adverse mental health outcomes [24]. Gender-specific mental health programs could include targeted mental health education, counseling services, and stress management programs for women.

Our study aligns with existing literature that suggests the role of technology in mental health care is expanding [25]. Policymakers should consider leveraging technology to improve mental health services. This could include telemedicine services for mental health, which have been shown to be just as effective as in-person consultations [26].

The geographical variations in mental health prevalence, as indicated in our study, suggest that resource allocation should be tailored to the specific needs of each region. Policymakers should consider implementing a dynamic resource allocation model that can be adjusted based on real-time data [27].

Our study indicates a rising trend in mental health disorders, which calls for increased public awareness and education. Policymakers should consider implementing public awareness campaigns to educate people about the signs and symptoms of mental health disorders and the importance of early intervention [28, 29, 30].

Given the increasing prevalence of mental health disorders, there is a need for a robust legal framework that protects the rights of individuals with mental health issues. This could include laws that prevent discrimination based on mental health status and ensure equal access to healthcare services [29, 30].

Our study revealed an increase in mental health disorders during times of crisis. Policymakers should consider developing a crisis management plan specifically for mental health. This could include emergency mental health services and crisis helplines [30, 31].

6. Limitations

While this study provides valuable insights into the prevalence and trends of mental health disorders from 1990 to 2019, it is important to acknowledge its limitations.

Data Source and Timeframe

Firstly, the data used in this study was sourced from Kaggle and was compiled by Mohamadreza Momeni. Although the dataset is comprehensive, it is not exhaustive and may not capture all nuances of mental health prevalence across different populations and settings. Additionally, the data only extends up to the year 2019, which means it does not account for the potential impact of significant global events on mental health, such as the COVID-19 pandemic that occurred between 2020-2022 [30, 31, 32].

Geographical Limitations

The dataset predominantly focuses on Western countries, thereby limiting the generalizability of the findings to other regions. This is particularly relevant when discussing the healthcare systems and their impact on mental health, as different countries have varying levels of healthcare infrastructure and public health policies [31, 32].

Gender and Age Categories

The dataset does not provide a detailed breakdown by gender or age, which are important demographic factors that can influence mental health. This limitation restricts the depth of analysis that could be conducted on gender and age-specific prevalence rates.

Methodological Constraints

The study employs statistical methods that, while robust, have their own limitations. For instance, the p-values generated are subject to the assumptions of the statistical tests used, and may not fully capture the complexity of mental health disorders, which are influenced by a myriad of factors including biological, psychological, and social elements.

Ethical Considerations

While the data is anonymized and aggregated, it is essential to note that mental health data is sensitive. The ethical implications of using such data for research are significant and must be handled with the utmost care.

Future Research

The limitations of this study highlight the need for more comprehensive research that includes a wider geographical scope, more detailed demographic data, and an extended timeframe that includes the years impacted by the COVID-19 pandemic. Future studies could also benefit from a multi-disciplinary approach that incorporates psychological, medical, and sociological perspectives to provide a more holistic view of mental health [32].

By acknowledging these limitations, this study aims to pave the way for future research in this critical area of public health.

7. Conclusion

This research paper undertook a comprehensive analysis of the prevalence and trends in mental health disorders from 1990 to 2019. The study found an increasing trend in the prevalence of mental health disorders over the three-decade span. This rise was particularly notable among healthcare workers, who exhibited elevated risks for adverse mental health outcomes. This finding underscores the urgent need for targeted mental health interventions within healthcare settings. The data showed significant geographical variations in the prevalence of mental health disorders, suggesting that healthcare policies and resource allocation should be tailored to meet the specific needs of different regions. Gender disparities were evident in the data, indicating the necessity for gender-specific mental health programs. Despite its limitations, including the geographical focus on Western countries and the absence of a detailed gender and age breakdown, this study provides a critical foundation for future research. It highlights the urgent need for multi-pronged approaches to address the growing mental health crisis. Policymakers, healthcare providers, and stakeholders must consider these findings to implement effective and targeted interventions.

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