Texila International Journal of Public Health
ISSN: 2520-3134
DOI: 10.21522/TIJPH.2013.12.04.Art053

A Study to Evaluate the Change in Symptom Severity of Individuals with Psychiatric Disorders & Relationship with Socio-Occupational Functioning and Perceived Covid-19 Stress

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Abstract

We are aware of the severe service disruptions caused by the pandemic and the present global crisis. Lockdown has also been proven to increase stress, anxiety, and depression in the general population. People with pre-existing psychiatric problems are more likely than the average person to experience stress, anxiety, and sadness. This study's objective was to assess the potential impact of the COVID-19 pandemic on the severity of the illness and daily functioning of people with psychiatric disorders. The study's methodology involved a cross-sectional analysis of outpatients in the psychiatry department who had received treatment for a full year before and after March 2020. Both the COVID threat scale and the Work and Social Adjustment Scale were used. We observed that in individuals with psychiatric disorders', illness severity significantly deteriorated after March 2020 compared to the pre-covid time (P = 0.001). Individuals' ability to maintain a close relationship was strongly impacted by the work and social adjustment measure among individuals whose illness worsened (P = 0.008). We demonstrated that individuals with psychological disorders exhibited a significant worsening of symptoms and an impairment in their ability to maintain close relationships during the COVID-19 pandemic.

Keywords: *Coronavirus, Mentally ill, Occupational Dysfunction, Severity of Illness Index, Social Adjustment.*

Introduction

Lockdown and interruptions in service during outbreaks are commonly shown to raise tension, anxiety, and depression in the general public, as evidenced in previous Ebola (2014), ZIKA (2015), and Swine Flu (2009) outbreaks [1]. The worldwide outbreak of COVID-19 presented an emotional challenge to both the general public as well as those who had endured a history of psychiatric illness. Lockdown and social isolation [2] could have had a significant impact on these people's mental health.

Numerous studies have examined whether the COVID pandemic has impacted individuals suffering from serious mental illnesses (SMI). In their study, Lee et al. revealed that COVID-19-diagnosed schizophrenia patients scored higher in stress and anxiety [3]. A study by Lasevoli et al. corroborated similar findings, demonstrating higher levels of stress, anxiety, sadness and paranoia [2]. When compared with healthy controls, individuals with severe mental

Received: 16.08.2024 ***Accepted: 25.11.2024*** ***Published on: 27.12.2024***

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illness are more inclined to display severe psychopathology. In their study, Hao et al. reported that during the COVID-19 pandemic, individuals with pre-existing psychiatric conditions exhibited more symptoms of anxiety, depression, and PTSD than normal controls [1]. Similar findings of the worsening of pre-existing psychiatric disorders during the COVID-19 pandemic have been confirmed by Fernandez-Aranda et al. and Zhou et al. [4, 5].

A study undertaken at NIMHANS concluded that COVID-19 had a significant impact on Obsessive-Compulsive Disorder (OCD) patients, as demonstrated by an upsurge in the number of confirmed cases in India and Denmark [6]. These investigations, however, utilized phone interviews as a means of data collection.

The proposed study will evaluate the COVID-19 pandemic's effects on all patients with psychological disorders seeking tertiary care, and it will be done in real time with actual participants. Being a sensitive demographic, people with psychiatric illnesses might notice changes in their symptom progression primarily as a result of the COVID-19 pandemic, hence it is essential to comprehend the reasons behind these changes.

Objectives

1. To evaluate the change in intensity of psychological disorder symptoms during the COVID-19 pandemic.
2. To evaluate the connection between socio-occupational functioning and the illness severity.
3. To evaluate the association between the severity of the symptoms and the perceived COVID-19 threat.

Methods

Study design, Setting & Participants

This cross-sectional investigation analyzed a diverse group of 65 participants visiting the psychiatric department, all diagnosed with psychiatric disorders as per the International Classification of Diseases - 10th Revision (ICD-10). The study took place between March 2019 and March 2021 at a tertiary care hospital.

Measurement

Researchers utilized a semi-structured proforma to compile socio-demographic and clinical data related to the subjects.

Clinical Global Impression - Severity (CGI-S)

An objective tool for evaluating illness severity, the CGI-S scale measures how an illness impacts an individual's personal, social, and professional life. Information regarding illness severity at different time points as described below was obtained from caregivers, medical records, and the patient's primary psychiatrist during their initial consultation. The dedicated research team used the CGI-S scale scores to classify patients into two distinct categories (Mildly & Severely ill) for further assessment.

Work and Social Adjustment Scale (WSAS)

The WSAS comprises a series of five self-assessment questionnaires designed to gauge an individual's ability to work, manage household responsibilities, maintain close relationships, engage in leisure activities, and evaluate the subsequent impairment in functioning due to psychopathology.

COVID Threat Scale (CTS)

Composed of six self-assessment questionnaires, the CTS helps to determine the level of anxiety associated with contracting or spreading COVID-19 infection among participants.

Methodology

Participants in this study consisted of individuals previously diagnosed with a psychiatric disorder under ICD-10 criteria, as assessed by a qualified psychiatrist on or before March 2019. These patients underwent regular

follow-ups at a tertiary care hospital's psychiatry department. The study examined two distinct periods: T1, the year before March 2020, and T2, the year following March 2020. This timeframe was chosen as the World Health Organization declared COVID-19 a global pandemic on March 11th, 2020.

Participants included those aged 18 to 70 years who had attended at least half of their scheduled follow-ups within the period outlined and were willing to provide informed consent for involvement in the study. Individuals with intellectual disabilities, debilitating illnesses, or an inability to communicate in Tamil or English were excluded.

After obtaining written informed consent from the participants fulfilling the inclusion criteria, data was collected using a semi-structured proforma to gather socio-demographic information and clinical variables. Symptom severity was objectively assessed using the CGI-S scale and scored retrospectively after reviewing each patient's medical records and consultation with their treating psychiatrist during the defined study periods. The principal investigator charted CGI-S scores for each visit and calculated an average for six-month intervals within the T1 and T2 timeframe, which were then used for further analysis.

During the T2 period, participants' socio-occupational functioning and perceived threat due to COVID-19 were measured using WSAS and CTS instruments, respectively.

Statistical Methods

The Epi-info software was utilized for statistical analysis in this study. Descriptive statistics such as frequency distribution, mean and standard deviation were employed for categorical and continuous variables. For the comparison of means between the two groups, the Mann-Whitney U-test was utilized, and the chi-square test was used to determine any significant associations among categorical variables. A p-value of less than 0.05 was considered significant. The Institute Clinical Research Ethical Committee approval was obtained for this study with the **ref. No. 002/SBMC/IHEC/2020/1408** dated 23.12.2020.

Results

The study sample consisted of 65 individuals who met the inclusion criteria, with a mean age of 33 years (SD = 11.69). The sample was composed of 47% males and 53% females. A majority of the participants were married (63%) and belonged to the upper lower socio-economic class (49%). The average duration of illness among the sample was 6.72 years (SD = 6.06).

Symptom Severity

There was a noticeable increase in symptom severity (CGI-S) following March 2020 (3.80 ± 1.34) compared to before March 2020 (3.03 ± 1.30) [Z = 3.40, P = 0.001], as displayed in Table 1. Furthermore, a significant age difference was observed between individuals experiencing mild (42.67 ± 11.78) and severe illness (34.94 ± 9.62) [Z = 2.263, P = 0.024]. The majority of those aged between 50-65 years (88.2%), followed by those aged between 34-49 years (76.9%) and between 18-33 years (59.1%), had mild illness; however, this association was not statistically significant.

Post-Covid outbreak, a significant difference in mean CGI severity emerged among various psychiatric disorders (P = 0.006). Individuals suffering from neurosis displayed remarkably higher symptom severity after March 2020 (5.43 ± 0.78) as opposed to before March 2020 (3.79 ± 0.90) [Z = 2.23, P = 0.026], as shown in Table 1. Among our sample population, 10.8% were neurotic, with a considerable share (35.3%) being severely ill post-Covid outbreak (T2).

Table 1: Comparison Of CGI-S Score of Psychiatric Illnesses Before and After Covid-19 Outbreak

TYPE OF PSYCHIATRIC ILLNESS	TIME ZONE	Mean ± SD	Z SCORE	P VALUE
ALL PSYCHIATRIC ILLNESSES	T1	3.03 ± 1.30	-3.400	**0.001***
	T2	3.80 ± 1.34		
AFFECTIVE DISORDER	T1	2.72 ± 1.40	-1.891	0.059
	T2	3.44 ± 1.29		
PSYCHOSIS	T1	3.15 ± 1.28	-1.513	0.130
	T2	3.70 ± 1.26		
NEUROSIS	T1	3.79 ± 0.90	-2.232	**0.026***
	T2	5.43 ± 0.78		
SUBSTANCE USE DISORDER	T1	2.67 ± 0.76	-1.604	0.109
	T2	4.00 ± 1.00		

T 1- March 2019 to March 2020, T 2- April 2020 to March 2021.

Wilcoxon Signed-rank test, *p value < 0.05.

After the COVID outbreak, a notable association was found between illness severity and perceived caregiver burden (P = 0.026), as well as an individual's insight into their illness (P = 0.032), as outlined in Tables 2 & 3.

Table 2: Association Between Perceived Caregiver Burden and Severity of Illness Post Covid Outbreak

PCB	MILDLY ILL N (%)	SEVERELY ILL N (%)	$\chi 2$	P VALUE
YES	21 (61.8)	13 (38.2)	5.388	**0.026***
NO	27 (87.1)	4 (12.9)		

PCB - Perceived Caregiver Burden.

Chi-Square Test, *p-value < 0.05.

Table 3: Association Between Insight and Severity of Illness Post Covid Outbreak

INSIGHT	MILDLY ILL N (%)	SEVERELY ILL N (%)	$\chi 2$	P VALUE
POOR	1 (33.3)	2 (66.7)	4.598	**0.032***
PARTIAL	27 (69.2)	12 (30.8)		
GOOD	20 (87)	3 (13.0)		

Chi-Square Test, *p-value < 0.05.

The McNemar test revealed a significant difference in the proportion of treatment-adherent individuals from March 2020 to September 2020 for both mild (P = 0.006) and

severe illness (P = 0.016), presented in Tables 4 & 5. In addition, after March 2020, treatment-adherent individuals (81.8%) despite global restrictions demonstrated significantly lower illness severity (P = 0.034).

Table 4: Proportional Difference of Treatment Adherence Between March and Sep 2020 Among Individuals with Mild Illness Severity

MILDLY ILL		SEP 2020		P VALUE
		COMPLIANT N (%)	NON-COMPLIANT N (%)	
MAR 2020	COMPLIANT N (%)	35 (97.2)	1 (2.8)	**0.006***
	NON-COMPLIANT N (%)	17 (70.8)	7 (29.2)	

McNemar Test, *p-value < 0.05.

Table 5: Proportional Difference of Treatment Adherence Between March and Sep 2020 Among Individuals with Severe Illness Severity

SEVERELY ILL		SEP 2020		P VALUE
		COMPLIANT N (%)	NON-COMPLIANT N (%)	
MAR 2020	COMPLIANT N (%)	8 (100)	0 (0.0)	**0.016***
	NON-COMPLIANT N (%)	7 (77.8)	2 (22.2)	

McNemar Test, *p-value < 0.05.

In our research, we found no significant links between the severity of symptoms after the COVID-19 outbreak and factors such as gender (P = 0.234), socioeconomic status (P = 0.847), employment (P = 0.700), marital status (P = 0.672), comorbidities (P = 0.653), substance use patterns (P = 0.497), suicidal thoughts (P = 0.512), suicide attempts (P = 0.458), teleconsultations (P = 1.000), losing family members due to COVID-19 (P = 1.000), job loss because of COVID-19 (P = 0.393), patients' COVID-19 status up to this point (P = 0.107), and isolation during COVID-19 infection (P = 0.107).

Socio-Occupational Functioning and Perceived COVID Threat

On the subject of socio-occupational functioning and the perceived threat of COVID, our research showed that after the COVID outbreak, those with severe illness faced significant challenges maintaining close

relationships (P = 0.017) as illustrated in Table 6. Severely ill individuals perceived a higher threat from COVID compared to those with mild symptoms; however, the difference was not statistically significant.

Table 6: Comparison of Mean of Wsas Based on Illness Severity Post Covid Outbreak

WORK AND SOCIAL ADJUSTMENT SCALE (WSAS)	MILDLY ILL Mean±SD N = 48	SEVERELY ILL Mean±SD N = 17	Z SCORE	P VALUE
ABILITY TO WORK	3.73 ± 3.53	5.00 ± 3.46	-1.336	0.181
HOME MANAGEMENT	2.33 ± 2.55	2.71 ± 3.00	-0.179	0.858
SOCIAL LEISURE ACTIVITY	6.65 ± 2.26	6.94 ± 2.36	-0.695	0.487
PRIVATE LEISURE ACTIVITY	2.42 ± 2.64	1.41 ± 2.62	-1.814	0.070
CLOSE RELATIONSHIPS	5.63 ± 3.02	7.53 ± 1.13	-2.386	**0.017***

Mann-Whitney Test, *p-value < 0.05.

Discussion

In our investigation, we aimed to assess the changes in illness severity trajectories post-COVID outbreak and the factors contributing to them. We first observed a marked increase in symptom severity, as evidenced by a shift in the average CGI score. This finding is corroborated by Zhou et al.'s study, which noted a deterioration of symptoms in 20.9% of individuals with pre-existing psychiatric disorders [5]. Consistent with earlier research by Hao et al. and Lasevoli et al., which described heightened symptoms in those with neurosis and mood disorders following the pandemic's onset, our study also detected a significant escalation of symptoms in individuals with neurosis (P = 0.026) [1, 2]. Moreover, further supporting our findings of notable deterioration in neurotic disorders, another investigation analyzed neuropsychiatric outcomes among COVID-19 survivors and recorded incidences of 17-39% for anxiety disorders and 1.40% for psychotic disorders [7]. Astoundingly, our research revealed no considerable exacerbation of symptoms related to severe psychiatric illnesses, such as psychosis and mood disorders, following the COVID-19 outbreak. This observation aligns with the results of an extensive UK-based longitudinal study focusing on individuals with bipolar disorder. In that study, researchers found no significant indication of mood symptom deterioration when comparing the subjects at equivalent time intervals from the previous year [8]. The escalation of mental health issues following the COVID-19 outbreak is substantiated by ample evidence highlighting the virus's ability to trigger extensive neuro-inflammatory responses. This disrupts neurochemical signalling in the brain, exacerbating pre-existing psychiatric susceptibilities [9]. On the other hand, limited independent research suggests that the pandemic's profound societal shifts could potentially provoke intense fear responses and substantial preoccupations, affecting the mental well-being of individuals already grappling with psychiatric disorders [10].

Despite the impact of COVID-19 on mental health, our research confirmed that those individuals possessing a strong insight maintain a realistic understanding of their illness severity, which subsequently leads to improved treatment compliance despite the restrictions

imposed during the COVID-19 outbreak and had favourable outcomes (P = 0.032), as corroborated by previous studies [11].

In line with previous findings, our study also confirmed that the COVID-19 outbreak significantly influenced the progression of various psychiatric disorders. We identified a notable association between perceived caregiver burden and illness severity. Interestingly, the burden appeared to be comparatively lower for caregivers of individuals with mild psychiatric illness (P = 0.026) [12, 13].

In our investigation, individuals severely impacted by their psychological condition experienced considerable difficulties in fulfilling professional and domestic duties, hindering their ability to wholeheartedly engage in personal and social activities. This often led to weakened intimate relationships compared to those mildly affected by illness. Our study sample consisted of approximately 50% of individuals with psychosis, and it is widely recognized that those afflicted with schizophrenia typically face challenges in maintaining close family bonds and friendships while struggling to participate in personal and social leisure pursuits. Generally, stress tends to diminish people's involvement in leisure activities; however, this decrease is an involuntary stress response [14]. Moreover, apprehension about attending social gatherings and involuntary unemployment could contribute to a reluctance to engage in any form of social leisure activities, further limiting opportunities for establishing deep connections with others. On the other hand, an increasing body of literature explores the significance of leisure in managing stress and promoting stress-related growth [15, 16, 17]. Leisure activities prove advantageous for psychological well-being and overall health by offering opportunities for physical and emotional resilience, particularly during stressful periods [16, 17, 18]. As such, both leisure activities and emotional connectedness bear the potential to foster personal development and facilitate personal transformation under taxing circumstances.

Research conducted by De Hert and colleagues indicates that individuals with severe mental illness (SMI) face a heightened risk of COVID-19 morbidity and mortality, primarily due to factors such as medical vulnerabilities, suboptimal hygiene practices, homelessness, and crowded living conditions that contribute to virus spread [19]. While our study did not specifically examine COVID-19 outcomes in those with psychiatric illnesses, we observed that among a small group (n=5) affected by the virus, 60% had severe psychiatric illness. However, our study population did not perceive a heightened threat related to COVID-19 in connection with symptom severity. This lack of awareness could lead to insufficient precautionary measures, thereby increasing their susceptibility to the virus's morbidity and mortality. It is important to note that exploring this issue was beyond the scope of our research.

Conclusion

Our study revealed that individuals with psychiatric disorders experienced a significant exacerbation of symptoms and faced difficulty in forming close relationships due to the COVID-19 pandemic. This decline in mental health can be largely attributed to pandemic-related factors such as lockdown and limited social interactions rather than fear of infection, as our participants did not feel a substantial threat from the virus. In addition, we examined various confounding variables that are recognized as prognostic factors for these conditions, thus highlighting the role of the COVID-19 pandemic independently aggravating symptom severity.

Strengths & Limitations

This groundbreaking research stands out due to its scarcity of examining the fluctuations in illness severity across various psychiatric

disorders during the COVID-19 pandemic in comparison to the pre-pandemic state. We acknowledge that a smaller sample size and the study's design serve as significant limitations to our findings.

Future Directions

Further studies are encouraged to identify other indirect factors related to the COVID-19 pandemic state like total lockdown, lack of transportation, non-availability and inadequate knowledge, attitude and practice about teleconsultation services which might influence the illness course and symptom severity of individuals with psychiatric illness.

Conflict of Interest

We declare no conflict of interest.

Declaration of Funding Sources

None.

Acknowledgement

We extend our sincere gratitude to the participants of this study. Our thanks also go to the Department of Psychiatry for the support. We acknowledge the founders and developers of the scales and measures used in our research.

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