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A COMMUNITY-BASED CROSS-SECTIONAL STUDY OF COVID-19 AND PSYCHOLOGICAL DISTRESS USING THE IMPACT OF EVENT SCALE REVISED AMONG RECOVERED PATIENTS OF COVID-19

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COVID-19 infection is a potentially traumatic experience in terms of the risk of running a Severe Acute Respiratory Syndrome in addition to the social implications of the disease in terms of being isolated and follow up of strict quarantine measures of close contact. The purpose of this study was to assess the prevalence of psychological distress and its risk factors in patients who develop COVID-19 infection. There is scanty evidence regarding the magnitude of COVID-19-related psychological distress (PD) among the general population of India, and Post Traumatic Stress Disorder (PTSD) is a Mental Disorder that develops after a traumatic event that has a life-threatening impact.

The aim *of this study was to assess COVID-19 infection.*

Material and methods: *This study was conducted among 672 COVID-19 survivors of district Budgam from (March to August 2020). They were contacted by telephone, and psychological distress in the post-COVID recovery period was assessed using the IES-R scale. This is a 22-item scale, and each item is rated on a scale ranging from 0-4. Suitable Statistical Analysis was done to analyze risk factors for the development of any psychological distress.*

Methods: *Descriptive cross-sectional study.*

Study design: *Cross-sectional study from District Budgam of Kashmir Division.*

Study tool: *using the IES-R scale for PTSD.*

Result: *In our study prevalence of psychological distress using IES –R was mild in (7.08 %) of the study participants and moderate in (1.06 %) of the study participants. Psychological distress in study participants was examined by age, sex, employment status, family history, COVID-19 disease status and history of hospitalization. No statistical significance between age, gender, days of hospitalization and PTSD was seen. However, statistical significance with the IES–R score was seen between family history and the presence and absence of symptoms in the study subjects.*

Conclusion: *As the pandemic crisis seems to be ebbing, the current findings help us to identify risk factors and devise pragmatic strategies to curtail the burden of mental issues and successfully meet the challenges that follow the pandemic*

Keywords: *COVID-19, IES-R scale, COVID survivors, PTSD, WHO, SARS-CoV-2, cross-sectional, outbreak post exposure, HCW*

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1. Introduction

The COVID-19 pandemic is caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARSCoV2). The outbreak was identified in *Wuhan*, China, in December 2019. The World Health Organization (WHO) declared the outbreak a Public Health Emergency of International Concern *on 30 January* and the pandemic on 11 March 2020 [1]. As the outbreak was continuously escalating, it had tremendous psychological distress, which led to behaviour irritability and emotional numbing in many individuals. Epidemiological studies have demonstrated a rather high prevalence of mental health problems among survivors, victim families, medical professionals, and the public after earlier epidemics of infectious diseases such as SARS, MERS, Ebola, and HIV/AIDS as well [2]. While most of these mental health problems fade out after the epidemics, symptoms of psychological distress in terms of PTSD may last for a prolonged time and result in serious distress and disability. Core symptoms of PTSD, as defined by the Diagnostic and Statistics of Mental Disorders, the fifth edition (DSM-5) [3] of the American Psychiatric Association, include persistent intrusion symptoms, persistent avoidance of Stimuli, negative alterations in cognition or mood

and marked alterations in arousal and reactivity, all associated with the experienced traumatic event.

Experiencing or witnessing suffering related to COVID-19 may also result in a high prevalence of mental disorders leading to serious distress and disability among survivors and family members. A study of the long-term psychiatric morbidities among SARS survivors revealed that PTSD was the most prevalent long-term psychological disorder [4]. The Cumulative proportion of patients with PTSD was 47.8 %, while 25.5 % continued to meet PTSD criteria at 30 months post-SARS [4]. The psychological impact of the Ebola epidemic among survivors in Liberia: a retrospective cohort study indicated that the survivors reported the highest prevalence of PTSD, followed by victim families and medical professionals providing care to patients with infectious diseases. Also, early psychosocial interventions are possible protective factors of PTSD [5]. A systematic review of psychological consequences of infectious disease outbreaks after the 2003 SARS outbreak, the H1N1 outbreak in 2009, and occupational exposure to HIV indicate that the average prevalence of PTSD among health professionals was approximately 21 % (ranging from 10 to 33 %) and 40 % of them reported persistently high PTSD symptoms 3 years after post-exposure. PTSD symptoms were also significantly higher among exposed healthcare workers (HCWs) than in the unexposed control group, particularly among allied HCWs, followed by nurses and physicians [6].

The factors involved in psychological traumatization and the development of psychological disorders during the COVID-19 outbreak are complex and interlinked. In addition to the direct effects of the disease and the fear of infection and death must be added the widespread hypervigilance that is often encouraged by authorities, limitations in the availability of healthcare and other resources, the traumatic effects of measures such as lockdowns, curfews and quarantine, experiences of stigma and discrimination, social isolation and financial hardships [7, 8]. With consideration of the already large and still increasing number of people exposed to the current COVID-19, it is important to have research-based evidence about the psychological impact of the disease so that early interventions are provided to the high-risk and vulnerable individuals in the community. With this background, a community-based cross-sectional study was taken up to know about the prevalence of psychological distress among recovered patients of *COVID*-19 in district Budgam.

The aim of the study was to find out the prevalence of PTSD among recovered patients of COVID-19 using the impact of Event Scale-Revised (IES-R) and to find out the socio-demographic co-relates of PTSD among *COVID*-19 patients.

2. Materials and Methods

Study period: 6 months, from November 2020 to April 2021.

Study institution: Skims Medical College Bemina.

Type of the study: Cross-Sectional Descriptive study over a period of 6 months.

Study area: Due to feasibility, the district Budgam of Kashmir Division was selected for the study.

Study-population: The present study is a cross-sectional study of *COVID*-19 Survivors of district Budgam. A *COVID*-19 survivor is defined as a patient who was diagnosed with *COVID*-19 infection and then completely recovered, as confirmed by the Laboratory results. A complete list of Recovered *COVID*-19 patients up to August 2020 was obtained from the *COVID*-19. Control cell of district Budgam after taking prior permission from the Nodal officer in charge of that cell. Inclusion criteria included individuals with recovered *COVID*-19 status. Exclusion criteria shall include those not providing informed consent and recovered patients with previously confirmed mental or neurological disease and minors below 11 yrs of age.

The study participants were called telephonically, and after getting informed verbal consent to participate, they were asked questions pertaining to socio-demographic profile, *COVID*-19 illness, duration of hospital stay, need for oxygen support or ventilation and any history of family members dying due to *COVID*-19. Psychological distress was assessed with the Impact of Event Scale-Revised (IES-R) [9] after converting the scale into the local language and testing its validity. The IES-R is a 22-item scale, and each item is rated on a scale ranging from 0-4, and a total score >24 is considered to be clinically significant. The scale was translated into the local language for validation. The response for each question was scored based on five points Likert scale from 0–4 and a total score (ranging from 0-88). The IES-R score was categorized as Normal=0–23, Mild=24-32, Moderate=33–36, and Severe>=37. Subscale scores for intrusion included 8 items, avoidance 8 items, and hyperarousal=6 items. Any individual found to have psychological distress was provided psychological support and advised for psychiatric consultation. The data were analyzed using **IBM SPSS 29** software.

Ethical consideration: The study was approved by the Institutional Ethical Committee of SKIMS Medical College Bemina *Vide, order no. IEC/26/2020, dated 31 October 2020.* Any individual found to have PTSD symptoms was provided psychological support and advised for psychiatric consultation and counselling services.

3. Results

Table 1 shows that 31.2 % of our study participants are above the age group of 46 yrs and above, and only 19.8 % are in the age group of 18–25 yrs of age. 58.6 % of our participants are males, and only 41.0 % of our participants are females. 42.6 % of our participants were unemployed, and 32.0 % of our employees were self-employed.

Table 2: shows the disease status of the study participants. 66.0 % of the study participants were asymptomatic, 34.0 % of the study participants had symptoms, 43.2 % of the study participants gave a history of hospitalization for more than 10 days, whereas only 26.7 % of the participants gave a history of hospitalization for less than or equal to 10 days. 61.9 % gave the history of no member in the family as COVID-19 positive, whereas 38.1 % gave the history of positive family history.

Table 1

Socio-demographic characteristics of the study participants

Age	Number	Percentage	Mean age – 38.65 Std. deviation-15.708
18–25	148	19.8 %	
26–35	215	28.7 %	
36–45	151	20.1 %	
>46	234	31.2 %	
Total	748	100 %	
SEX	Number	Percentage	
Male	440	58.6 %	
Female	308	41.0 %	
Total	748	100 %	
Occupation	Number	Percentage	
Employed	190	25.4 %	
Self-employed	239	32.0 %	
Unemployed	319	42.6 %	
Total	748	100 %	

Table 2

COVID-19 disease status of the study participants

COVID -19 disease status		Number (748)	Percentage
Symptoms seen	Asymptomatic	494	66.0 %
	Symptomatic	254	34.0 %
History of hospitalization	≤ 10 days	200	26.7 %
	>10 days	323	43.2 %
	No hospitalization	225	30.1 %
COVID-19-positive history in family members	No	463	61.9 %
	Yes	285	38.1 %

Table 3 shows the psychological impact of the participants as per intrusion, avoidance and hyper-arousal. The mean score for intrusion was 0.61, with a standard deviation score of 1.516. For avoidance, the mean score was 0.55, with a standard deviation of 1.532. For the hyper-arousal mean score was 2.95, and the standard deviation score was 2.765.

Table 4 shows the age-wise distribution of participants as per IES score. 91.8 % of the study participants had normal IES scores, 7.08 % had mild IES scores, and 1.06 % of the participants had moderate IES scores. However, no statistical significance was seen between age groups and psychological distress as per the IES score.

Table 3

Showing the psychological impact of the participants as per intrusion, avoidance, and hyper-arousal scale

Variables	Mean	Standard deviation score
Intrusion	0.61	1.516
Avoidance	0.55	1.532
Hyperarousal	2.95	2.765

Table 4

Age-wise distribution of participants as per IES Score

Age	Normal	Mild	Moderate	Total	P value
18–25 yrs	144 (21.0 %)	4 (29.2 %)	0 (0 %)	148	
26–35 yrs	200 (29.2 %)	13 (25.5 %)	2 (25.0 %)	215	Pearson χ^2 9.96
36–45 yrs	136 (19.8 %)	12 (23.5 %)	2 (25.0 %)	150	
>46 yrs	207 (30.0 %)	24 (30.0 %)	4 (50.0 %)	235	P value: .126
Total	687 (91.8 %)	53 (7.08 %)	8 (1.06 %)	748	

Table 5 shows the gender-wise distribution of the participants as per the IES score. Out of a total of 303 females, 92.07 % had a normal IES score, 7.2 % had a mild score, and 0.66 % had a moderate score. However, none of the participants had a severe score. No statistical significance was seen between gender and the IES score of the study participants.

Table 6 shows the distribution of participants based on symptoms as per IES score. Out of 495 asymptomatic participants, 94.1 % had normal IES scores, 5.05 % had mild, and 0.80 % had moderate scores. However, none of the participants had a severe score for PTSD. The types of symptoms were found to be statistically significant with the PTSD score as per IES.

Table 5

Gender-wise distribution of participants as per IES score

Gender	Normal	Mild	Moderate	Total	P-value
Female	279 (92.07 %)	22 (7.2 %)	2 (0.66 %)	303	Pearson χ^2=.944 P=.624
Male	409 (91.9 %)	29 (6.51 %)	6 (1.34 %)	445	
Total	688	51	8	748	

Table 6

Distribution of participants on the basis of symptoms as per IES Score

Types of symptoms	Normal	Mild	Moderate	Total	P value
Asymptomatic	466 (94.1 %)	25 (5.05 %)	4 (0.80 %)	495	Pearson χ^2 10.38 P value:006
Symptomatic	222 (87.7 %)	26 (10.2 %)	5 (1.97 %)	253	

4. Discussion

Our study examined some of the critical factors during the COVID-19 pandemic contributing to the development of psychological distress. In our study prevalence of psychological distress using IES –R was mild in (7.08 %) of the study participants and moderate in (1.06 %) of the study participants. A study done by Sharma et al. [10] on psychological distress during COVID-19 in public in India showed that approximately 33 % reported having psychological distress. Wang et al. [11] conducted a study among 1210 respondents and found that 53.8 % had a psychological impact as moderate. Mona Salehi et al. [12] did a study on the prevalence of post-traumatic stress disorder-related symptoms during Coronavirus outbreaks: a systematic review and meta-analysis and revealed a prevalence of about 18 %. Kai Yanetal [13] conducted a meta-analysis of studies published for the prevalence of PTSD after all pandemics in the 21st century and came up with the result showing 22.6 % prevalence of PTSD after any pandemic, in healthcare workers, it was 26.9 %, 23.8 % in infected patients and 26.9 % in public. Differences in the prevalence of psychological distress compared to our study might be due to different scales used for measurement and differences due to the timeline during which the study was done (start of the pandemic, lot of associated uncertainty). Also, in our study, data was collected telephonically, so in-depth interviews with the study participants were not possible. Due to the cross-sectional nature of our study, reliable information could not be collected regarding the prior psychological conditions of the study participants, for which retrospective and follow-up studies should be taken up in the near future. In our study, trends in psychological distress were examined by age, sex, employment status, family history, COVID-19 disease status and history of hospitalization; no statistical significance between age, gender, days of hospitalization and PTSD was seen. However, statistical significance was seen between family history and the presence and absence of symptoms. A study done by Y. Tu et al. [14] for self-assessment of PTSD by way of a PTSD checklist found higher scores among female COVID-19 survivors. A study done by Chamber land SR et al. [15] showed higher IES-R scores in more severely symptomatic patients compared to patients with fewer no respiratory symptoms.

Study limitations. Our study has a few limitations. Given the limited resources, restrictive measures and time sensitivity of the COVID-19 pandemic, the data was collected through telephonic communication, and this measurement may not be aligned with assessments done by mental health professionals. Also, the cross-sectional nature of our study design will not provide us with information about the psychological state of study participants prior to the uptake of the study.

Prospects for further research. This study provides a baseline assessment of mental health issues associated with pandemics and paves the way for future elaborate and extensive studies of longitudinal nature to enable us to have a better understanding of such issues.

5. Conclusions:

1. Our cross-sectional study provides insight into the impact of the pandemic on the mental state of the survivors of the disease.

2. Help in understanding the correlates so that the preventive, therapeutic and supportive interventions, including psychosocial support and psychotherapies, are planned in a better way for the vulnerable and high-risk groups.

3. This study also provided baseline data and paved the way for future longitudinal studies and well-designed intervention trials for the development of strategies and models for the prevention of PTSD among people affected by such diseases.

Conflict of interest

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this article.

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Data availability

Data will be made available on reasonable request.

Acknowledgement:

1. Core symptoms of PTSD taken from diagnostic and statistics of mental disorders, fifth edition (DSM-5) OF American Psychiatric Association.

2. Studies were done on previous infectious diseases of epidemic potential coated as a reference.

3. Terms used such as PTSD, IES-R, STANDARD DEVIATION, and CROSS-SECTIONAL STUDY DESIGN ARE STANDARD WORDS.

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