

Loneliness and Social Support Experienced by COVID-19 Patients Attending a Telemedicine Centre of a Tertiary Care Hospital in Kolkata: A Cross-sectional Study

SINJITA DUTTA¹, VINEETA SHUKLA², SMITI RANI SRIVASTAVA³,
RATUL KUMAR BYSACK⁴, MEGHNA MUKHERJEE⁵, MAUSUMI BASU⁶



ABSTRACT

Introduction: Telemedicine acted as one of the biggest medium in treating Coronavirus Disease-2019 (COVID-19) patients during the second wave of the still ongoing pandemic. Although the symptoms were taken care of and treated through teleconsultation, the loneliness and social support system of these patients went largely unrecognised. The morbidity pattern, effect of self-isolation and quarantine, uncertainties in social support were major contributors to loneliness among patients suffering from COVID-19.

Aim: To estimate the proportion of loneliness and level of social support experienced by COVID-19 patients seeking advice from a telemedicine centre of Kolkata and to find out their socio-clinical profile and the associated relationship.

Materials and Methods: An observational study with cross-sectional design was conducted on 403 COVID-19 patients, who had taken advice from the telemedicine centre of Institute of Post Graduate Medical Education and Research (IPGME and R), Kolkata for a period of 12 weeks (May-July 2021). Loneliness was assessed by the 11-item De Jong Gierveld Loneliness scale, whereas social support was assessed using 12-item Multidimensional Scale of Perceived Social Support scale through telephonic interview. Data were tabulated in the

Microsoft Office Excel 2019 (Microsoft Corp, Redmond, WA, USA) and the analysis was performed using Statistical Package for the Social Sciences (IBM, New York City, USA) version 25.0.

Results: Out of 403, more than half of the study population, 194 (48.2%) belonged to 18-35 years of age. Of the total, 235 (58.3%) were males, 319 (79.2%) were currently married and 300 (74.4%) were Hindus. About 142 (35.2%) respondents had experienced severe loneliness, while 297 (73.7%) had experienced high social support. There was a significant negative correlation found between loneliness and social support ($r=-0.495$, p -value <0.01). It was found that being male, belonging to nuclear family, education upto higher secondary level, being addicted, loneliness due to physical distancing, and those who had socialised frequently had higher odds of loneliness, whereas unemployed, unskilled, semi-skilled and skilled occupation, having one chronic disease had lower odds of social support.

Conclusion: About 338 (84%) patients had experienced loneliness which was strikingly high. This shows a deeper aspect into the actual picture of how COVID-19 impacts mental health of those who are affected. Future interventions are needed to address loneliness and develop social support system along with addressing healthcare needs of COVID-19 patients.

Keywords: Healthcare, Mental health, Pandemic, Psychology, Teleconsultation

INTRODUCTION

Deeply concerned by the alarming levels of spread and severity of Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2), the World Health Organisation (WHO) made the assessment that COVID-19 can be characterised as a pandemic on 11th March, 2020 [1]. Apart from isolation, people who have been exposed to or infected with the virus, enforcement of “quarantine” and “social distancing” had to be must amongst the general population as well to cut down the spread [2]. Thus, in a bid to control the pandemic, implementation of stringent social distancing, quarantine and isolation measures also led to severe sense of social isolation and loneliness among the population all over the world [3]. Psychological effects of the pandemic including grief and worry appeared to underline the importance of intervention efforts [3]. In other words, unlike other crisis, the COVID-19 pandemic changed how individuals live because of the uncertainty, altered daily routines, financial pressures, and social isolation associated with it. The physical distancing recommendations to reduce transmission of the SARS-CoV-2 increased the risk of social isolation and loneliness, which are associated with negative outcomes like anxiety, depression, cognitive decline, and mortality. Loneliness is the subjective feeling

of isolation, not belonging, or lacking companionship. Feelings of loneliness differ from a diagnosis of depression as the former is only weakly associated with enjoyment, energy and motivation, which however are central to the diagnosis of depression. But persons who are lonely are more likely to experience depressive symptoms [4]. Studies have shown that social support and psychological resilience are two resources that protect individual's mental health in stressful situations [5,6]. Research also shows that social support is the key to resilience [7,8].

Loneliness was predominant over Europe, the United States of America (USA), and China before COVID-19 and ranging from 10-40% and were described as a “behavioural epidemic” [9-11]. This situation worsened with the restrictions imposed to contain viral spread such as social distancing, isolation and quarantine of infected patients. Thus, the COVID-19 pandemic had posed unprecedented challenges to even the world's best healthcare systems both due to exponential increase in number of cases as well as mental health issues imposed by containment measures. Adapting to the challenges posed to the health system due to the pandemic the concept of telemedicine emerged to the fore front in Indian healthcare system. Telemedicine practices include delivery

of clinical information as well as permit consultation and discussion between healthcare professionals and patients. They help to cut down travel expenses, time and medical costs, while increasing ease of access to healthcare professionals [12]. Telemedicine also allows likelihood of better maintenance of records and documentation [13]. Like in many other Indian hospitals the pandemic had also triggered to start telemedicine services to cater to the healthcare needs of COVID-19 patients in home-based isolation. However, though the disease related symptoms were taken care of and treated through teleconsultation, the loneliness and social support system of these patients still went unrecognised.

There is scarcity of available literature on loneliness and social support of COVID-19 patients who are availing telemedicine services [14-17]. Keeping this background in mind the study was conducted with the research hypothesis that COVID-19 patients attending telemedicine centre experienced loneliness. Thus, this study aimed to assess the proportion of loneliness and social support experienced by COVID-19 patients seeking advice from a telemedicine centre of Kolkata as well as to find the factors associated with them.

MATERIALS AND METHODS

It was a descriptive type of observational study with cross-sectional design conducted from May-July 2021, a period corresponding with the second wave of COVID-19 pandemic in India. The study setting was the Telemedicine Centre of Institute of Postgraduate Medical Education and Research, Kolkata, West Bengal, India. The study was initiated after approval from Institutional Ethics Committee (IEC) of IPGME&R, Kolkata (IPGME&R/2021/387), West Bengal, India.

Inclusion criteria: Patients older than 18 years and consenting to the interview were included in the study.

Exclusion criteria: Patients refusing to give consent were excluded from the study, 20 such patients were excluded.

Sample size calculation: The study population included COVID-19 patients having mild infection, seeking advice from the Telemedicine Centre. As on review of literature no similar type of study was found, the prevalence of loneliness among patients attending telemedicine centre was taken as 50%. Assuming 95% confidence interval and allowing 10% relative error, the minimum sample size was calculated to be 384. The sample size was taken as 423 after adjusting for 10% non-response. As 20 patients refused to give consent, the final sample arrived at 403. COVID-19 patients' telecallers list maintained at the Telemedicine Centre prior to one month of the study was taken as the sampling frame. There were a total of 1488 callers.

Study Procedure

A simple random sampling without replacement technique was adopted to select the study participants. A predesigned pretested structured schedule was used for data collection. The schedule was developed after reviewing literature with help of three experts, including two Professors from Community Medicine and one Professor from Psychiatry. Loneliness was assessed by the 11-item De Jong Gierveld loneliness scale, which is the most widely used instrument in Europe for measuring loneliness [18]. It is composed of six items formulated negatively and five items formulated positively. The first subscale, composed of neutral and negatively worded items, and called social loneliness, assesses feelings of sociability and the existence of meaningful relationships. The second, composed of the positively worded items, and called emotional loneliness, relates to feelings of abandonment and missing companionship. The sum of the social loneliness score and the emotional loneliness score gives the total loneliness score which is categorised into four levels: not lonely (score 0, 1 or 2), moderate lonely (score 3 through 8), severe lonely (score 9 or 10), and very severe lonely (score 11) [19]. Social support was assessed by the Multidimensional Scale of Perceived Social

Support (MSPSS) comprising of 12 items containing response options on a 7-point Likert scale ranging from very strongly disagree to very strongly agree [20]. The MSPSS comprised of three subscales which are perceived support from family, friends and a significant other (other than family and friends). Sum across all 12 items, then divided by 12 provides the mean social support score. The mean social support score ranging from 1 to 2.9 is considered low support; a score of 3 to 5 as moderate support and a score from 5.1 to 7 is considered high support. The Bengali version of the scale has been validated conducted by Islam MdN among 812 Bangladeshi adults [21]. Both the above two scales have been previously used on Indian population. The schedule was translated into the regional language (Bengali) by one language expert and then retranslated into English by another independent expert. It was then matched by another independent reviewer to assess consistency before applying on the study population. The schedule was the pretested among 20 callers (who were not included in the final sample) after which some modifications were made. The content validity was checked using Content Validity Index (CVI), which was 0.77, and Cronbach's alpha was calculated to assess the reliability of the schedule (0.82).

The mobile numbers of the study participants were obtained from the telecallers list and data were collected by telephonic interview after explaining the purpose of the study and obtaining informed verbal consent. The dependent variables included loneliness and social support experienced by the study population. The independent variables included socio-demographic characteristics like age, gender, education, occupation, marital status, and type of family as well as other factors like presence of severity of symptoms, chronic diseases, addiction, place of isolation, availability of caregivers and type of activities done during isolation.

STATISTICAL ANALYSIS

Data were tabulated in the Microsoft Office Excel 2019 (Microsoft Corp, Redmond, WA, USA) and the analysis was performed using SPSS (IBM, New York City, USA) version 25.0. Descriptive statistical measures were employed to summarise the data. Kolmogorov-Smirnov test was performed to assess normal distribution of loneliness and social support scores (p-value <0.05 was considered as significant, that is, normal distribution). Multivariable binary logistic regression was performed to ascertain relationship between the dependent (loneliness and social support) and the independent variables (socio-demographic characteristics and other factors). All variables having a p-value <0.2 in the univariate model were considered to be biologically plausible to be included in the multivariable models. Data were checked for multicollinearity (VIF <10) and a p-value of <0.05 was considered significant. Correlation between loneliness and social support was seen using Spearman's rank correlation coefficient (as the distribution of these variables were skewed).

RESULTS

Out of 403, more than half of the study population, 194 (48.2%) belonged to 18-35 years of age, 235 (58.3%) were males, 319 (79.2%) were currently married and 300 (74.4%) were Hindus, 251 (62.3%) belonged to nuclear family, 261 (64.8%) were educated to at least higher secondary and 219 (54.3%) belonged to upper socio-economic class as per Modified BG Prasad Scale 2021 [22]. 340 (84.4%) were in home isolation during infection, 306 (75.9%) of the study population did not have any addiction and 295 (73.2%) had care providers during infection. Most of the study population slept well at night, 323 (80.1%), 363 (90.1%) regularly socialised and 306 (75.9%) were engaged in activities that provided entertainment during infection [Table/Fig-1].

Out of 403, 338 (84%) of the study population had experienced some category of loneliness, 142 (35.2%) of the participants

Variables		Number (%)
Age group (in years)	18-35	194 (48.2)
	36-52	117 (29.0)
	53-69	92 (22.8)
Gender	Male	235 (58.3)
	Female	168 (41.7)
Current marital status	Not married	84 (20.8)
	Married	319 (79.2)
Religion	Hindu	300 (74.4)
	Muslim	78 (19.4)
	Christian	25 (6.2)
Type of family	Nuclear	251 (62.3)
	Joint	152 (37.7)
Education	Up to Higher secondary	142 (35.2)
	Higher secondary and above	261 (64.8)
Occupation	Unskilled/Unemployed	84 (20.8)
	Semi-skilled or skilled	106 (26.3)
	Semi-professional or professional	213 (52.9)
Socio-economic status (as per Modified BG Prasad scale 2021 [22])	Upper	219 (54.3)
	Upper Middle	83 (20.6)
	Middle	66 (16.4)
	Lower Middle	19 (4.7)
	Lower	16 (4.0)
Symptoms	None	24 (6)
	One	111 (27.5)
	Two	146 (36.2)
	>Two	122 (30.3)
Chronic disease	Absent	182 (45.2)
	One chronic disease	147 (36.5)
	>1 chronic disease	74 (18.3)
Stay during infection	Home isolation	340 (84.4)
	Safe home or hospital	63 (15.6)
Addiction	No	306 (75.9)
	Yes	97 (24.1)
Caregiver	Absent (self-care)	108 (26.8)
	Present	295 (73.2)
Slept at night	Yes	323 (80.1)
	No	80 (19.9)
Loneliness due to physical distancing	Present	253 (62.8)
	Absent	150 (37.2)
Activities during isolation	Household chores and office work	97 (24.1)
	Activities that provide entertainment	306 (75.9)
Socialisation	No/Infrequent	40 (9.9)
	Frequent	363 (90.1)

[Table/Fig-1]: Distribution of study participants according to their socio-demographic profile and other predictors (N=403).

had experienced severe, while 122 (30.3%) had experienced moderate loneliness. Emotional loneliness was centred around 23.32% of the maximum possible score (Median=4.00; IQR=3.00) and social loneliness was centred on 38.46% of the maximum possible score (Median=4.00; IQR=5.00). However, 297 (73.7%) respondents had experienced high social support while 18 (4.5%) and 88 (21.8%) had faced low and moderate social support, respectively [Table/Fig-2].

[Table/Fig-3] shows the logistic regression of loneliness score and social support score on socio-demographic variables. It is found that being male, belonging to nuclear family, education up to higher secondary level, being addicted, loneliness due to

Loneliness	Number (%)
Not lonely	65 (16.1)
Moderately lonely	122 (30.3)
Severely lonely	142 (35.2)
Very severely lonely	74 (18.4)
Social support	Number (%)
Low social support	18 (4.5)
Moderate social support	88 (21.8)
High social support	297 (73.7)

[Table/Fig-2]: Distribution of the study population according to loneliness and social support experienced by the patients (N=403).

Socio-demographic and other predictor variables		Loneliness		Social support	
		Adjusted OR (C.I)	p-value	Adjusted OR (C.I)	p-value
Age group (years)	18 to 35	0.88 (0.41-1.67)	0.676	2.51 (0.91-4.97)	0.082
	36 to 52	0.31 (0.19-0.65)	0.023	0.97 (0.43-2.67)	0.911
	53 to 69	Ref		Ref	
Gender	Male	3.08 (1.74-5.46)	<0.001	1.13 (0.64-2.01)	0.660
	Female	Ref		Ref	
Religion	Hindu	0.43 (0.16-1.17)	0.099	0.68 (0.12-3.70)	0.664
	Muslim	0.61 (0.20-1.87)	0.390	0.64 (0.11-3.77)	0.630
	Christian	Ref		Ref	
Current marital status	Married	0.16 (0.08-0.34)	<0.001	1.98 (0.98-3.99)	0.056
	Not married	1		Ref	
Type of family	Nuclear	6.87 (3.74-12.64)	<0.001	0.66 (0.34-1.26)	0.212
	Joint	Ref		Ref	
Education	Up to Higher Secondary	6.29 (2.88-13.75)	<0.001	2.31 (0.98-5.46)	0.055
	Higher secondary and above	Ref		Ref	
Occupation	Unskilled/Unemployed	0.60 (0.31-1.17)	0.140	0.09 (0.04-0.22)	<0.001
	Semi-skilled or Skilled	1.41 (0.72-2.77)	0.307	0.14 (0.06-0.31)	<0.001
	Semi-professional or Professional	Ref		Ref	
Socio economic status (as per BG Prasad scale 2020)	Class I	0.78 (0.41-1.50)	0.469	5.91 (2.55-13.68)	<0.001
	Class II and below	Ref		Ref	
Constant		1.366	0.677	2.258	0.412

[Table/Fig-3]: Multivariable binary logistic regression of loneliness score and social support score on socio-demographic variables (N=403).

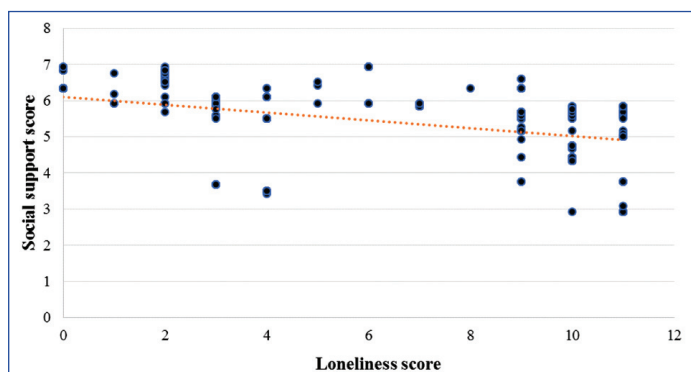
physical distancing, and those who had socialised frequently had higher odds of loneliness, whereas age group 36 to 52 years, being married, having more than one chronic disease, those who stayed at home isolation and had care givers had reduced odds of loneliness.

Factors which had significantly reduced odds of getting social support were unemployed, unskilled, semi-skilled and skilled occupation, having one chronic disease and those who had decreased sleep at night, whereas belonging to higher socio-economic status, staying at home isolation, presence of caregiver and loneliness due to physical distancing had significant higher odds of getting social support [Table/Fig-4].

Other predictor variables		Loneliness		Social support	
		Adjusted OR (C.I)	p-value	Adjusted OR (C.I)	p-value
Symptoms	2 or more	0.69 (0.37-1.30)	0.262	0.561 (0.28-1.11)	0.099
	None or one	Ref		Ref	
Chronic disease	1	1.26 (0.73-2.18)	0.400	0.50 (0.28-0.88)	0.018
	>1	0.23 (0.10-0.52)	<0.001	1.377 (0.51-3.69)	0.526
	Absent	Ref		Ref	
Stay during infection	Home isolation	0.26 (0.13-0.52)	<0.001	2.50 (1.29-4.83)	0.006
	Safe home or hospital	Ref		Ref	
Addiction	Yes	4.17 (2.07-8.40)	<0.001	1.94 (0.97-3.87)	0.059
	No	Ref		Ref	
Caregiver	Present	0.47 (0.25-0.86)	0.015	7.65 (3.83-15.28)	<0.001
	Absent (self-care)	Ref		Ref	
Slept at night	No	1.27 (0.69-2.35)	0.436	0.37 (0.19-0.74)	0.005
	Yes	Ref		Ref	
Loneliness due to physical distancing	Present	3.75 (2.20-6.39)	<0.001	3.44 (1.86-6.37)	<0.001
	Absent	Ref		Ref	
Activities during isolation	Activities that provide entertainment	0.95 (0.53-1.72)	0.882	0.89 (0.47-1.69)	0.731
	Household chores and office work	Ref		Ref	
Socialisation	Frequent	3.190 (1.19-8.49)	0.020	0.680 (0.21-2.15)	0.512
	No/infrequent	Ref		Ref	
Constant		1.061	0.935	0.501	0.358

[Table/Fig-4]: Multivariable binary logistic regression of loneliness score and social support score on other predictor variables (n=403).

There was significant negative correlation among loneliness and social support (Spearman's rank correlation coefficient: -0.495, $p < 0.01$) [Table/Fig-5].



[Table/Fig-5]: Scatter plot of loneliness score versus social support score (n=403).

DISCUSSION

Restrictions imposed by the COVID-19 pandemic had led to reduced social contact and impeded face-to-face interactions. The present study was set out to assess the proportion of loneliness and level of social support experienced by COVID-19 patients seeking advice from a telemedicine centre of Kolkata, West Bengal, India. The present study reported that 84% of the participants had experienced some form of loneliness (moderate, severe or extremely severe). This was much higher than that reported by Newby JM et al., in Australia where half (50.1%) of the study population had reported feeling moderately to extremely lonely [14]. Another study from India by Lahiri A et al., which evaluated loneliness among apparently healthy Indian adults during lockdown reported a prevalence rate of 54.47% [15]. A study by Zhang Z et al., in China reported that among 119 COVID-19 patients, 51.3% had generalised anxiety symptoms, 41.2% had depressive symptoms, and 33.6% had Posttraumatic Stress Disorder (PTSD) symptoms, all of which were associated with loneliness be due to the quarantine and isolation policies and insufficient social support [16]. Thus, addressing this issue becomes important as loneliness due to social isolation is strongly associated with anxiety, depression, self-harm, and suicide attempts across the lifespan [23,24].

A study by Landmann H and Rohmann A among German population during COVID-19 had reported that emotional loneliness was centred around 31% of the maximum possible score and social loneliness was centred around 24% of the maximum possible score [17]. The present study by using the same scale found that emotional loneliness was centred around a lower level i.e., 23.32% of the maximum possible score and social loneliness was centred around much higher level i.e. 38.46% of the maximum possible score.

In the current study, loneliness was found to be significantly associated with age group, marital status, type of family, education, socio-economic status, symptoms, presence of chronic disease, location of stay during infection, addiction, presence of caregiver, physical distancing, type of activities during isolation, and socialisation. It was seen that being married and belonging to joint family had reduced odds of loneliness. In a study conducted by Liu C et al., among general Chinese population on relationship between risk perception, social support, and mental health during the COVID-19 pandemic, it was found that about 42.5% of the respondents were not married [25]. This was higher than this study where only 20.8% were not married at the time of the study. While the Chinese study reported 57% of subjects had a bachelor's degree, in the present study only 35.2% respondents had studied up to higher secondary or above.

Newby JM et al., in their study among Australian adult population during COVID-19 pandemic reported that being female, better educated, older, and having better self-rated health were associated with lower depression, whereas being a student, retired or stay at home parent were associated with higher depression [14]. Mental health and chronic illness were associated with higher depression, as were increased uncertainty about the future, loneliness, and financial worries. Like Newby JM et al., [14], this study found that older age group and being female had lower odds of loneliness. A study from USA by Lisitsa E et al., also indicated that young adults were lonelier than older adults during the pandemic, which corroborated with the current study [26]. In the present study, participants with more than one chronic disease were less lonely than others, whereas Newby JM et al., [14], reported that having better self-rated health was

associated with lower depression. This might be because these participants were already on regular medication for those diseases for a long time.

There was a lower odd of loneliness in participants who were in home isolation. Moore KA and March E in Australia reported that participants who were socially isolated in their homes had moderate levels of loneliness [27].

Socialisation is an interactive communication process that influences individual development, personal reception and interpretation social messages [28]. In this study, it was found that participants with higher social support, mostly (55.21%) belonged to younger (18-44 years) age group. This was similar to the findings of the study by Grey I et al., who reported that among all age groups those aged 25 to 34 years had experienced maximum level of high social support i.e., 32.61% [29]. The study by Liu C et al., indicated a high level of social support improved the effects of the depressive symptoms [25]. However, the present study found higher social support in among participants with self-reported loneliness. A study by D' Silva J studied to assess the role of social support in handling loneliness among male and female adolescents during COVID-19 pandemic found negative correlation between social support and loneliness (-0.464) [30]. In this study, it was -0.495.

In the current study, education, occupation, marital status, socio-economic status, presence of care giver, chronic disease, type of stay during infection, sleep, loneliness were strongly associated to social support. Present study estimated that 56.08% and 83.13% study respondents had reported high social support from friends and family respectively. These results are little higher than the data available from a study by El-Zoghby SM et al., among adult Egyptian, which reported 24.2% and 40.6% participants had experienced social support from friends and family members respectively [31].

The strength of this study was its robust methodology including large sample size. This study provides us with the estimate of the burden of loneliness and perceived social support among the study population during this pandemic condition. Adopting appropriate steps to keep social and familial connections, physical exercise, recreational activities, networking with others using educational and social support programs, reminiscence therapy and management of emotions and psychiatric symptoms can prevent loneliness and social isolation and thereby help relieve the adverse consequences.

Limitation(s)

The study did not involve assessment of factors such as coping mechanisms, physical disabilities etc. and was limited to participants attending telemedicine centre. The study relied exclusively on self-reported data from the participants, which can be impacted by recall and social desirability bias. Future longitudinal COVID-19 patients-based studies involving all the factors from the community through face-to-face interview, focus group discussions answer these questions.

CONCLUSION(S)

The present study highlighted the fact that quarantine and social distancing lead to elevated levels of loneliness and social isolation. About 84% respondents had experienced some category of loneliness which was negatively correlated (Spearman's rank correlation coefficient=-0.495). Taken together, the findings of the present study put forward the evidence that loneliness is more prevalent among COVID-19 patients attending telemedicine. This higher proportion suggests that there is an increasing need to timely recognise loneliness among these people, increase the awareness about the same and strengthen tele-counselling system, so that social support can be provided during the teleconsultation as well. The doctors who are answering the calls at the telemedicine centre need proper training and orientation in this regard.

Acknowledgement

The authors would like to extend their gratitude towards all the study participants for spending their valuable time and for full co-operation. The authors would also like to acknowledge the telemedicine nodal officers for providing the telemedicine callers list prior to the study.

REFERENCES

- [1] World Health Organisation. WHO Director-General's opening remarks at the media briefing on COVID19- March 2020 [Internet]. Available from: <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020> [Last accessed on 14.08.2022].
- [2] Hwang TJ, Rabheru K, Peisah C, Reichman W, Ikeda M. Loneliness and social isolation during the COVID-19 pandemic. *Int Psychogeriatr*. 2020;32(10):1217-20.
- [3] Temesgen ZM, DeSimone DC, Mahmood M, Libertin CR, Varatharaj PBR, Barbari EF. Health care after the COVID-19 pandemic and the influence of telemedicine. *Mayo Clin Proc*. 2020;95(9S):66-68.
- [4] Mushtaq R, Shoib S, Shah T, Mushtaq S. Relationship between loneliness, psychiatric disorders and physical health? A review on the psychological aspects of loneliness. *J Clin Diagn Res*. 2014;8(9):WE01-WE04.
- [5] Ozbay F, Johnson DC, Dimoulas E, Morgan CA, Charney D, Southwick S, et al. Social support and resilience to stress: From neurobiology to clinical practice. *Psychiatry (Edgmont)*. 2007;4(5):35-40.
- [6] Li F, Luo S, Mu W, Li Y, Ye L, Zheng X, et al. Effects of sources of social support and resilience on the mental health of different age groups during the COVID-19 pandemic. *BMC Psychiatry*. 2021;21(1):16.
- [7] Sippel LM, Pietrzak RH, Charney DS, Mayes LC, Southwick SM. How does social support enhance resilience in the trauma-exposed individual? *Ecology and Society*. 2015; 20(4):10.
- [8] Gaffey AE, Bergeman CS, Clark LA, Wirth MM. Aging and the HPA axis: Stress and resilience in older adults. *Neuroscience and Biobehavioral Rev*. 2016;68:928-45.
- [9] Leigh-Hunt N, Baggeley D, Bash K, Turner V, Turnbull S, Valtorta N, et al. An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public Health*. 2017;152:157-71.
- [10] Xia N, Li H. Loneliness, social isolation, and cardiovascular health. *Antioxid Redox Signal*. 2018;28(9):837-51.
- [11] Jeste DV, Lee EE, Cacioppo S. Battling the modern behavioral epidemic of loneliness: Suggestions for research and interventions. *JAMA Psychiatry*. 2020;77(6):553-54.
- [12] The University of Arizona. The Arizona Telemedicine Program . Available from: <https://telemedicine.arizona.edu>. [Last accessed on 25.07.2022].
- [13] Agarwal N, Jain P, Pathak R, Gupta R. Telemedicine in India: A tool for transforming healthcare in the era of COVID-19 pandemic. *J Edu Health Promot*. 2020;9:190.
- [14] Newby JM, O'Moore K, Tang S, Christensen H, Faasse K. Acute mental health responses during the COVID-19 pandemic in Australia. *PLoS One*. 2020;15(7):e0236562.
- [15] Lahiri A, Jha SS, Acharya R, Dey A, Chakraborty A. Has loneliness and poor resilient coping influenced the magnitude of psychological distress among apparently healthy Indian adults during the lockdown? Evidence from a rapid online nation-wide cross-sectional survey. *PLoS One*. 2021;16:e0245509.
- [16] Zhang Z, Feng Y, Song R, Yang D, Duan X. Prevalence of psychiatric diagnosis and related psychopathological symptoms among patients with COVID-19 during the second wave of the pandemic. *Global Health*. 2021;17:44.
- [17] Landmann H, Rohmann A. When loneliness dimensions drift apart: Emotional, social and physical loneliness during the COVID-19 lockdown and its associations with age, personality, stress and well-being. *Int J Psychol*. 2022;57:63-72.
- [18] Gierveld JDJ, Tilburg TV. The De Jong Gierveld short scales for emotional and social loneliness: Tested on data from 7 countries in the UN generations and gender surveys. *Eur J Ageing*. 2010;7(2):121-30.
- [19] Buz J, Pérez-Arechaeuerra D. Psychometric properties and measurement invariance of the Spanish version of the 11-item De Jong Gierveld loneliness scale. *Int Psychogeriatr*. 2014;15:01-12.
- [20] Zimet G. Multidimensional Scale of Perceived Social Support (MSPSS)- Scale Items and Scoring Information. *J Personality Assessment*. 2016;52:30-41.
- [21] Islam MdN. Psychometric properties of the Bangla version of Multidimensional Scale of Perceived Social Support. *Psihologija*. 2021;54(4):363-80.
- [22] Majhi MM, Bhatnagar N. Updated B.G Prasad's classification for the year 2021: Consideration for new base year 2016. *J Family Med and Primary Care*. 2021;10(11):4318-19.
- [23] Elovainio M, Hakulinen C, Pulkki-Råback L, Virtanen M, Josefsson K, Jokela M, et al. Contribution of risk factors to excess mortality in isolated and lonely individuals: An analysis of data from the UK Biobank cohort study. *Lancet Public Health*. 2017;2(6):e260-e66.
- [24] Matthews T, Danese A, Caspi A, Fisher HL, Goldman-Mellor S, Kepa A, et al. Lonely young adults in modern Britain: Findings from an epidemiological cohort study. *Psychol Med*. 2019;49(2):268-77.
- [25] Liu C, Huang N, Fu M, Zhang H, Feng XL, Guo J, et al. Relationship between risk perception, social support, and mental health among general chinese population during the COVID-19 pandemic. *Risk Manag Healthc Policy*. 2021;14:1843-53.
- [26] Lisitsa E, Benjamin KS, Chun SK, Skalsky J, Hammond LE, Mezulis AH. Loneliness among young adults during covid-19 pandemic: The mediational roles of social media use and social support seeking. *Journal of Social and Clinical Psychology*. 2020;39(8):708-26.

- [27] Moore KA, March E. Socially connected during COVID-19: Online social connections mediate the relationship between loneliness and positive coping strategies. *Res Square*. 2020;14.
- [28] Maria P. The importance of the socialization process for the integration of the child in the society. *Pescaru Maria*. 2019:18-26.
- [29] Grey I, Arora T, Thomas J, Saneh A, Tohme P, Abi-Habib R. The role of perceived social support on depression and sleep during the COVID-19 pandemic. *Psychiatry Res*. 2020;293:113452.
- [30] D' Silva J. Role of social support in handling loneliness among male and female adolescents during the COVID-19 pandemic. *Int J Indian Psychology*. 2021;9(1):1866-76.
- [31] El-Zoghby SM, Soltan EM, Salama HM. Impact of the COVID-19 pandemic on mental health and social support among adult Egyptians. *J Community Health*. 2020;45(4):689-95.

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Community Medicine, Institute of Post Graduate Medical Education and Research, Kolkata, West Bengal, India.
2. Postgraduate Trainee, Department of Community Medicine, Institute of Post Graduate Medical Education and Research, Kolkata, West Bengal, India.
3. Associate Professor, Department of Ophthalmology, Institute of Post Graduate Medical Education and Research, Kolkata, West Bengal, India.
4. Postgraduate Trainee, Department of Community Medicine, Institute of Post Graduate Medical Education and Research, Kolkata, West Bengal, India.
5. Statistician, Department of Community Medicine, Institute of Post Graduate Medical Education and Research, Kolkata, West Bengal, India.
6. Professor and Head, Department of Community Medicine, Institute of Post Graduate Medical Education and Research, Kolkata, West Bengal, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Ratul Kumar Bysack,
14/3B, Sovaram Bysack Street, Kolkata-700007, West Bengal, India.
E-mail: ratulbysack2000@yahoo.co.in

PLAGIARISM CHECKING METHODS: [\[Lain H et al.\]](#)

- Plagiarism X-checker: Jun 19, 2022
- Manual Googling: Aug 16, 2022
- iThenticate Software: Aug 17, 2022 (21%)

ETYMOLOGY: Author Origin**AUTHOR DECLARATION:**

- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Jun 10, 2022**
Date of Peer Review: **Jul 14, 2022**
Date of Acceptance: **Aug 18, 2022**
Date of Publishing: **Nov 01, 2022**

[ANNEXURE: SCHEDULE]

Serial Number – Date-

1. Have you ever tested for COVID-19? Yes/No

2. If yes, what was the test result? Positive/Negative

3. Socio-demographic variables:

a. Age (in completed years)-_____

b. Gender- Male/Female/Other (Specify-_____)

c. Marital status- Married/Unmarried/Widowed/Divorced/Separated

d. Religion- Hindu/Muslim/Other (Specify-_____)

e. Type of family- Joint/Nuclear

f. Education (Highest level)-

g. Occupation-

h. Total family income per month-

i. Total number of family members-

j. Residential situation- living independently/living dependently/old age home/student residence/independent planned housing- other (Specify-_____)

k. Number of persons living with you-

4. COVID-19 symptoms and other morbidity:

a. What were your symptom/s? (Not applicable/fever/cough/shortness of breath/weakness/sneezing/vomiting/diarrhoea) if other, specify.....

b. Are you suffering from any chronic disease? Not applicable/Diabetes/Hypertension/COPD/Asthma/others (specify-_____)

c. During infection where were you staying- home isolation/safe home/hospital/others (specify-_____).

d. Any other member in your family tested positive for COVID-19? Yes/No/Don't know

e. If yes, how many member/s were positive for COVID-19?

f. Are you addicted to any substance like chewing tobacco, smoking tobacco, alcohol, ganja, drugs etc? Yes/No

g. Who took care of you during illness?

h. Did you have/had good sleep at night on those days while suffering from COVID-19? Yes/No

i. Do you think while suffering from COVID-19, physical distancing makes a person isolated from society and makes lonelier? Yes/No

j. During isolation for COVID-19, how did you spend your free time? (Watching television/ reading news, game play in mobiles/story book) if other, specify.....

k. During isolation for COVID-19, did you socialise with your friends/relatives/others through audio call, videocall, social media etc- Yes/No

l. If yes, what was the frequency of socialising- At least once a day/at least once per week/at least once per fortnight.

5. Loneliness: Emotional and Social loneliness estimation (De Jong Gierveld Scale)

Questions		None of the time	Rarely	Some of the time	Often	All of the time
i.	There is always someone I can talk to about my day-to-day problems					
ii.	I miss having a really close friend					
iii.	I experience a general sense of emptiness					
Questions		None of the time	Rarely	Some of the time	Often	All of the time
iv.	There are plenty of people I can lean on when I have problems					
v.	I miss the pleasure of the company of others					
vi.	I find my circle of friends and acquaintances too limited					
vii.	There are many people I can trust completely					
viii.	There are enough people I feel close to					
ix.	I miss having people around me					
x.	I often feel rejected					
xi.	I can call on my friends whenever I need them					

6. Social support measured by Multidimensional Scale of Perceived Social Support (MSPSS):

Questions		Very strongly disagree (1)	Strongly disagree (2)	Mildly disagree (3)	Neutral (4)	Mildly agree (5)	Strongly agree (6)	Very strongly agree (7)
i.	There is a special person who is around when I am in need.							
ii.	There is a special person with whom I can share joys and sorrows.							
iii.	My family really tries to help me.							
iv.	I get the emotional help & support I need from my family.							
v.	I have a special person who is a real source of comfort to me.							
vi.	My friends really try to help me.							
vii.	I can count on my friends when things go wrong.							
viii.	I can talk about my problems with my family							
ix.	I have friends with whom I can share my joys and sorrows.							
x.	There is a special person in my life who cares about my feelings.							
xi.	My family is willing to help me make decisions							
xii.	I can talk about my problems with my friends.							