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Original Article

Stress Resilience among COVID-19 Patients: A Cross-Sectional Study

Anju Soni[1], P. Mohan[2], A. Anitha Rani[3], Kusum Soni[4]

[1]Head, Department Clinical Counseling and Diet, Chennai National Hospital, Chennai, Tamil Nadu, India, [2]Chief Consultant, Intensive and Critical Care Unit, MDICU, Chennai National Hospital, Chennai, Tamil Nadu, India, [3]Research Scientist, Sankara Nethralaya, Chennai, Tamil Nadu, India, [4]3rd Year MBBS Student, Shri Balaji Medical College, Chennai, Tamil Nadu, India

Abstract

Background: The 2019 coronavirus disease (COVID-19) pandemic has raised international concern. Globally, pandemic Coronavirus 2019 has gained attention for its rapid and exponential diffusion. It has imposed an unprecedented threat to mental and physical well-being of the individual and the society. The current study aimed to explore the general, emotional, cognitive, and social experience related to COVID and social distancing among COVID patients.

Materials and Methods: A cross-sectional, observational, study was conducted from February to April 2021. A total of 130 respondents participated in the study, a survey questionnaire which includes, demographics, COVID-19 ADULT Symptom, and Psychological Experience Questionnaire (CASPE).

Results: The middle-aged population experienced significantly higher cognitive level (F=8.263; *P* = 0.000), level of concern (F=6.271; *P* = 0.003), level of worry (F=6.817; *P* = 0.002), sadness (F=3.622; *P* = 0.03), and angry (F=4.725; *P* = 0.01), when compared to younger population and older population. Similar pattern was observed in married individuals (among marital status) and individuals with the lower educational status (among educational level), while there was no significant difference observed among gender. Pearson correlation test showed that there is a significant positive correlation exists between cognitive experience, level of concern, and difficulties in concentration. To overcome COVID situation, strategies such as social behavior, self-care behaviors, and technology were used a major coping strategies.

Conclusion: The COVID pandemic has both positive and negative impact on COVID affected individuals. To overcome stress, social behavior plays as major coping strategies. Thus, timely social-emotional screening and monitoring might be useful as an intervention targets to reduce the negative impacts.

Key words: COVID-19 ADULT Symptom and Psychological Experience Questionnaire, Coping strategies, Positive and negative impact of 2019 coronavirus disease, Psychological effect, Stress

INTRODUCTION

The 2019 coronavirus disease (COVID-19) pandemic has raised international concern, it is a major challenge faced by worldwide. Since December 2019, COVID-19 started increasing both domestically and internationally.[1] The World Health Organization declared COVID as public health emergencies. Further in the lockdown situation and the constant spreading of the news related to COVID through media and social media have eventually increases the stress levels among the general population.

The developing countries have been facing dramatic emergency thus the government has implemented various measures to limit viral transmission. This life-threatening situation, due to the strict restrictions and social distancing has changed the life totally upside down. Specifically, the health-care sector has been working continuously in the emergency situation, taking the risk to be affected by COVID-19. Due to the COVID-19 pandemic globally public health emergencies has been constantly affecting both physically and psychologically. Thus, general public has been experiencing the depression, stress, low sleep quality, anxiety, mood alterations, and high levels of post-traumatic stress.[2-5]

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Corresponding Author: Dr. A. Anitha Rani, Sankara Nethralaya, Nungambakkam, Chennai, Tamil Nadu, India. E-mail: anirani84@gmail.com

The stress during an infectious disease outbreak could include fear and worry about one's health, worsening of chronic health problems, and increased use of substances.[6] Majority of the COVID affected individuals were experienced mild to moderate respiratory illness and they would have recovered without any special treatment. Perhaps the aged persons with pre-existing medical complications such as diabetes, chronic respiratory disease, and heart disease were more likely to develop severe illness, which may lead to mortality. The coping strategies refer to the behavioral changes and the cognitive efforts which help the individual to overcome the stressful condition.[7] Relationship between stress and coping strategies has been a topic of the previous studies,[8,9] because in critical situations stress affects many people, but individual responses vary according to their coping strategies.[10]

Earlier studies have highlighted the existence of the relationship between the stress and the coping strategies.[8,11,12] In the current situation stress affects many individuals; however, the individual's response varies based on their coping strategies.[13] The coping strategies refer to behavioral and cognitive efforts that help to reduce the pressure of a stressful situation and are used when its demands exceed individual resources. The use of coping strategies resulted to be related with the lower levels of stress.[14,15] Perhaps there few studies which have been conducted in different parts of the world, they have mainly focused on the general population and there is limited information on COVID infected patients. The COVID-19 ADULT Symptom and Psychological Experience (CASPE) questionnaire is a newly developed tool to access the general, social, cognitive, and social experience related to COVID. Thus determining the COVID stress and coping strategy is crucial for developing strategies for at-risk population to minimize the mental health consequences related to the COVID-19 outbreak. There exist a paucity of data in Indian literature, to fill the gap and address this pandemic situation the present study aimed to explore the general, emotional, cognitive, and social experience related to COVID and social distancing using CASPE Questionnaire among COVID patients.

MATERIALS AND METHODS

A cross-sectional, observational, study was conducted from February to April 2021 time period to assess the symptoms and psychological effects of COVID-19. Persons of both the gender, aged 18 years or above who understand the contents of the questionnaire and willing to participate in the study were included in this study. A total of 130 respondents participated in the study. The questionnaire consist of two sections: The first section includes demographic details which included age, gender, marital status, and educational qualification. The second section includes CASPE questionnaire to access personal experience related to the COVID-19 outbreak.

CASPE Questionnaire

The stress related to COVID was recorded using CASPE questionnaire[16] (COVID-19 Adolescent Symptom and Psychological Experience). The questionnaire was designed to assess to measure the experience and exposures related to COVID-19 and its impact on the basic functioning. The CASPE questionnaire consist of 38 items which is distributed in four major categories: (1) Experience related to COVID-19 and symptoms, (2) emotional experience, (3) cognitive experience, and (4) social experience.

In the present study, the measures assessing the negative effect and the difficulties in concentrating due to COVID pandemic was used. Further the negative effect was accessed using the major three subscales such as worried/afraid (4 items), sad/lonely (5 items), and angry/frustrated (5 items). All the items were measured on 5-point Likert scale, in the response to how the every item was experienced in the past 7 days in the pandemic situation, where increased score indicated the higher level of negative effect. The difficulties concentrating scale assesses difficulties concentrating and being productive in the prior 7 days due to the COVID-19 pandemic. The scale includes 11 items and it is rated on a 5-point Likert scale (1 = not at all; 5 = extremely). Mean scores were calculated to create a difficulty concentrating composite score, with higher scores indicating greater concentration difficulties due to COVID19. For coping strategies five mean variables were created such as: Self-care behaviors (4 items), solitary behaviors (4 items), social behaviors (4 items), technology (4 items), and creative expression (3 items). Each item was rate as yes or no and the average of the each item was calculated and the higher the mean indicates higher level of coping behavior.

Thus, completed response were methodologically analyzed using SPSS Software version 20 (IBM corp.) Socio-demographic characteristics and the stress due to COVID-19 were analyzed and presented as means, standard deviations, and percentages. Student's t-test was used to compare the demographic characteristics and CASPE in different domains. Frequency and percentage were calculated and tabulated for socio-demographic variables. The independent sample t-test and analysis of variance (ANOVA) test was used as appropriate for inferential statistics. $P < 0.05$ was considered to be statistically significant. ANOVA test was used to find a correlation between cognitive experience, level of concern, emotions and feeling, and COVID and demographic variables. All data were analyzed using SPSS Software version 20 (IBM corp.).

RESULTS

Of the total 112 respondents were enrolled in the study and started filling the questionnaires, 92.72% (112 out of 130 individuals) completed the whole survey and were considered for the statistical analyses. Majority of the participants were females (54.38 %). The mean age of the study participants was 45.23±5.18 years, and the age ranged between 18 and 80 years. In the present study, 34.82% of the individuals was under the age group of 40–60, nearly all the participants are educated with 41.07% completed their graduation and majority of the participants were married (62.50%) [Table 1].

Table 1: Demographic characteristics of the study population

Variables	*n* (%) n= 112
Age	
20–40	27 (24.107%)
40–60	39 (34.82%)
60–80	46 (41.071%)
Gender	
Male	51 (45.53 %)
Female	61 (54.46 %)
Educational status	
Postgraduate	38 (33.92%)
Graduate	46 (41.07%)
High school	28 (25.89%)
Marital status	
Unmarried	31 (27.67%)
Married	70 (62.5%)
Widow	11 (9.82%)
Comorbid conditions	
Diabetes	84 (41.17%)
Hypertension	56 (27.45%)
Asthma/ Wheezing	24 (11.764%)
Heart disease	50 (24.5%)
Thyroid	10 (4.9%)
Others	56 (27.45%)
Common symptoms and signs at disease onset	
Fever	85 (75.89%)
Dry cough	90 (80.36%)
Fatigue	75 (66.96%)
Sputum Production	88 (78.57%)
Sore Throat	65 (58.04%)
Shortness of Breath	59 (52.68%)
Headache	90 (80.36%)
Muscle or Joint Pain	74 (66.07%)
Diarrhea	40 (35.71%)
Nausea / Vomiting	38 (33.93%)
Chills	45 (40.18%)
Nasal Congestion	82 (73.21%)
Red/itchy eye	38 (33.93%)

Positive and Negative Impact Due to COVID-19 on Mental Wellbeing

The COVID pandemic situation has changed the daily life pattern in the negative way (56.25%). Majority of the responders were worried about stay at home (70.8%) and not going to work (82.4%), which leads to loss of income (66.6%), followed by worried about someone who has or had the virus (53.5%), thinking about the death rate due to COVID (43.2%), increased stress or disorientation from not having a schedule (40.7%). Some were worried as they were not able to seeing friends in person (39.4%) and not having access to things they need in terms of food products (28.5%). And further some responders have to work and parent at the same time.

Only 11.6% of the responders feel that the COVID 19 outbreak brings the positive change in their daily life. The changes in the daily life includes getting to do things which they do not usually have time such as art, music, writing, cooking and getting more recreational time on the phone/computer and in social media. Feeling that they have the more control in creating their own schedule, spend time with family and pets, more time to relax and to do exercise.

The present study was conducted among the COVID positive patients. The common symptoms and signs at the onset of the disease are presented in Table 1. Majority of the individuals were hospitalized and 22.3% were quarantined based on the severity of the disease and the quarantine period varied from 14 to 20 days.

Majority of the responders lost full-time employment (46.8%), followed by employed fulltime and working from home (42.56%), employed full-time and working at worksite (30.54%) and parent of young adults now living at home (39.4%). Majority of the participants continue with their work by increased email correspondence (54%), followed by phone call (48%) and virtual meeting (32%). In the present study population, 28.57% responders were not at all involved in assisting their child in schoolwork, followed by slightly involved 15.17%, moderately involved 6.25%, very involved 5.3%, and extremely involved 5.3%.

Emotional Experience

Majority of the individuals were extremely stressful (92.8%) and are uncertain about their future further the stress disrupts their existing plans very much (78.5%). The negative effect of COVID based on emotions and feeling was categories in to Worried/afraid (12.49±1.13), sad/lonely (15.52±1.52) and angry/frustrated (18.99±1.04) [Table 2]. There exist a statistical significance between the emotions and feeling ($P \leq 0.05$). The mean score of level of concern is 3.30±1.18. The participants have extremely concern about stay at home (44.63%), might get sick (36.61%), and family member might get sick (33.93%) conflict with partner/spouse (31.25%), conflict with roommate (33.04%), lost job (27.68%), and future career plans unclear (35.71%). When compare to pre-COVID outbreak, majority of the participants were hopeless (85.71%), anxious/stressed (84.82%) and were not relaxed

(41.07%), hopeful (33.39%) and were not confident about their future (82.14%).

Coping Behavior

To overcome COVID situation with stress and anxiety, strategies such as social behavior (44.8±23.16), self-care behavior (38.25±32.22), technology (35.5±18.15), solitary behavior (11.25±7.12), and creative expression (10.5±6.36) were used major coping strategies. There exists a statistical significance between the domain of coping strategies ($P \leq 0.05$) [Table 3].

Cognitive Experience

Majority of the patients extremely thinking a lot about COVID-19 (48.2%), easily distracted (48.21%), and forgetful in daily activities (41.96%). Further easily switching tasks (34.82%) and were extremely disorganized (30.35) [Table 4]. The participants inferred that it will take more than a year to resume to their normal routine life activities.

The middle-aged population experienced significantly higher cognitive level (F=8.263; $P = 0.000$), level of concern (F=6.271; $P = 0.003$), level of worry (F=6.817; $P = 0.002$), Sadness (F=3.622; $P = 0.03$), and angry (F=4.725; $P = 0.01$), when compared to younger population and older population. Similarly, married individuals experienced higher cognitive level (F=3.991; $P = 0.021$), level of concern (F=5.478; $P = 0.005$), level of worry (F=4.685; $P = 0.01$), sadness (F=3.127; $P = 0.048$), and angry (F=3.188; $P = 0.045$), when compared to unmarried individuals [Tables 5 and 6].

Respondents with the lower education level were having higher cognitive level (F=6.743; $P = 0.002$), level of concern (F=6.407; $P = 0.002$), and were more worried (F=10.72; $P = 0.000$) and Sad (F=6.281; $P = 0.003$) and angry (F=10.75; $P = 0.000$) due to COVID-19. While there was no significant difference observed among gender. Pearson correlation test showed that there is significant positive correlation exist between cognitive experience, level of concern and difficulties in concentration [Table 7].

Social Experience

Majority of the members of household were decided to stay at home for fear of exposure, followed by someone in the household is a medical professional and thus self-isolated another part of the house. Some stay at home due to the local governments order. In the view of social distancing the study population inferred that the restriction recommended by the national government is good for the present situation. Thus, the study population stopped in-person contact with family who live outside the home, friends indoors and outdoors, any type of travel either for work or pleasure trip. Outdoor activities in public spaces, in-person events in the community and religious services during this pandemic situation.

Majority of the participants went out of the house for allowed stay-at-home activities for less than once a week (50.87%), followed by once in a week (35.71%) for the activities such as going for a walk or a run, walking with a pet, spending time in backyard. Majority of the population always followed the social distancing and stay at home restrictions (54.56%), followed by some times did not followed the rules for some medical emergencies (15.17%). In this pandemic participants were almost constantly the reading and talking about COVID-19 situation (84.82%).

Table 2: Negative effect and the difficulties in concentrating due to COVID

Negative effects	Item	Mean±SD	
Worried/afraid	Anxious	3.84±1.03	12.49±1.13
	Afraid	3.14±1.13	
	Worried	3.95±1.07	
	Content	1.56±0.90	
Sad/lonely	Sad	3.88±1.21	15.52±1.52
	Hopeless	3.88±1.13	
	Lonely	3.90±1.06	
	Bored	3.86±1.07	
	Calm	1.39±0.82	
Angry/frustrated	Irritable	3.93±1.08	18.99±1.04
	Stressed	3.77±1.27	
	Angry	3.77±1.13	
	Frustrated	3.86±1.11	
	Disappointed	3.66±1.26	

Table 3: Coping strategies Q no 31

Strategies	Frequency	Mean±SD
Self-care behavior	153	38.25±32.22
Solitary behavior	45	11.25±7.12
Social behavior	169	44.8±23.16
Technology	142	35.5±18.15
Creative expression	21	10.5±6.36

Table 4: Cognitive experience due to COVID-19

Variables	Level of difficulty	Mean ± SD	*n* (%)
Thinking a lot about COVID-19	Extremely	4.15±0.99	54 (48.21)
Easily distracted		4.05±1.15	54 (48.21)
Forgetful in daily activities		3.87±1.23	47 (41.96)
Easily switching tasks		3.71±1.23	39 (34.82)
Disorganized		3.61±1.20	75 (30.35)
Having racing thoughts	Moderate	3.62±1.12	33 (29.46)
Zoning out	Quite a bit	3.79±1.03	35 (31.25)
Focused	Not at all	1.58±1.02	75 (66.96)
Able to sustain attention on tasks		2.51±1.35	37 (33.04)
Able to plan activities or work		2.04±1.21	53 (47.32)
Able to review work		1.98±1.18	55 (49.11)

Table 5: Comparison of mean scores of cognitive level and level of concentration due to COVID

Demographic variable	*n*	Cognitive level			Level of concern		
		Mean±SD	F value	*P* value	Mean±SD	F value	*P* value
Age							
20–40	27	30.92±8.67	8.263	0.000	51.40±16.46	6.271	0.003
40–60	39	37.53±6.64			61.25±12.04		
60–80	46	32.86±6.04			52.82±11.04		
Gender							
Male	51	33.76±8.69	0.116	0.734	56.47±16.30	0.569	0.452
Female	61	34.24±6.19			54.54±10.56		
Marital status							
Unmarried	31	31.8±8.46	3.991	0.021	35.35±16.61	5.478	0.005
Married	70	35.5±6.68			58±11.16		
widow	11	30.72±6.61			44.81±11.70		
Education							
Postgraduate	38	32.07±9.25	6.743	0.002	54.07±17.61	6.407	0.002
Graduate	46	31.85±5.91			49.42±11.33		
High school	28	36.95±5.39			60.17±8.20		

*denotes the values are significant at *P*<0.05

Table 6: Comparison of mean scores of difficulties in concentrating due to COVID

Demographic variable	*n*	Worried			Sad			Angry		
		Mean ± SD	F value	*P* value	Mean ± SD	F value	*P* value	Mean ± SD	F value	*P* value
Age										
20–40	27	12.07±2.80	6.817	0.002*	15.96±4.33	3.622	0.030*	17.62±5.37	4.725	0.011*
40–60	39	13.38±2.08			17.97±3.84			20.25±4.63		
60–80	46	11.52±2.32			16.04±3.054			17.47±3.68		
Gender										
Male	51	12.76±2.61	3.340	0.070	16.92±4.55	0.334	0.565	19.03±18.96	1.368	0.245
Female	61	11.91±2.28			16.50±2.96			18.01±3.69		
Marital status										
Unmarried	31	12.25±2.82	4.685	0.011*	16.12±4.37	3.127	0.048*	18.16±5.34	3.188	0.045*
Married	70	12.64±2.14			17.28±3.49			19.1±4.28		
Widow	11	10.27±2.53			14.54±2.54			15.45±3.38		
Education										
post graduate	38	10.67±1.92	10.721	0.000**	15.10±2.78	6.281	0.003**	17.97±5.81	10.759	0.000**
Graduate	46	13.19±1.92			16.23±4.93			15.87±3.02		
high school	28	12.42±2.83			18.04±2.57			20.5±3.27		

*denotes the values are significant at *P*<0.05

Table 7: Correlation between difficulties in concentration, level of concern, and cognitive experience due to COVID-19

Variables		R
Cognitive experience		1.000**
Level of concern		0.526**
Difficulties in concentration	Worried/afraid	0.307**
	Sad/lonely	0.548**
	Angry/frustrated	0.453**

R = Pearson Correlation Coefficient; *P* value < 0.05

Changes in employment or income have occurred in household due to COVID-19 includes job loss by one more adults, due to loss of income it is difficult to pay the bills and getting the general basic needs of the family, loss of equity in stock market, adult have to work for long hours. Nearly 85.7% were extremely affected due to the changes in household employment.

Socially Connected

Since the stay-at-home order began, nearly 86.6% almost every day the participants were engaged in talking or chatting with friends or family. During the stay at home the participants were connected with friends and family majority of them were on video calls (28.68%) and texting or messaging in social media (22.77%). In a day majority of the participants approximately spend 4–6 h (79.46%) each day in such activities. Thus, they were socially connected very well (81.25%) and the average weekly phone screen time usage was nearly 30.53 h in the pandemic situation.

DISCUSSION

COVID-19 pandemic is associated with the severe economic consequences, which affects significant mental health of the individuals worldwide. Protecting the mental

well-being of populations is an imperative component of fighting the COVID-19 pandemic. Due to the public health emergency, worldwide people are experiencing the prolonged social isolation and stress which leads to various psychological issues. This pandemic has increases the negative impact on the mental wellbeing of the general population disproportionately. Present study reported that experiencing more angry/frustrated due to COVID-19 was associated with increased negative thoughts related to COVID-19. Studies in adults have pointed that the loneliness and low social support as correlates of sleep problems during COVID-19.[17-19] The natural sunlight is considered as a strong zeitgeber for the circadian rhythm of our system,[20] further spending time in natural environment is significantly associate with the increased physical activity and decreased stress.[21] In line with this earlier study showed that COVID-19 pandemic outdoor/in nature is associated with the increased positive and decreased negative effects. Further daily walking and exercising increase the positive effects.[22]

During the pandemic period the level of anxiety and depression increases among the general population and also in young adults,[23] Further it is linked with the physical and mental wellbeing.[24] The present study finding is in line with the earlier reports, middle-aged population experienced significantly higher cognitive level, level of concern, level of worry, sadness, and angry when compared to younger population and older population. Earlier studies highlighted that anxiety and depressive symptoms increased during COVID pandemic situation.[25-27] Perhaps the findings also highlighted that disturbances in the daily life due to COVID has both positive and negative influence on the emotional function of the study participants. Thus, the present study finding would help in improvising the community decision making and diminish the current mental health crisis among COVID-19 affected individuals and also in their follow-up visits.

While exploring the different domains of coping strategies, the participants were engaged more in social behavior, followed by self-care behavior, technology, solitary behavior, and creative expression. The coping with the solitary behavior would decrease worry about COVID. In spite the potential negative impact of social media, earlier studies highlighted that social media influences positively on the psychological well-being.[28] This perhaps might be due to the social connectedness which acts as a buffering agent against the mental health symptoms in relation to the pandemic emergencies. Social behavior is used as a coping strategies by COVID affected individuals to get relieved from stress and anxiety, which eventually increases the feeling of happiness.[29]

Strength and Limitations

Irrespective of the strength of the study such as sample size, relatively heterogeneous samples of general population, there are major limitation such as the study lacks the longitudinal follow-up of the patient's mental health symptoms. The study could not eliminate the response bias, as the non-responders may severely facing the stress and coping strategies. The survey was conducted during the patient's treatment period for COVID, as many may hesitate to reveal the real hardship that they actually facing. Thus, the findings do not allow to derive the conclusion as the findings may tend to change over the time. As present study is cross sectional in nature which is not enough to determine the relationship of the emotional cognitive and social experience of the COVID patients. Further prospective longitudinal study is needed to determine these relationship. Despite these limitations, the present provided the valuable data on psychological symptoms of COVID-19 patients among Indian population.

CONCLUSION

The present study concluded that emotional cognitive and social experience of the COVID have created major positive and negative impact on COVID affected individuals. The social behavior plays as major coping strategies to combat stress and psychological wellbeing. The findings shed light on potential positive and negative impacts of the pandemic for COVID 19 affected individuals stress and coping strategies. The current study finding highlighted the need of multidimensional approach for the COVID treatment which should also focus on the improvement of patient's mental health. Patient centric standard treatment care would assist in future to combat the COVID pandemic situation. The mental health counselors should involve in treatment and also the follow-up would benefit the patient. The educational programs and awareness may improve the mental health of COVID affected individuals to a greater extent. The need of the hour is that the future research should focus on the mental health and psychological effect of COVID 19 pandemic among COVID affected individuals. To conclude, the study findings show that long-term study should be encouraged along with the specific screening strategies for the psychological care for COVID patients. An exclusive psychological support approach has to be developed to overcome this epidemic situation in developing country like India. Thus timely social-emotional screening and monitoring are needed.

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