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STRESS AND COPING MECHANISM DURING COVID-19 PANDEMIC: A PERSPECTIVE ON STRESS MANAGEMENT IN INDIA USING AN ONLINE CROSS-SECTIONAL SURVEY

Public Health

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ABSTRACT

Background: The COVID-19 pandemic has caused a significant health burden on human beings worldwide. While each person deals with stress in their own-way, it is particularly important to understand the stress-management-strategies utilized to overcome stress, during the COVID-19 pandemic-situation. **Objective**: To identify the factors that contributed to the stress and the various coping-mechanism utilized bythe Indian population during the COVID-19 lockdown-period. **Method:** A cross-sectional web-based online survey was conducted from 13th June-31st July, 2020 and the survey link was shared using social-media-platforms. A self-administered questionnaire was used to measure stress and its related coping-mechanisms. A multivariate-logistic regression analysis was performed to examine associations. **Results:** Out of 1021 eligible individuals, 460 were females and 561 were males. Out of them, 39.60% of females and 24.10% of males reported that they felt stressed. As compared to males, females reported they were more likely to pray(OR=4.31), meditate(OR=3.50), read a book(OR=3.20), exercise(OR=2.84), call-a-friend(OR=2.63), eat(OR=2.12) and watch-television(OR=1.48) when they were stressed during COVID-19 pandemic. In contrast, males were more likely to smoke-a-cigarette(OR=11.84) and drink alcoholic-beverages(OR=3.20) than females as a coping-mechanism during the pandemic. **Conclusion:** This study identified that females were better than males at dealing with the COVID-19 pandemic. Females predominantly choose active coping and expressive support coping mechanisms i.e. praying, meditating, reading-a-book, exercising, calling-a-friend, watching-television, and other-activities. Males predominantly choices the avoidance-coping strategy i.e. smoking-cigarettes and drunk alcoholic-beverages during the COVID-19 pandemic. Therefore, these findings can help design interventions during the future pandemic to better cope with the difficult and uncontrolled situation in India.

KEYWORDS

COVID-19, Coping, Pandemic, Stress, Stress Management, India

INTRODUCTION

The world has faced numerous pandemic situations in the past. Going back in time showed not much literature about how to handle emerging situations and well-being of the population during infectious disease national outbreaks. However, during the SARS pandemic in 2002, a study conducted showed the association between quarantine (47.9%), concern for family, self-isolation, insecurity of treatment, insecurity of non-specialist work in infectious diseases outbreak, emotional distress in healthcare workers (18%-57%), fear of contagion, job stress, and psychological distress (44.9%) with psychological health of the population.[1] Similarly, studies have identified that the recent infectious disease SARS,[2] and the current dynamic and volatile world outbreak, COVID-19[3] had impacted healthcare systems, frontline workers, and the psychological health of the general population.

Evidence highlights that the COVID-19 pandemic globally had influenced not only the physical health of the population but also had impacted their mental health.[4] A comprehensive strategy that included measures such as personal, physical, and social distancing, movement, and special protection actions were utilized by individuals, institutions, communities, local and national governments, and international bodies to suppress or stop community spread of COVID-19.[5] These public health actions affect the health, protection, and well-being of individuals and communities due to the prevailing uncertainty, confusion, emotional isolation, stigma, economic crises, loss of work, inadequate medical response, and distribution of necessities.[3] Literature review in the past studies has indicated that for those who are unduly challenged by the uncertain time frame of restricted movement, illness of self or close relatives, restriction on social contact, uncertain extended periods, and the psychological impact was very pronounced during the COVID-19 pandemic.[3,6]

Further, loneliness during the COVID-19 pandemic was associated with an adverse impact on physiological and psychological health among the general population.[7] Further, a systematic review also highlighted that quarantine and social distancing which were the required strategies to prevent the transmission of the COVID-19 virus had increased levels of loneliness and social isolation in the community, which led to elevated physical and mental health issues.[3,7] In Austria, severe clinical insomnia (16%), anxiety (19%), and depressive symptoms (21%) were reported to have increased during the COVID-19 outbreak when compared to previous pandemic-like epidemiological data. In addition, it was also reported that due to the lockdown, there was increased stress, particularly among younger adults (< 35 years), women, people without work, and low-income groups.[8] Yet another Italian study which included 18,147 participants, found adjustment disorder (22.9%), high perceived stress (21.8%), anxiety (20.8%), depression (17.3%), and insomnia (7.3%) during the COVID-19 pandemic.[9]

In response to the COVID-19 pandemic, the Indian National Government also implemented a 55 days lockdown throughout the country from March 25th, 2020.[10] This led the citizens to mandatorily stay at home, in self-quarantine, face travel restrictions (public and private), and closure of malls, cinema halls, offices, factories, educational institutions, and other commercial and social activities in India.[11] Therefore, the impact on psychological health in the Indian context was no different from the global context. It was reported in a study that the general population had mental health problems (12.84%),[12] and severe psychological impact (12.7%)[13] in response to the Covid-19 outbreak in India. In addition, the longitudinal study conducted to assess the psychological response from the early lockdown to eight weeks of lockdown showed increased stress from 10.7% to 24%, severe anxiety increased from 10.4% to 12.7%, and depression from 14.8% to 26.1% respectively.[11]

Various theoretical framework models have been established for coping with stress as Lazarus-Folkman (1984) - Problem vs Emotion-Focused coping; Krohane (1993)- Approach vs Avoidance coping; Holohan- Moos (1987)- Behavioural vs Cognitive coping; Holohan-Moos (1987) – Behavioral vs Cognitive vs Avoidance coping; Amirkhan (1990)-Problem focused vs Social Support vs Avoidance; and Carver et. al. (1989)- Active vs Cognitive vs Social support vs Avoidance model. The best-fitting model was derived with a valid evidence-based multidimensional coping scale i.e. Active Coping vs Expressive Support Seeking vs Avoidance (Consumer coping). This scale provides a model in which emotions interact with appraisals jointly to enact coping strategies.[14] First, active coping was the problem-focused and positive approach to stress i.e. action, rational, and positive thinking. Second, expressive support seeking was

emotion-focused and social support i.e. emotional venting, emotional support, and instrumental support. Third, avoidance and negative approach to stress i.e. avoidance and denial.

Therefore, based on the above background we proposed this study intending to understand the coping mechanisms of stress during the Covid-19 pandemic among the Indian population. The objective of the study was to identify the factors that contributed to the various coping mechanism utilized by the study participants during the COVID-19 pandemic.

METHODS

Study design and participant recruitment

Coping mechanisms for stress during the COVID-19 pandemic period were identified by this web-based cross-sectional study among the Indian population. For recruiting study participants, as face-to-face interviews during the pandemic time were not feasible, we used a snowball-non-probability-sampling method. All individuals 18 years and older and residents of India were eligible to participate in the study. Online written consent from all participants was obtained before they answered the survey. This study was approved by the Institutional Ethics Committee.

Data collection tool

A self-administered questionnaire was used to measure stress and its related coping mechanisms. The questionnaire included 32 questions with sections included as demographics, comorbidities, COVID-19 symptoms, mental health and coping, dietary habits, physical activity, tobacco use, alcohol use, and family composition during the pandemic period. The score for mental health was adapted from the Healthcare Worker Exposure Response and Outcome (HERO) – daily experience index scale was used to assess mental health status.[15] For this study, from the HERO scale, stress was identified using the question "I feel stressed often since the last 2 months" and the response was recorded as "Yes/No". The stress management coping mechanism was measured in the form of eating, smoking a cigarette, using alcoholic beverages, calling friends, reading a book, watching television, praying, meditating, and any other reasons, whose response was also recorded as "Yes/No".

Data collection procedure

A web-based survey link was developed and administered on "Research Electronic Data Capture" (RedCap) which is a secure web application for building and managing online surveys, and databases.[16] The online survey was first shared by Healis employees to their network and they were encouraged to pass it on to others in their network. The online survey link was also shared on the social media websites like Facebook, LinkedIn, and Healis, via email and WhatsApp. The survey link was activated on the portal from 13th June to 31st July 2020.

Data Analysis

For all variables, descriptive statistics were measured. The Chi-squared test (χ2-test) and Fisher's exact test compared the categorical proportion values. Using SPSS 25.0 software, all statistical tests were performed and a two-tailed P value of < 0.05 was considered statistically significant. The multivariate logistic regression models were adjusted for gender, age, family income, and zones with stress-coping mechanism factors.

RESULTS

Sample Characteristics

A total of 1291 individuals participated in the survey; 270 individuals were excluded from the study, the reasons being 141 had incomplete data, 126 used duplicate email ids, and 3 reported another gender. Thus, 1021 participants were available for the final data analysis. The data were categorized into zones for analysis: West zone - Maharashtra, Goa, Gujarat, and Rajasthan; East Zone - Bihar, Orissa, and West Bengal; North Zone- Haryana, Jammu & Kashmir, Punjab, Uttaranchal, Uttar Pradesh, Chandigarh, and Delhi; South Zone- Tamil Nadu, Telangana, Kerala, Andhra Pradesh, and Karnataka; North-East zone- Assam, Manipur, and Arunachal Pradesh; and Central zone- Madhya Pradesh and Chhattisgarh. For analysis purposes, these six zones were further recoded into three zones -West Zone, Central Zone, and all other combined zones. Also, the age variable was recoded into categories as 18-25 years, 26-35 years, 36-45 years, 46-55 years, and above 55 years. The income variable was recoded as monthly income below Rs.60, 000 and above Rs.60, 000.

The data showed that 81.6% of females and 86.9% of males responded through social networks such as Facebook, Twitter, Instagram, and WhatsApp. The mean (SD) age was 37 (11.9) years for the female and 40 (11.6) years for the male. Of the total participants, 418 (41.0 %) were graduates and 601 (59.0 %) were postgraduates.

Stress prevalence

Table 1 displays the frequency distribution and odd ratio of the prevalence of stress among the study participants across the socio-demographic variables. The data revealed that females reported 93% more stressed than males. The stress was inversely associated with the age groups with increasing trend, with the highest stress (OR=3.20) observed in 18-25 age group. The individual's family income of more than Rs. 60,000 per month reported 35% higher stress and the individuals from the "other combined zone" category reported 56% higher stress than the west zone.

Table 1: Logistic regression analysis of the association between Socio-demographic factors and stress during the COVID-19 pandemic in India

Coping Mechanism Factors	I feel stressed often since last 2 months				
	Yes [n=317] (%)	[n=704] (%)	OR	95% C.I.	
				LL	UL
Gender					
Female	182 (39.6)	278 (60.4)	1.93*	1.46	2.56
Male	135 (24.1)	426 (75.9)	Reference		
Age in years					
18-25	58 (44.3)	73 (55.7)	3.20*	1.75	5.84
26-35	103 (31.4)	225 (68.6)	1.83*	1.07	3.12
36-45	86 (29.2)	209 (70.8)	1.74*	1.02	2.98
46-55	48 (30.6)	109 (69.4)	1.77	0.98	3.19
Above 55 years	22 (20.0)	88 (80.0)	Reference		
Family income per month†					
Above Rs.60,000	190 (32.8)	390 (67.2)	1.35*	1.01	1.81
Below Rs.60,000	123 (28.6)	307 (71.4)	Reference		
Zones†					
Central Zone	42 (24.4)	130 (75.6)	0.75	0.5	1.11
Other combined zones	60 (40.3)	89 (59.7)	1.56*	1.06	2.27
West Zone	214 (30.7)	484 (69.3)	Reference		

Note: Logistic regression analysis adjusted by gender, age, family income, zone; OR- odds ratio; C.I.- Confidence interval; LL- lower limit; UL- Upper limit; '*' indicated by statistically significant odds ratio; "†" this variable includes missing responses therefore numbers may not add up to total.

Coping Mechanisms

Tables 2A, 2B and Table 2C shows the description of the coping strategies used by the study participants. Results (Table 2A) showed that females were more likely to pray (OR=4.31), meditate (OR=3.51), read a book (OR=3.20), and exercise (OR=2.84) than males when stressed during the pandemic. In addition, Central zone individuals were less likely to exercise than those in the West zone when in stress.

Table 2A: Logistic regression analysis of the association between Socio-demographic factors and stress management factors during the Covid-19 pandemic in India

Coping Mechanism Factors	If I am stressed, I do pray					If I am stressed, I do meditate					If I am stressed, I do read a book					If I am stressed, I do exercise				
	Yes(%)	No (%)	OR	95% C.I.		Yes (%)	No (%)	OR	95% C.I.		Yes (%)	No(%)	OR	95% C.I.		Yes (%)	No (%)	OR	95% C.I.	
				LL	UL				LL	UL				LL	UL				LL	UL
Gender																				
Female	59 (12.8)	401 (87.2)	4.31*	2.47	7.53	52 (11.3)	408 (88.7)	3.51*	2.04	6.05	56 (12.2)	404 (87.8)	3.20*	1.9	5.4	49 (10.7)	411 (89.3)	2.84*	1.67	4.83
Male	18 (3.2)	543 (96.8)	Reference			20 (3.6)	541 (96.4)	Reference			22 (3.9)	539 (96.1)	Reference			22 (3.9)	539 (96.1)	Reference		

Age in years																				
18-25	15 (11.5)	116 (88.5)	1.72	0.63	4.74	12 (9.2)	119 (90.8)	2.24	0.68	7.31	18 (13.7)	113 (86.3)	2.31	0.86	6.21	14 (10.7)	117 (89.3)	1.68	0.6	4.66
26-35	21 (6.4)	307 (93.6)	0.97	0.37	2.55	22 (6.7)	306 (93.3)	1.82	0.6	5.49	21 (6.4)	307 (93.6)	1.06	0.41	2.76	22 (6.7)	306 (93.3)	1.14	0.44	2.95
36-45	26 (8.8)	269 (91.2)	1.79	0.7	4.56	26 (8.8)	269 (91.2)	2.73	0.92	8.12	24 (8.1)	271 (91.9)	1.63	0.64	4.15	18 (6.1)	277 (93.9)	1.2	0.46	3.16
46-55	9 (5.7)	148 (94.3)	1.06	0.36	3.13	8 (5.1)	149 (94.9)	1.45	0.42	5.02	9 (5.7)	148 (94.3)	1.09	0.37	3.2	11 (7.0)	146 (93.0)	1.45	0.51	4.13
Above 55 years	6 (5.5)	104 (94.5)	Reference			4 (3.6)	106 (96.4)	Reference			6 (5.5)	104 (94.5)	Reference			6 (5.5)	104 (94.5)	Reference		
Family income per month†																				
Above Rs.60,000	45 (7.8)	535 (92.2)	1.14	0.68	1.9	45 (7.8)	535 (92.2)	1.28	0.76	2.17	46 (7.9)	534 (92.1)	1.19	0.72	1.97	39 (6.7)	541 (93.3)	0.95	0.57	1.6
Below Rs.60,000	30 (7.0)	400 (93.0)	Reference			27 (6.3)	403 (93.7)	Reference			31 (7.2)	399 (92.8)	Reference			32 (7.4)	398 (92.6)	Reference		
Zones†																				
Central Zone	6 (3.5)	166 (96.5)	0.46	0.19	1.11	7 (4.1)	165 (95.9)	0.59	0.26	1.36	6 (3.5)	166 (96.5)	0.46	0.19	1.12	3 (1.7)	169 (98.3)	0.25*	0.08	0.81
Other combined zones	16 (10.7)	133 (89.3)	1.41	0.75	2.63	17 (11.4)	132 (88.6)	1.77	0.97	3.24	18 (12.1)	131 (87.9)	1.63	0.9	2.96	17 (11.4)	132 (88.6)	1.78	0.98	3.23
West Zone	55 (7.9)	643 (92.1)	Reference			48 (6.9)	650 (93.1)	Reference			54 (7.7)	644 (92.3)	Reference			51 (7.3)	647 (92.7)	Reference		

Note: Logistic regression analysis adjusted by gender, age, family income, zone; OR- odds ratio; C.I.- Confidence interval; LL- lower limit; UL- Upper limit; '*' indicated by statistically significant odds ratio; "†" this variable includes missing responses therefore numbers may not add up to total.

We also found (Table 2B) that females were more likely to call a friend (OR=2.63), eat more (OR=2.12), watch television (OR=1.48), and do other activities (OR=2.18) than males when stressed. These other activities included art, cooking, playing games, listening to music, sleeping, and watching videos. Further, individuals in "other combined zones" were more likely to eat (OR=1.84) and to call a friend (OR=1.99) as a stress-coping management option than those in the West zone.

Table 2B: Logistic regression analysis of the association between Socio-demographic factors and stress management factors during the Covid-19 pandemic in India

Coping Mechanism Factors	If I am stressed, I Call a friends					If I am stressed, I do Eat					If I am stressed, I watch television					If I am stressed, I do other activity				
	Yes (%)	No (%)	OR	95% C.I.		Yes (%)	No (%)	OR	95% C.I.		Yes (%)	No (%)	OR	95% C.I.		Yes (%)	No (%)	OR	95% C.I.	
				LL	UL				LL	UL				LL	UL				LL	UL
Gender																				
Female	94 (20.4)	366 (79.6)	2.63*	1.77	3.89	71 (15.4)	389 (84.6)	2.12*	1.38	3.24	76 (16.5)	384 (83.5)	1.48*	1.02	2.15	21 (4.6)	439 (95.4)	2.18*	1.07	4.46
Male	45 (8.0)	516 (92.0)	Reference			40 (7.1)	521 (92.9)	Reference			61 (10.9)	500 (89.1)	Reference			13 (2.3)	548 (97.7)	Reference		
Age in years																				
18-25	36 (27.5)	95 (72.5)	6.16*	2.43	15.6	27 (20.6)	104 (79.4)	9.26*	2.68	31.94	26 (19.8)	105 (80.2)	2.76*	1.21	6.28	3 (2.3)	128 (97.7)	0.58	0.12	2.7
26-35	46 (14.0)	282 (86.0)	2.65*	1.08	6.49	40 (12.2)	288 (87.8)	4.76*	1.43	15.89	51 (15.5)	277 (84.5)	2	0.94	4.26	11 (3.4)	317 (96.6)	0.93	0.29	3.02
36-45	34 (11.5)	261 (88.5)	2.36	0.95	5.84	28 (9.5)	267 (90.5)	3.77*	1.12	12.72	36 (12.2)	259 (87.8)	1.6	0.74	3.46	11 (3.7)	284 (96.3)	1.02	0.32	3.3
46-55	17 (10.8)	140 (89.2)	2.17	0.81	5.76	13 (8.3)	144 (91.7)	3.13	0.86	11.34	15 (9.6)	142 (90.4)	1.23	0.51	2.93	5 (3.2)	152 (96.8)	0.79	0.21	3.07
Above 55 years	6 (5.5)	104 (94.5)	Reference			3 (2.7)	107 (97.3)	Reference			9 (8.2)	101 (91.8)	Reference			4 (3.6)	106 (96.4)	Reference		
Family income per month†																				
Above Rs.60,000	81 (14.0)	499 (86.0)	1.24	0.83	1.84	68 (11.7)	512 (88.3)	1.4	0.9	2.18	78 (13.4)	502 (86.6)	1.16	0.79	1.71	23 (4.0)	557 (96.0)	1.46	0.68	3.13
Below Rs.60,000	56 (13.0)	374 (87.0)	Reference			41 (9.5)	389 (90.5)	Reference			57 (13.3)	373 (86.7)	Reference			11 (2.6)	419 (97.4)	Reference		
Zones†																				
Central Zone	18 (10.5)	154 (89.5)	0.9	0.51	1.58	21 (12.2)	151 (87.8)	1.46	0.85	2.53	18 (10.5)	154 (89.5)	0.83	0.48	1.44	7 (4.1)	165 (95.9)	1.26	0.52	3.06
Other combined zones	32 (21.5)	117 (78.5)	1.99*	1.23	3.22	24 (16.1)	125 (83.9)	1.84*	1.08	3.14	28 (18.8)	121 (81.2)	1.5	0.93	2.42	(3.4)	144 (96.6)	1.02	0.37	2.76
West Zone	89 (12.8)	609 (87.2)	Reference			66 (9.5)	632 (90.5)	Reference			91 (13.0)	607 (87.0)	Reference			22 (3.2)	676 (96.8)	Reference		

Note: Logistic regression analysis adjusted by gender, age, family income, zone; OR- odds ratio; C.I.- Confidence interval; LL- lower limit; UL- Upper limit; '*' indicated by statistically significant odds ratio; "†" this variable includes missing responses therefore numbers may not add up to total.

Table (2C), In addition, males were more likely to smoke cigarettes (11.84) and drink alcoholic beverages (3.20) than females.

Table 2C: Logistic regression analysis of the association between Socio-demographic factors and stress management factors during the Covid-19 pandemic in India

Coping Mechanism Factors	If I am stressed, I do Smoke a cigarette					If I am stressed, I do Alcoholic beverages				
	No(%)	Yes(%)	OR	95% C.I.		No(%)	Yes(%)	OR	95% C.I.	
				LL	UL				LL	UL
Gender										
Female	459 (99.8)	1 (0.2)	Reference			455 (98.9)	5 (1.1)	Reference		
Male	547 (97.5)	14 (2.5)	11.84*	1.52	92.1	542 (96.6)	19 (3.4)	3.20*	1.16	8.78
Age in years										
18-25	129 (98.5)	2 (1.5)	Reference	130 (99.2)	1 (0.8)	1.51	0.09	25.2		
26-35	324 (98.8)	4 (1.2)	0.44	0.07	2.62	315 (96.0)	13 (4.0)	5.97	0.75	47.25
36-45	289 (98.0)	6 (2.0)	0.53	0.1	2.9	289 (98.0)	6 (2.0)	2.35	0.28	20.02
46-55	154 (98.1)	3 (1.9)	0.55	0.08	3.69	154 (98.1)	3 (1.9)	2.37	0.24	23.44
Above 55 years	110 (100.0)	0	0	0	0	109 (99.1)	1 (0.9)	Reference		
Family income per month†										
Above Rs.60,000	428 (99.5)	2 (0.5)	Reference			424 (98.6)	6 (1.4)	Reference		
Below Rs.60,000	567 (97.8)	13 (2.2)	3.72	0.79	17.6	562 (96.9)	18 (3.1)	2.29	0.86	6.11
Zones†										
Central Zone	695 (99.6)	3 (0.4)	Reference	689 (98.7)	9 (1.3)	Reference				
Other combined zones	164 (95.3)	8 (4.7)	7.59*	1.92	30.1	165 (95.9)	7 (4.1)	2.47	0.88	6.97
West Zone	145 (97.3)	4 (2.7)	5.64*	1.22	26	141 (94.6)	8 (5.4)	3.87*	1.44	10.38

Note: Logistic regression analysis adjusted by gender, age, family income, zone; OR- odds ratio; C.I.- Confidence Interval; LL- lower limit; UL- Upper limit; '*' indicated by statistically significant odds ratio; "†" this variable includes missing responses therefore numbers may not add up to total.

DISCUSSION

The COVID-19 pandemic had led to various changes that have affected individuals worldwide. The present study highlights that each individual has reciprocated the pandemic in their own ways and experimented with different modes to manage their stress. Based on the framework of the multidimensional model of consumer coping, we had identified in our data the study participants had used predominantly three multidimensional ways of coping with stress i.e. active coping, expressive support seeking, and avoidance (Figure 1).

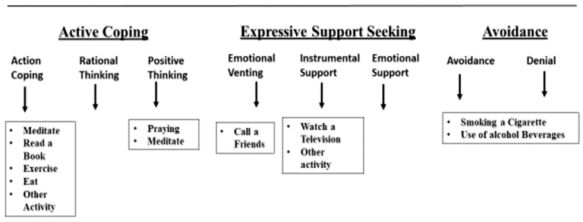

Figure 1: A conceptual framework of a multidimensional model[14] of the general population coping with the COVID-19 pandemic

In the current study, females reported higher stress levels than males during the COVID-19 pandemic period. This finding was found to be similar to the existing literature on the association between gender and stress level in other settings.[17-18] Another study also highlighted that females were more family-oriented and played a supportive role during relative isolation and they were more likely to take the dual burden of their professional and family responsibilities.[17] The present study reported that stress was inversely associated with age, with the 18-25 age group, which was impacted more. However, a few other studies reported no such associations between gender and age with stress.[18-19] Further, in this study, we recognized the various coping behaviors like praying, meditating, reading a book, exercising, calling friends, eating, watching television (TV), smoking a cigarette, alcoholic beverages, and other activities in response to the pandemic.

Active Coping

Our study highlighted that an active coping mechanism was the most predominant choice among the females with the odds being higher than among male participants. Praying was the most active coping mechanism used during the COVID-19 pandemic. Females were more likely to pray than males, yet, both genders prayed as a stress management strategy during the pandemic. Praying was the day-to-day activity among the general population in Indian culture. However, previous research showed that spirituality and religion were used as coping mechanisms for the management of stress during stressful situations and pandemics.[20] Belding et. al (2010) showed praying before a stressful situation reduced physiological and psychological stress.

Meditation was the next important active coping mechanism factor according to our findings in the current study during the COVID-19 pandemic. Females reported meditating more than males. Evidence showed meditation has become an important technique to reduce stress among people from all stages of life. Meditation (progressive muscle relaxation techniques) has been observed in various forms, with or without spiritual practices and it is regarded as an efficient technique for relieving stress.[21] Wilkinson's review of the literature showed reading was more common among females than males.[22] It was confirmed in our study findings as females reported to read a book more as a coping mechanism than males during the pandemic.

Exercise was the next active coping strategy people referred to relieve stress in the current study with females being more likely to exercise than males. A systematic review of 168 articles, also showed that exercise intervention increased exercise during the time of stress, and exercise habits were identifying individuals' coping styles.[23] Another review which included 16 meta-analyses of 152 RCTs and 11 systematic reviews showed that adolescents, young adolescents, and adults found the effect of exercise on reducing depressive symptoms and stress.[24]

Eating (excessive) was another active coping mechanism used by our study participants more by females than males. This could perhaps be possible due to the lockdown and stay-at-home restrictions during the pandemic. In addition, stress promotes irregular eating patterns and strengthens overeating or binge eating[25] for the reason that food was offering short-term pleasure. Our study findings observed that the study participants used day-to-day activities as active coping mechanisms during the pandemic.

Expressive Support Seeking

The current study revealed that the study participants most predominantly chose emotional venting to their friends. We found that females were more likely to call a friend than males to cope with their stress. Wherein literature also showed that females have a higher contact with friends and non-household relatives than males.[26]

Watching Television (TV) was used as another coping strategy reported more by females than males as instrumental support during the Covid-19 pandemic. Evidence showed that Television, mobile phones, the internet, and social media provide numerous opportunities for coping with stress in everyday life and reducing stress.[27] Anderson et.al. revealed that people engaging in TV programs can distract from stressful thoughts. In a comparison of total TV watching times, females spent a significantly higher amount of time on TV than males. In addition, our study participants also reported other activities that were used for coping with stress, with females engaging more than males. In addition, other activities were not only a support to active coping but also an expressive support-seeking mechanism. We

observed that females used routine activities as expressive support seeking to cope with stress during the pandemic.

Avoidance Coping

The males were more likely to smoke cigarettes and drink alcoholic beverages than females in our findings. Therein literature that males were more smoke and drink alcohol more than females.[28] Therefore, the males followed routine activities to cope with stress in normal situations as well as the pandemic.

In the study population, according to an overview of stress and its coping mechanisms, the active coping mechanism was one of the most common strategies for dealing with stress during the COVID-19 pandemic. Individuals tend to make themselves feel better about a problematic situation without changing the problem itself or the perception of it and used routine activities as a strategy for coping with stress management.

In the future, while the countries fight against such pandemics, it is apparent that citizens may be subjected to similar lockdowns or quarantine times. If this tragic fact is to be met and survived, mental health services must be equipped with reliable guidance about how to assist the general population in surviving these times of loneliness and inactivity with minimal psychological impact.[7] The findings of this study should be used to guide not only therapeutic strategies for the general public in the post-emergency context but also health measures that consider citizens' psychological health. Many psychiatric programs and research ventures are progressing toward supporting teletherapy and other digitally delivered therapies, mostly to meet the needs of the general population who have suffered enormous stress during the pandemic.[29] Similar available therapies were created during the Pandemic in India, such as various other portals and institutions like the All India Institute of Medical Sciences (AIIMS), Indian Psychiatric Society, National Institute of Mental Health and Neuro-Sciences (NIMHANS), and Ministry of Health and Family Welfare (MOHFW), etc. They were mostly online and telephonic therapies. The results of our study propose to have a conceptual framework in place even before we are stuck with a pandemic situation. In addition, the conceptual framework should be catered based on gender stratification and age stratification to avail the best of their use for the population.

There are a few limitations to the present study. This is a cross-sectional study design. Therefore, the causal association can't be ascertained. In addition, wherein only internet users, social media users, and readers in the English language were captured. We reach out to our known personal contacts and after they reach their known network. However, this needs to be further explored in future studies.

CONCLUSION

This study identified that females had higher stress and utilized enhanced stress coping strategies than males in dealing with stress during the pandemic. The most predominant choices by the female study participants were active coping and expressive support coping mechanisms i.e. praying, meditating, reading a book, exercising, calling a friend, watching television, and other activity. Males had predominantly chosen the avoidance coping strategy i.e. smoking cigarettes and drunk alcoholic beverages during the COVID-19 pandemic.

The COVID-19 pandemic harms the physiological, psychological, and mental health of the Indian population. Our finding seems that females used multiple day-to-day (routine) activities as a strategy to used cope and reduce stress. Therefore, this finding can help design interventions, hence people who have seen their psychological and physiological health diminished during the future pandemic can better cope with the difficult and uncontrolled situation in India.

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