Coping Methods among Medicos during COVID-19 Pandemic in India - A Cross-Sectional Study among Medical Undergraduates in a Tertiary Care Teaching Hospital in Chennai

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ABSTRACT

BACKGROUND

Severe acute respiratory syndrome (SARS-CoV-19) popularly known as COVID-19 is an emerging pandemic which resulted in varying degrees of lockdown in India. Medical undergraduates remain affected due to lockdown-imposed disruptions in medical education, an unprecedented event, which can cause significant academic stress in addition to psychological stress. Understanding the coping methods is essential to develop interventions and to minimise the adverse effects of stress during pandemics. We wanted to determine the major coping methods using French version of the Brief Coping Orientation to Problems Experienced (COPE), a novel 4 - factor structure among medical undergraduates of a private tertiary teaching institution during COVID-19 lockdown period and describe the self-management of the stress as verbatim narrative statements.

METHODS

A cross-sectional, web-based survey based on French version of the Brief COPE, a novel 4-factor structure was used to assess the major coping methods among medical undergraduates of a private, tertiary care teaching medical institution in Chennai, South India. Self-management of stress was documented verbatim as narrative statements. After obtaining approval from institutional ethical committee and informed consent, the web-survey data from Google forms was collected from 223 medical undergraduate students and analysed using STATA (V 12.0) statistical package. The strategies for self-management of stress were identified and classified into themes.

RESULTS

Among total 223 respondents, 132 (59.2 %) were female medicos and 88 (39. 5 %) males, and mean age was 20.36 (SD +_1. 43) years. Major coping method adopted was positive thinking (115, 51.6 %), followed by avoidance (44, 19.7 %), seeking social support (37, 16.6 %) and problem solving (19, 8.5 %). Students with positive thinking had high levels of managing stress very well (33 %) followed by avoidance (10 %) compared to other methods but there was no significant difference in the self-rating of coping between different coping methods.

CONCLUSIONS

The coping mechanism of medical undergraduates reveals positive outlook while experiencing COVID-19 pandemic related extended lockdowns.

KEYWORDS

SARS-Cov-19, Medical Undergraduates, Coping, Cope Brief Inventory - 4 Scale, Positive Thinking

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BACKGROUND

World Health Organization (WHO) defines pandemic as an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people.[1] SARS-CoV-19 (COVID-19) with rapid spread worldwide and significant mortality has emerged as high impact pandemic requiring a new set of adaptation mechanisms to maintain emotional well-being at population level. As a pandemic containment strategy, to prevent the spread of virus, the Government of India adapted actions such as self and social distancing, lockdown of various degrees extending into many months with partial relaxations to enable civilian return to normal life. Educational institutions including medical institutions such as teaching colleges in India were impacted due to lockdown leading to continued disruption in medical education before digital platforms were quickly leveraged to continue with digital mode of medical education / classes. The unprecedent nature of the Covid-19 resulting in extending lockdowns, increasing mortality, lack of vaccine and definite treatment exerted undue mental and emotional stress causing grief, depression, anxiety, loneliness among health care professionals and general public.[2] Chowdhury R et al. identified stress as an important indicator for health of medical students in general and is defined as the extent to which individuals perceive their demands exceeds their ability to cope.[3] Chowdhury R et al. identified that Indian medical students experience high level of perceived stress due to academic stressors related to curriculum and examinations. Academic, psychosocial and environmental stressors were associated with perceived stress among medical students in a private setting in Chennai.[4] Multiple studies have identified that health emergencies have considerable impact on education and mental health of university students.[5,6] Cao et al. identified that in Chinese medical students, higher level of anxiety was associated with factors related to Covid-19.[7] The research continues to highlight the lingering impact of the pandemic on the education as well as on the families upon their return due to suspended education.[8]

The cognitive and behavioural efforts implemented to solve problems and reduce the stress arising from these problems is termed as coping.[9,10] Subjects experiencing stressful situations adapt strategies depending on individual's cognitive appraisal of the situation and their emotional status.[11,12] The Brief COPE inventory is the widely applied measure to identify the nature of coping strategies among individuals. The French version of the Brief COPE, a novel 4 - factor structure is validated in a sample of individuals including patients and their caregivers especially to identify it's use in health care settings.[13] The tool was used in singular stressful event such as cancer and is easier to use both in clinical practice and clinical research. This tool is yet to be validated in the Indian context. During this singular event of COVID pandemic, we strongly believed that a brief tool such as COPE 4 - factors tool is ideal to quickly asses the coping methods of medical undergraduates and utilise for the first time.

Medical undergraduates are affected due to lockdown-imposed disruptions in medical education which can cause significant mental and emotional stress. Understanding the coping methods is essential to develop interventions which minimise the adverse effects of stress during pandemics and strengthen the self-care through effective coping methods. The focus of this study is to study about the coping methods and self-management of stress among medicos during COVID-19 Pandemic.

Objectives

1. To determine the major coping methods using French version of the Brief COPE novel 4-factor structure among medical undergraduates a private tertiary teaching institution during COVID-19 lockdown period.
2. To describe the self-management of the stress as verbatim narrative statements.

METHODS

The study used a cross-sectional, web-based Google forms survey design to assess the major coping methods among medical undergraduates at a private tertiary care teaching medical institution in Chennai, South India from May to June 2020. All medical undergraduates enrolled in the private tertiary care teaching institution at the time of the study were eligible for participation in this study. They were invited to participate in this web-survey by wide dissemination of the survey link through social media affinity groups via respective class representatives of different semesters/batches. Institutional Ethics Committee (IEC) approval was provided in expedited manner (Ref. No: IEC No: 04 May, 2020) for this study. According to Abdulghani et al.[14] considering an estimated prevalence of positive coping among medical students (P) as 50 %, with a precision (d) of 7 %, at 95 % confidence interval ($Z_{1-a/2}$ = 1.96), the sample size was calculated as

$$\boldsymbol{N = Z^2_{1\text{-}a/2} * p * (1-p)/d^2 = 1.96^2 * 0.5 * (1-0.5)/0.07^2 = 196}$$

Adding a 10% non-response rate, the total sample size required for the study was 216.

A questionnaire was designed after extensive review of literature including studies done during pandemics such as SARS, H5N1. As this is pandemic response research, considering earlier studies in similar circumstances for sample size, purposive convenient sampling method and open sample size for a duration of four weeks (after obtaining ethics approval) was decided. A google forms survey questionnaire including socio-demographic features in order to describe the characteristics of the study participants and survey instrument with novel 4-factor structure of the French version of the Brief COPE assessing coping methods was designed. The survey link https://forms.gle/fFxze2WU4UEPv37s9 was disseminated through class representatives of respective batches. The objectives of the study were explained in a brief introductory information sheet at the beginning of the survey and implied

informed consent was understood to be obtained from the medical students who submitted the survey after reading the participant information content embedded in the online survey form.

Statistical Analysis

The web-survey data from Google forms was analysed using STATA (Ver 12.0) statistical package. Considering the second objective of the study, the strategies for self-management of stress written as narrative statements in the google web survey form in the space provided by the study participants were captured verbatim and plotted in the tabular format after reviewing the data and identifying the recurrent themes. This approach helped to ensure the richness of the narrative data to be retained as freely and subjectively experienced by the study participants. Socio-demographic characteristics were reported as counts and percentages and Fisher exact test was performed as test for significance.

RESULTS

The survey was completed by a total of 223 current medical and dental undergraduates enrolled in the institution. There was major participation from female respondents 132 (59.2 %) and range of ages included 18 years to 25 years with mean age 21. 46 years, (± 3.17 years). The socio demographic characteristics of the study respondents is shown in Table 1:

	Variable	Frequency (n)	Percentage (%)
Gender	Male	88	39.50
	Female	132	59.20
	Prefer not to say	003	01.30
	Total	**223**	**100**
	Age (years)	21.46 (± 3.17) *	18 – 25#
Marital status	Single	218	97.76
	Partnership	05	02.24
	Total	**223**	**100**

Table 1. Socio-Demographic Characteristics of Study Subjects (N = 223)

* - mean (± standard deviation) # - range

Coping Method- Brief COPE - 4 Factor	N	Mean (± S.D.) of Self-Rating of Coping	Kruskal Wallis P Value
Positive thinking	115	4.1 (± 0.71)	0.116
Avoidance	44	3.77 (± 0.99)	
Seeking social support	37	3.86 (± 0.75)	
Problem solving	19	3.74 (± 0.87)	
Others	8	4.13 (± 0.83)	
Total	223	3.97 (± 0.8)	

Table 2. Distribution of Coping Method- Brief COPE - 4 Factor and Mean (± S.D.) of Self-Rating of Coping by Study Subjects (N = 223)

Self-rating of coping methods was found to be higher among medicos adopting positive thinking as major coping methods as described in Brief COPE - 4 factor, followed by avoidance, seeking social support and problem solving and this difference was not found to be statistically significant.

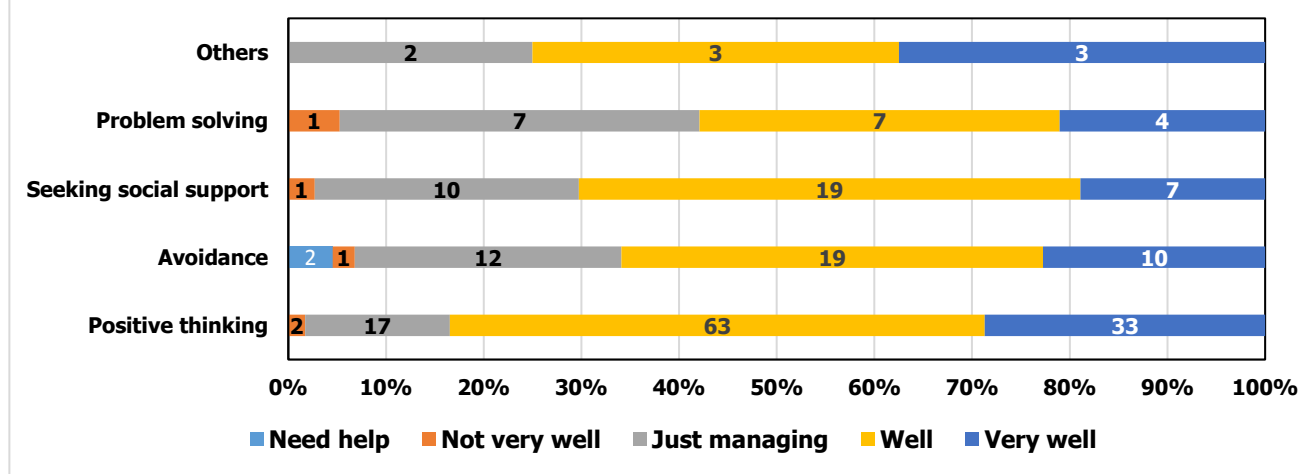

Figure 1. Brief COPE 4 Factor, Coping Methods and Self rating of Coping on Likert Scale by Study Subjects (N = 223)

Self-rating of coping was expressed on Likert scale of 1 to 5 (1 - Need help, 2 - Not very well, 3 - Just managing, 4 - Well, 5 -Very well) and is shown in Figure 1 as above.

Major Coping Mechanism		Positive Thinking	Avoidance	Seeking Social Support	Problem Solving	Others	Total	Fisher exact p value
Age	**< = 20 years**	75 (54.34 %)	27 (19.56 %)	18 (13.04 %)	13 (9.42 %)	5 (3.62 %)	138 (100 %)	0.036
	> 20 years	40 (47.05 %)	17 (20 %)	19 (22.35 %)	6 (7.05 %)	3 (3.52 %)	85 (100 %)	
Sex	**Male**	39 (44.31 %)	18 (20.45 %)	17 (19.31 %)	11 (12.5 %)	3 (3.4 %)	88 (100 %)	0.007
	Female	74 (56.06 %)	25 (18.93 %)	20 (15.15 %)	8 (6.06 %)	5 (3.78 %)	132 (100 %)	
	Not prefer to say	2 (66.66 %)	1 (33.33 %)	0 (0 %)	0 (0 %)	0 (0 %)	3 (100 %)	
Marital status	**Single**	111 (50.91 %)	44 (20.18 %)	37 (16.97 %)	18 (8.25 %)	8 (3.66 %)	218 (100 %)	0.141
	with partner	4 (80 %)	0 (0 %)	0 (0 %)	1 (20 %)	0 (0 %)	5 (100 %)	

Table 3. Distribution of Study Subjects and Major Coping Methods According to Brief COPE 4 Factor (N = 223)

Considering the distribution of major coping mechanisms, positive thinking and problem solving were more among lesser age group while avoidance and seeking social support were more among higher age group and the difference was statistically significant (P < 0.05). Positive thinking was higher among females while avoidance seeking

social support and problem solving was higher among males which was statistically significant ($P < 0.05$). There was no significant difference in marital status.

The narratives of the strategies to aid in the management of stress submitted by the respondents are summarized in the Table 4.

Sl. No.		Theme Identified
1		Measures to be taken by government
	a.	Government taking strict measures on those people who have returned from COVID-19 infected areas. (Male, 20)
	b.	Extend quarantine. (Male, 20)
	c.	Just by extending the lockdown period and avoid crowding. (Female, 21)
	d.	Extension of lockdown with funds (provided by the govt for all working people who are not able to work now, at least for daily wagers) (Female, 20)
2		Individual actions
	a.	Try to function as usual with set schedules. (Female, 19)
	b.	People should play their part of social distancing and hygiene practices properly, that itself could be enough to cope up with this pandemic. (Male, 19)
	c.	Don't try to do medications seen in social media. (Male, 23)
3		Awareness Creation
	a.	Rapid testing in communities even for asymptomatic people, awareness should be spread in a widespread way to communities so that people take it seriously and understand that we are indeed facing an emergency situation. (Female, 20)
	b.	Online awareness can be created. (Male, 20)
	c.	Can spread more awareness to people since most people are still not aware of its consequences. (Female, 19)
	d.	As complete eradication is not possible till proper vaccine / drug arrives, people should be educated to live by adopting certain restrictions. (Male, 21)

Table 4. Qualitative Descriptions of the Strategies to Aid in the Self-Management of Stress (N = 223) (Sex & Age of the Subject is Mentioned in the Parenthesis)

DISCUSSION

The current paper attempts to understand the coping methods adopted by medical undergraduates in a private teaching institution during the lockdown period of the emerging pandemic of COVID-19 from May to June 2020. The population level pandemic containment and prevention measures in India during COVID-19 pandemic led to announcement of lockdowns by the Government of India and duly followed by the respective state government of Tamil Nadu, contributed to abrupt shutdown of medical institutions and disruptions in medical teaching.[15] Though psychological effects were studied during small confinement periods in earlier health emergencies, emotional coping methods adapted by medical students in an unprecedented global pandemic such as COVID-19 which quickly evolved into extended lockdowns requires further studies.[16,17] Multiple studies identified high prevalence of psychological symptoms during global pandemics in the university level students of health sciences and engineering areas than those in humanities area.[17,18,19]

In the recent pandemic of COVID-19, in a study conducted in Philippines, majority of students, 62.64 % displayed anxiety during entire periods of lockdown.[20] Lee, and Roy et al. proposed that school students remain worried not only about themselves but of their families too which adversely effects their mental health.[21,22] In the same Philippines study, personal coping strategies included following strict personal hygienic measures, reading about the pandemic prevention measures etc. At the time of this study, studies assessing medical students coping methods during COVID-19 are not widely available from India. In our study medical undergraduates reported practicing mindfulness hobbies such as meditation, yoga, physical activity, reading books, watching TV, art work, games and spending quality time with family to maintain emotional wellness during lockdown period. This seems to be in alignment with the health advisories and recommendations of federal and public health agencies for sustainable and integrative emotional support systems.

Gao et al. (2003) identified that nursing college students develop immature or negative coping strategies when faced with pressures resulting due to public health emergencies.[23] On the contrary, medical undergraduates were found to be demonstrating positive living habits which may be explained due to the early stages of the pandemic, unaware of the severity of the emerging nature of the pandemic, and resilience of the youth. Compared to students, health care professionals who are involved in undertaking measures to deal with the epidemics are more likely to feel anxiety.[24] Anxiety levels were found to be higher among female nursing students during pandemic due to social isolation, economic instability, uncertainty and lack of personal protective equipment (PPE) at work.[25]

It is estimated that the two major coping strategies are based on problem-focused coping which aims to solve the problem or action oriented and emotion-focused coping for reducing emotional distress.[26] The descriptive statements from medical undergraduates were reflective of positive mindset and consistent with the earlier studies identifying stronger resilience and self-esteem.[27] In the French version of the brief COPE - 4 factor structure, positive thinking: changing your emotions / thinking / stress / vulnerability by thinking positively about things coping method-is recognized as an 'active strategy' along with problem solving.[13] This early personality revelation by medicos reflects that young generation is displaying remarkable strength during these challenging times and may be a positive hope to be leveraged.

One of the major challenges arising when addressing mental health issues related with stress and anxiety associated with emerging pandemic situation of COVID-19 is the 'uncertainties of the times' which can be adequately addressed by setting up communication hubs by the college authorities by credible sources of contacts for students to counter the vast amount of misinformation circulating in the internet.[28]

Also research is emerging that medical students are pre-disposed to additional mental disorders due to higher prevalence of mental health issues and thus heightened focus on prevention measures are needed by the college authorities and longitudinal studies are important to understand the importance of remote institutional support systems and novel mechanism to support medicos' community as the COVID-19 pandemic is evolving.[29]

In a quantitative study among fifth-year students in Saudi Arabia, high rates of pandemic-induced stress was reported among female students, and during transition year from pre-clinical to clinical year.[14] Multiple studies identified higher rates of anxiety, depression among medical undergraduates during emerging and early phases of global

pandemic as being unprepared contributes commonly to the stress.[30,31] Similar to our study findings, Ahrens et al. also identified that acceptance of the medical situation, spiritual meditation, religious prayers and positive framing or outlook are the most common coping strategies among medical professionals.[32] In similar South Indian setting, Saraswathi. I et al. identified the crucial need to address the negatively affected mental health of the medical under-graduates to mitigate the long-term impact on the performance of the health systems.[33]

Despite cross-sectional study design, and self-reported data limited to one private medical college setting, the findings are significant as they reflect the coping methods in the early stages of an emerging global pandemic.

CONCLUSIONS

In the middle of the global pandemic, medical undergraduates experienced higher stress levels than usual. Positive thinking emerged as the dominant coping method among medical undergraduate students in a private teaching setting in South India. Government actions against spreading of the disease require more community participation which should be brought out by increasing awareness among the individuals in the community and make them follow social distancing and hygiene practices.

Recommendations

Raising awareness about mental wellness, individual coping methods and sustained institutional engagement to support psychosocial needs of medical undergraduates amidst pandemic is extremely important.

Limitations

As purposive sampling is adopted over a short duration of the study period in the early stages of the pandemic in a single private medical college setting, the findings from this study may not be generalized to a larger population and different setting. Also, we adopted an online survey tool, but could reach a sample size of only 223 undergraduates only during the 4-week duration which could be a limitation. Further studies, representative of large samples from different medical colleges may be undertaken to avoid bias in study results.

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