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Indian Journal of Aerospace Medicine

Original Article

Coping styles and subjective well-being of indian civil aircrew in the context of COVID-19

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Received : 27 February 2022
Accepted : 13 May 2022
Published : 21 October 2022

DOI
10.25259/IJASM_13_2022

Quick Response Code:

ABSTRACT

Objectives: The novel coronavirus (COVID-19) infection has emerged into a widespread pandemic that stalled the world. Humanitarian missions like Vande Bharat during the first wave of COVID-19 and passenger as well as cargo services during its second wave were carried out extensively by civil aircrew. Operating under such challenging circumstances is likely to affect the well-being and psychological health of the aircrew. Exploring different coping strategies adopted by civil aircrew and assessment of their subjective well-being while operating during the pandemic was the desired objective of the study.

Material and Methods: In a descriptive cross-sectional design, 100 Indian civil and cabin crew voluntarily participated in the study. Two standardized questionnaires and a demographic inventory were administered to the sample to identify the coping strategies (the Brief COPE) and assess subjective well-being (WHO-5). Quantitative and qualitative analyses were computed for the data obtained on study variables. "*t*"-test was carried out to find the differences in the coping strategies utilized by the aircrew in the first and second waves of the pandemic.

Results: The mean age and flying experience of the sample were 43.74 ± 10.36 years and 17.34 ± 11.66 years. It was observed that the adaptive coping strategies were higher than the maladaptive coping styles with acceptance (6.56 ± 1.40) and active coping (5.98 ± 1.39) being predominant. There was no significant difference between the coping strategies used during the first and second waves of COVID-19. Imposition of financial constraints and discomfort while flying with a PPE kit was observed in qualitative analysis. The policies and regulations about the COVID protocols were reported to be frequently amended by airlines and regulatory authorities leading to ambiguity amongst the crew.

Conclusion: The present study revealed that the Indian civil aircrew used adaptive coping strategies frequently and maladaptive coping strategies sparingly while operating during the COVID-19 pandemic. Certain stressors under this unique situation may be unchangeable with specific coping strategies, but their application may nonetheless lead to positive feelings of autonomy or a reduction in the experience of anxiety. Thus, airlines may initiate the trend of positive psychological interventions as a preventive measure. Pilot training may also incorporate techniques for adopting healthy behavior using specific coping strategies.

Keywords: COVID-19, Coping styles, Subjective Well-being, Civil aircrew

INTRODUCTION

The emergence of the novel coronavirus (COVID-19) has led to the widespread pandemic that stalled the world. After the lockdown was declared in India on March 25, 2020 air transportation had come to a standstill. With the resumption of services and humanitarian flights (Vande Bharat Mission) amid COVID-19 by the commercial airlines, civil aircrew became vulnerable

to infection.[1] These flights posed a herculean task for the aircrew as they were required to operate with PPE and undertake COVID-19 tests before and after a flight in the initial stage of the pandemic. Despite that, about 60 pilots involved in the mission tested positive for the virus.[2] The protocols and procedures were specific to each geographic region and were subject to change frequently which further led to confusion among the aircrew.[3] To operate in such adverse circumstances, the civil aircrew would require effective coping skills for safe flying.

Lazarus and Folkman have explained coping as persistently shifting cognitive and behavioural efforts that is intended to master particular external and internal expectations, evaluated by an individual as aggravating or greater than one's resources. Coping can thus be defined as a variety of cognitive and behavioral strategies individuals use to manage their stress. It was understood that, to make coping effective, individuals need to be flexible and adjust to the conditions, as per the context of the situation.[4] The literature has broadly categorized coping behaviors into certain dichotomies such as problem-focused versus emotion-focused coping, functional versus dysfunctional and adaptive versus maladaptive coping. Hence, the present study considers it necessary to ascertain the coping styles of the civil aircrew as well as examine their subjective well-being in the context of COVID-19 pandemic. It also appears to be the need of the hour, as the highly contagious nature of the virus has created panic and distress among people. Efforts made to identify and study the coping styles and well-being can aid in recognizing the current state of mental health and help adopt healthy coping skills.

MATERIAL AND METHODS

Study sample

The sample consisted of $n = 100$ civil aircrew and cabin crew from scheduled airlines who operated during COVID-19. The inclusion criteria were (a) Indian citizens with authorized flying licenses, (b) civil aircrew flying in scheduled operations, and (c) civil aircrew flying during COVID and involved in relief operations/repatriation ops. The sample consisted of 52 civil pilots who flew in the first wave and 48 civil pilots who operated during the second wave.

Materials

The carver Brief COPE inventory

This tool was used to identify the coping strategies adopted by the aircrew. The Coping Orientation to Problems Experienced Inventory is a 28-item multidimensional measure of strategies developed by Carver (1997). It is used to understand the coping or regulating cognitions in response to stressors. This inventory is comprised of items that assess the frequency with which a person uses different coping strategies rated on a scale from 1, "I haven't been doing this at all," to 4, "I've been doing this a lot." There are 14 two-item subscales within the Brief COPE for each coping style. Thus, the minimum and maximum possible scores that can be obtained for each subscale are 2 and 8, respectively. This scale included positive reframing, planning, active coping, use of emotional support, use of instrumental support, acceptance, religion, and humor as adaptive coping strategies; as well as venting, denial, substance use, behavioral disengagement, self-distraction, and self-blame as maladaptive coping strategies. Item-total correlation coefficients and Cronbach's alpha coefficients which is ≥0.70 are found to be good internal consistency.[5] The Cronbach's alpha was not recommended when there were only two items per variable; the low internal consistency of the acceptance was reiterated in several studies. Thus, it was recommended to exclude it from the analyses.[6]

WHO-5 Well Being Index

This tool was used to assess the subjective well-being of the participating aircrew. The 5-item WHO Well-Being Index (WHO-5) is a short and generic global rating scale measuring subjective well-being. The respondent is asked to rate how well each of the five statements applies to him or her when considering the past 14 days. Each of the 5 items is scored from 5 (all of the time) to 0 (none of the time). It has satisfactory reliability ($\alpha = 0.90$) and convergent and factorial validity.[7,8]

Demographic inventory

A demographic inventory designed *ad hoc* by the researchers was also administered. This inventory also had certain open- and closed-ended questions for qualitative analysis and to obtain relevant information, like, "are there any financial constraints on you?" and "how comfortable are you while flying with a PPE kit?

Study protocol

The study was designed as an empirical study with cross-sectional sampling based on the survey method. The study protocol was approved by the Institute Ethics Committee. The data was collected electronically and manually as per convenience from aviators who have volunteered to become participants on the condition of anonymity and assuring confidentiality. Data was collected during the first and second waves of the pandemic. A good rapport was established with the participants and the study protocol was explained in detail. Informed consent was obtained from each participant before the administration of the test. Participants were administered the demographic inventory and the questionnaires which took about 10 min to answer all the items.

Statistical analysis

The data collected over 10 months were entered into a Microsoft Office Excel Worksheet and then exported to Statistical Package for the Social Sciences software – V23 for analysis. Validity checks, normality, and descriptive statistics were drawn for the sample on all the variables. For the raw scores obtained on the COPE inventory, for example, if an individual responds as 3 or 4 for a given statement, they are considered to be using that particular strategy as one of their coping strategies, contrastingly, a score of 1 or 2 given by an individual for a particular strategy is not considered as one of the core coping strategies. "*t*"-test was used to find if there were any differences in the coping strategies utilized by the aircrew in the first and second waves of the pandemic. Parametric analysis was carried out because the typical Likert scale may seem ordinal as it has been used by respondents to rate the degree to which they agree or disagree with a statement. Although in an ordinal scale, responses can be rated or ranked, the distance between responses is not measurable. Moreover, parametric tests not only can be used with ordinal data, such as data from Likert scales but also parametric tests are generally more robust than non-parametric tests. For the qualitative analysis, percentages were drawn for the responses obtained on various open- and closed-ended items.

RESULTS

The mean age and flying experience of the sample was 43.74 ± 10.36 and 17.34 ± 11.66 years, respectively. Further, the sample consisted of 84 males and 16 females. The descriptive statistics of the coping strategies used and the well-being of the sample are depicted in [Table 1].

It was observed [Table 1] that acceptance and active coping, the adaptive coping strategies, were the two most used by the aircrew. Other adaptive coping strategies used frequently were positive reframing and planning. Self-distraction, although a maladaptive coping strategy, was also found to be used often. The least used coping strategies in the sample are maladaptive coping strategies such as self-blame and substance use. Denial and behavioral disengagement were other maladaptive coping strategies found to be used minimally. The mean well-being of the sample was found to be 80.4 ± 13.14. This score is referred to as a percentage score and was obtained by multiplying the raw score with 4. A percentage score of 0 represents the worst possible, whereas a score of 100 represents best possible quality of life. Hence, the current well-being score of the sample indicated a high level of general well-being.

To understand the relationship between well-being and the various adaptive as well as maladaptive coping strategies, Pearson product-moment correlation was computed. Various adaptive coping strategies such as positive reframing, planning and seeking social support, active coping, use of emotional and instrumental support, acceptance, religion, and humor did not yield a significant relationship with well-being. Among the maladaptive coping strategies, bivariate correlations were performed with well-being. It was found that venting ($r = -0.453^{**}$, $P < 0.01$), substance use ($r = -0.307^{**}$, $P < 0.01$), and behavioral disengagement ($r = -0.197^{*}$, $P < 0.05$) were found to have a significant negative relationship with well-being. However, the level of association was found to be moderate to weak.

[Table 2] presents the most frequently and least used coping strategies in the first and second waves. It was observed that adaptive strategies were used most frequently and maladaptive styles were used least frequently during both the waves.

Independent sample *t*-test did not reveal any significant difference among the coping strategies used by the civil

Table 1: Descriptive statistics of coping strategies and well-being.

S. No.	Variables	Mean	Min.	Max.	Range
1.	Positive reframing	5.63±1.63	2	8	6
2.	Planning	5.36±1.72	2	8	6
3.	Active coping	5.98±1.39	2	8	6
4.	Use of emotional support	4.49±1.78	1	8	7
5.	Use of instrumental support	4.40±1.83	2	8	6
6.	Acceptance	6.56±1.40	2	8	6
7.	Religion	4.44±1.84	2	8	6
8.	Humor	3.22±1.43	1	8	7
9.	Venting	3.18±1.17	2	6	4
10.	Denial	2.50±1.02	1	6	5
11.	Substance use	2.17±0.71	1	6	5
12.	Behavioral disengagement	2.54±1.24	1	8	7
13.	Self-distraction	5.02±1.49	2	8	6
14.	Self-blame	2.16±0.46	2	5	3
15.	Well-being	80.48±13.14	28	100	72

Table 2: Mean values of most frequently and least used coping strategies in the first and second waves.

Adaptive coping strategy	First wave (*n*=52)	Second wave (*n*=48)
Acceptance	6.71±1.30	6.39±1.49
Active coping	6.00±1.40	5.95±1.41
Positive reframing	5.53±1.67	5.72±1.59
Maladaptive coping strategy		
Denial	2.38±0.97	2.62±1.08
Behavioral disengagement	2.48±1.27	2.60±1.21
Substance use	2.19±0.71	2.14±0.71
Self-blame	2.09±0.29	2.22±0.59

aviators during the first and second waves of COVID-19. However, for self-blame, which is a maladaptive strategy, a difference in the variability was found between the first and second waves as indicated by Levene's test for equality of variances but the sig. (two-tailed) value was 0.15, which indicated that there was no statistically significant difference, $t(68) = -1.40$, $P = 0.15$, between the two waves for this entity.

The qualitative analyses of the responses obtained to the open-ended items are given in [Figures 1 and 2]. In the sample, 54% of the aircrew reported that financial constraints were placed by the airlines. Concerning comfort, while flying with a PPE kit, 38% of the sample reported PPE kit to be uncomfortable. The policies and regulations about the COVID protocols were reported to be frequently amended by airlines and regulatory authorities, leading to ambiguity in the crew.

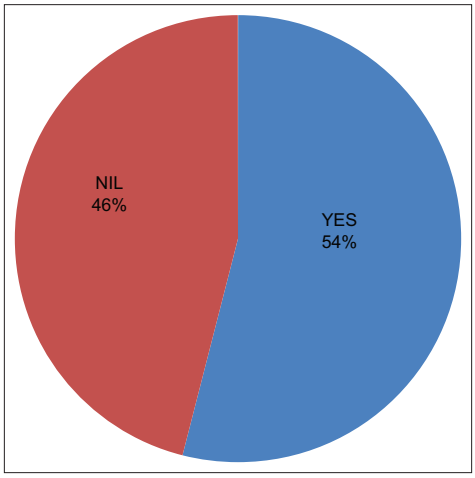

Figure 1: Financial constraints reported by the sample (*n*=100).

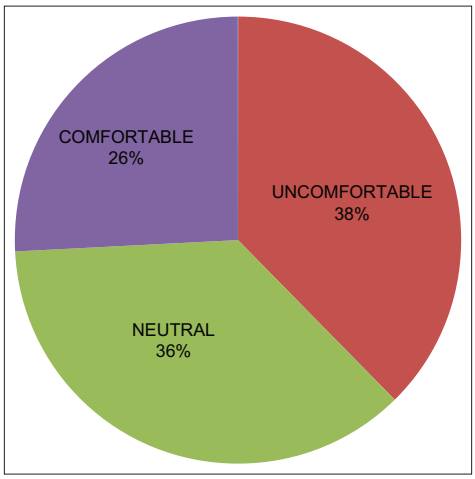

Figure 2: Comfort in flying with PPE kit as reported by the sample.

DISCUSSION

The present study was undertaken with two main objectives. The first was to measure the different types of coping strategies that the civil aircrew used in response to various stressors while operating during COVID-19 and to understand their level of subjective well-being during the same situation. The second was to examine the differences in the coping styles adopted by the civil aircrew flying during the first and second waves.

Descriptive statistics revealed that the participating aircrew reported using adaptive coping strategies more often. Predominantly used coping strategies were acceptance, active coping, positive reframing, planning, and self-distraction. Out of these, only self-distraction was a maladaptive strategy.

Accepting the reality that has happened and learning to live with it is acceptance.[9] Acceptance is a functional coping response, in that a person who accepts the reality of the stressful situation would seem to be a person who is engaged in the attempt to deal with the situation. It impinges on two aspects of the coping process. Acceptance of a stressor as real occurs in primary appraisal. Second, acceptance of the absence of an active coping strategy relates to secondary appraisal. Further, as the acceptance style is emotion focused, it aims to prevent or reduce emotional anguish caused by a stressful situation.[10] Active coping is the core of problem-focused coping which occurs at the coping phase to execute a response. It involves doing something to alter the source of stress and taking action to try to make it better. Positive reframing entails attempting to perceive a situation from a new perspective to make it appear more positive and, as a result, look for something positive in it. Planning, perhaps, has been used by the current sample to try and come up with actionable strategies, thinking about what steps to take and how best to handle the problem. Planning occurs during secondary appraisal of stress coping which is the process of bringing to mind a potential response to a threat.[9]

The least utilized coping strategies found among the sample are self-blame, substance use, denial, and behavioral disengagement. These are dysfunctional styles (maladaptive) and focus on venting emotions. These maladaptive coping styles along with denial are considered second-order coping strategies of avoidance.[9]

The findings suggest that Indian civil aviators in our study have preferred adaptive coping strategies and have utilized acceptance and active coping over maladaptive strategies when coping with stress. Furthermore, civil aircrew have been found to adopt emotion-focused and problem-focused methods. This flexibility of utilizing both styles which are conceived as adaptive coping strategies indicates a variance that could possibly be attributed to dispositional and cultural differences as well as to the controllable nature of the stressor. Aircrew would be carrying "dispositionally" preferred coping styles with them to encounter stressful situations. It means that whatever the circumstances, aircrew utilizes a set of coping styles that are relatively permanent or fixed.[10] This variation also indicated that the Indian civil aircrew perceived the pandemic as a controllable stressor and, hence, adopted active coping.

Our results are consistent with what has been brought out in the previous studies.[11,12] A study done on Indian military pilots found that acceptance was one of the predominantly used coping and denial was one of the least used. Acceptance, which is an emotion-focused coping strategy, tends to be present in a collectivistic culture like that of India. Another study by Picano also brought out that American pilots used a very active, problem-solving approach to coping, and were higher on acceptance in comparison to the general population.[13] Further, a study looked at pilots taking part in peace missions overseas and tried to understand the relationship between the resilience personality traits and successful coping in difficult situations. They found that pilots had higher scores in rational coping strategies such as planning, positive reinterpretation and growth, and active coping.[14] Another study that assessed stress, fatigue, and coping strategies among airline engineers and pilots found that the problem-solving approach to coping with stress was used most frequently by all respondents.[15] A recent study of coping among urban home isolated patients with COVID-19 in India also showed active coping and positive reframing as some of the more frequently used positive coping strategies.[16] This study, however, also had a contrasting finding with denial and self-blame being used highly among the negative coping strategies. This was unlike the present study where these maladaptive coping strategies were used minimally by our participating civil aircrew population.

The Well-being score of the sample indicated the high level of general well-being while operating in the pandemic too. To better understand the relationship between coping styles and well-being, Pearson product moment correlation was carried out. It was observed that there was no significant relationship between well-being and adaptive coping strategies. However, certain maladaptive coping strategies such as substance use, venting, and self-blame were found to have a significant negative relationship of weak nature. This result highlights the differential contribution of each of these coping styles to well-being: Acceptance of negative circumstances that are not possible to be modified and active coping to resolve situations that can be modified.[6] This finding is also consistent with the results of the previous literature[17] which found that negative coping was correlated with a lower level of psychological well-being. Earlier studies also steadily found that positive coping (which includes adaptive coping strategies) had a positive correlation with greater psychological well-being.[18-20] The weak correlation indicates that the sample is homogeneous and aircrew in this study made efforts to "not being negative" than focusing on "being positive" which is an unreasonable standard to meet while flying in the pandemic like COVID-19.

The pattern of associations obtained in the study with relative weak intercorrelations within the coping styles and with well-being is interesting. This finding supports the assumptions made by Carver *et al.* that individuals dealing with stress, experience a relatively wide range of coping impulses, including both sides of mutually exclusive dichotomy such as acceptance and denial.[10] Further, the coping styles are separable empirically in COVID-19 context and thus their effects could be studied separately. The findings of the present study can be seen in light of the stress appraisal theory.[21] According to this theory, the primary appraisal involves determining whether a stress pose any threat, whereas, the secondary appraisal has to do with the individual's evaluation of the resources or coping strategies at one's disposal for addressing any perceived threat. For example, an aircrew scheduled for flying duty during the pandemic, may first appraise the situation as stressful or deny that the situation poses any threat (primary appraisal). Further, on perceiving the situation as stressful, he/she may decide which coping strategies to use, such as acceptance and active coping (secondary appraisal).

Further, there was no significant difference in the pattern of preferences in the aviators who have operated in the first and second waves. The authors of the present study had no control over the nature of stress (pandemic) while collecting data as the aircrew were reporting at different stages of stressful transactions. Therefore, the participating civil aircrew reported a relatively fixed "dispositional" style of coping while operating in the pandemic.

The qualitative analyses of the responses obtained to the open-ended items brought out that there were financial constraints placed by the airlines and they ranged from airlines making changes in the job contract, Leave Without Pay, reduction in pay by 60%, and losing jobs. The constant changes in protocols were found to be destabilizing. The frequent RT-

PCR testing was reported to be frustrating and stressful. Wearing the PPE kit to fly was found to be uncomfortable by 38% of participants. The sample also reported that the size of the PPE kit was required to be one size larger than normal for free movement of limbs in the cockpit. However, the airline authorities subsequently amended the policy on flying with a PPE kit to wearing a mask and gloves; hence, the change in PPE kit was not operationalized.

CONCLUSION

The results of the present study brought out that the Indian civil aviators were flexible in utilizing the adaptive coping which were emotion and problem-focused styles such as acceptance and active coping. The least preferred styles were maladaptive coping. The general well-being was found to be high, indicating "positive affect and high level of functioning." No significant differences in coping styles were also observed between the first and second waves of the pandemic. Overall, it was evident that the Indian civil pilots had relatively permanent dispositional adaptive coping strategies. Further, adaptive coping strategies used to handle stress allowed to maintain positive mental health and increased well-being among the sample of civil aircrew.

The study helps in understanding the techniques used by Indian civil aircrew to cope with stress and specific to discharging flying duties during a pandemic. The results highlight the crucial aspect of health promotion in aviation industry. The skill of dealing with stressful and difficult circumstances needs to be widely promoted, to help aviators, handle stressful situations better. Future studies may focus on the interactions between personality dispositions and coping styles specific to a stressor as the present study is limited to only coping styles and well-being.

Acknowledgment

The authors wish to thank Gp Capt YS Dahiya for his constant support and encouragement during the course of this work.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

Financial support and sponsorship

Nil.

Conflicts of interest

Dr NK Tripathy and Dr. Stuti Mishra are the Ex Officio members of the Journal. They do not have any conflicts of interest.

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How to cite this article: Chaturvedula S, Thattil A, Mishra S, Tripathy NK. Coping styles and subjective well-being of Indian civil aircrew in the context of COVID-19. Indian J Aerosp Med 2022;66:32-8.