

Worry, perceived discrimination, lifestyle changes and protective factors among recovering patients of COVID-19: A mental health intervention based study in Delhi, India

Sramana Majumdar¹, Pragya Acholia, Simran Saraf, Siddhant Khurana

Abstract

COVID-19 has affected people all over the world. For those who were infected by the virus, the repercussions go beyond immediate medical conditions to include social stigma, fear, uncertainty, and significant changes to lifestyle. This study was conducted as part of a mental health intervention (COVID Response) with individuals who had been diagnosed with coronavirus and had completed the minimum 14 day isolation period, in the city of Delhi, India. Through a survey conducted telephonically, we assessed levels of worry, current mood, protective factors like social support and availability of adequate medical care, lifestyle changes made through the phase of diagnosis and recovery, perceived discrimination faced due to the diagnosis, and the willingness to donate blood plasma to help other patients affected by the virus. Results indicate that worry differed significantly across groups with differences in lifestyle changes, reported mood, availability of medical care, and the willingness to donate plasma. The findings provide an understanding of the psychosocial factors that may contribute to sustainable coping with the pandemic and its ongoing consequences.

Keywords: Covid-19, Worry, Mood, Social support, Discrimination, Recovery

¹ Sramana Majumdar, PhD, Assistant Professor, Department of Psychology, Ashoka University, Sonapat, India, sramana.majumdar@ashoka.edu.in

1. Introduction

The COVID-19 pandemic has resulted in a global health crisis. The virus has affected 214 countries across the globe and caused over a million deaths worldwide (Worldometer, 2020). With a population of 1.35 billion people in a developing country like India, a surge in the number of COVID cases has put immense pressure on an already overburdened healthcare system (Dubey et al., 2020). The lack of appropriate healthcare infrastructure in such a densely populated country has caused worry and panic among the masses who feel helpless due to the inadequacy of protective measures (Roy et al., 2020). Yet, this is not a one-off case and several countries have struggled to cope with the sudden and unprecedented repercussion of the pandemic (Kmietowicz, 2020; The Lancet, 2020). Beyond the physical health of the masses, the pandemic has had detrimental effects on the psychological well-being of people all over the world (Torales et al., 2020; Kumar & Nayar, 2020; Kazlauskas & Quero, 2020; Roy et al., 2020). The psychosocial outcomes of being diagnosed with coronavirus and its short term and long term consequences are increasingly becoming evident. New research in the United States found that a COVID-19 diagnosis was associated with an increased risk of a subsequent psychiatric diagnosis in nearly 20% of patients (Taquet et al., 2020). This calls attention to the continuing psychological effects of coronavirus and a need for suitable post-treatment care. Balachandar et al. (2020) emphasize the need for follow-up care and research with recovering COVID-19 patients which can better inform current health practices as well as preparedness models for the future. Our paper investigates this further while presenting findings on multiple psychosocial health indicators that were self-reported by individuals who had been diagnosed with the virus

previously and were in the process of recovery. The findings highlight lived experiences of the pandemic that can provide useful insights for health initiatives globally, as we continue to design effective rehabilitation for those who have suffered from the virus.

1.1 Psychosocial and mental health factors during recovery

The necessary measure for prevention and treatment of COVID-19 entails a period of quarantine, which may include home-isolation, isolation in quarantine centers, or hospitalization in cases of escalated severity or comorbidities. Quarantine and isolation have been associated with negative psychological outcomes during previous outbreaks of communicable diseases like Severe Acute Respiratory Syndrome (SARS) and Ebola which also required the patients to be quarantined. Patients were irritable, fearful of transmission to other family members, lonely, frustrated, anxious, depressed, sleep-deprived, and showed signs of suicidal ideation (Brooks et al., 2020; Robertson et al., 2004; Jeong et al., 2016; Liu et al., 2012). Symptoms of post-traumatic stress disorder (PTSD) have also been linked to the period of quarantine as the patients may experience the stress of uncertainty about their health condition in isolation along with stigmatizing attitudes from society (Reynolds et al., 2007).

Recent studies investigating the current COVID-19 pandemic have found similar patterns of a widespread increase in mental health problems, as well as psychological fear-related responses (Amsalem et al, 2020). According to various studies done on the Chinese population during the initial months of the year 2020, the spread of this viral disease was associated with anxiety, depression, distress, sleep disturbances, and suicidality (Ornell et al., 2020; Shigemura et al.,

2020; Wang et al., 2020; Qiu et al., 2020). Similar findings have been reported from other parts of the world (UK, USA, and elsewhere) corroborating the negative psychosocial health outcomes of the pandemic (O'Connor et al., 2020; Holman et al., 2020). In an online survey of the Indian population by Grover and colleagues (2020), using a sample of 1685 respondents, the prevalence rates of depressive symptoms according to the cut-offs of the PHQ-9 (Patient Health Questionnaire) was found to be 10.5% and for anxiety according to the GAD-7 was 38.2%. The level of stress was found to be moderate for 74.1% of the respondents and 71.7% of respondents reported poor levels of well-being.

Of the several psychosocial correlates, one of the most widely reported has been anxiety and worry (Taquet et al., 2020). The fear of being infected as well as the levels of worry after being diagnosed have consistently been high across reports (Schimmenti et al. 2020). The nature of the disease, the fatality and uncertainty, the likelihood of infecting others, continued effects of the virus, confusing and contradicting evidence about the remission and resurgence of symptoms, possible stigma and job-related uncertainties are all reasons for increased levels of worry (Bagcchi, 2020; Bhattacharya, at.al., 2020; Godlee, 2020). Though closely related, worry and anxiety are distinct psychological constructs, with worry implying a more cognitive state of overthinking about possible future outcomes, usually without immediate somatic symptomatology (Zebb & Beck, 1998). We therefore chose to measure levels of worry among the callers who were recovering from coronavirus as a general, non-psychiatric indicator of coping with their present circumstances. Mood and affect states have also been associated with perceived threat from the pandemic and as an outcome of isolation (Pérez-Fuentes et al., 2020).

However most of this literature has focussed on a general population that was affected by pandemic related lockdown and we do not have adequate information on how mood states and levels of worry might shift in the period of recovery and post-recovery from the virus. It is also important to point out that while the immediate medical effects of the virus are believed to cease after about 14 days, this has not been a uniform experience (Balachandar et al., 2020). For instance, Lan et al. (2020) found in their case studies with four patients who had been diagnosed with the disease and had been cleared for discharge post-hospitalization, that they tested positive for the virus upto 13 days after discharge. Moreover, those who might not actively show symptoms, still have to live through the ongoing pandemic (and related lockdown), return to social and professional life, all of which could be anxiety producing and make them vulnerable to being stigmatized (Gupta et al., 2020)

COVID-19, with its high rates of contagion, has automatically become associated with social stigmatization, disproportionately affecting marginalized communities, similar to previous outbreaks like SARS and tuberculosis (Bhattacharya et al., 2020; Singh & Subedi, 2020; Siu, 2008; Villa et al., 2020). Speculations about refugees and immigrants being the source of this infection have also surfaced (Slater, 2020). Many domestic workers and daily wage laborers in India had their jobs discontinued indefinitely due to the fear of infection, causing them to go without pay for months. Losing jobs can exacerbate strife, adding to frustration, depression and anguish (Subbaraman et al., 2014). When selected communities are stigmatized, they tend not to reveal their experience of symptoms and hide important medical and travel history which delays the reception of medical attention and increases the peril of virus transmission. The fear of

infection and stigmatization in India has resulted in 'health crimes' (Dubey et al., 2020) with instances where healthcare workers going for community testing in Indore fell target to the wrath of a stigmatized community ("Covid-19: doctors gone to collect samples attacked in Indore" - The Times of India, 2020) and people were beaten to death for informing medical help centers about probable cases with a travel history ("Bihar man beaten to death for informing Covid -19 medical help center about arrival of two people from Maharashtra" - The New Indian Express, 2020). Societal rejection during the quarantine period in the form of suspicion, discrimination, avoidance, prejudiced attitudes in the workplace, and social withdrawal from events and gatherings can have an acute psychological impact on the recovered patients (Brooks et al., 2020). Some studies from Australia and UK have suggested that the perceptions of social and financial changes are more significantly related to detrimental mental health effects when compared to the fear of catching the virus (Dawel et al., 2020; Holmes et al., 2020) Therefore, perceived social discrimination and non-reporting of symptoms amongst infected individuals and its relationship with their reported states of worry are important psychosocial factors that can highlight the lasting consequence of COVID-19. The disease-associated stigmatization of the survivors of the SARS outbreak in 2003 lasted years even after their recovery and remarkably hampered the reinstatement of their normal social life and usual customs (Lee et al., 2005; Person et al., 2004; Siu, 2008; Dubey et al., 2020).

The pandemic in general and the quarantine period during recovery can bring about certain lifestyle changes. As positive compliance measures like handwashing and social distancing become mandatory for all, for those who are infected, they can hold particular significance.

While many patients feel grateful for surviving the disease and may therefore adopt positive lifestyle changes, others feel extreme guilt for being carriers which could also lead to compliant behaviors (Dehkordi et al., 2020). People suffering from anxiety during their period of quarantine may adopt unwanted lifestyle changes like repeated sterilization, obsessive-compulsive handwashing and body temperature checks (Li et al., 2020). This anxiety can also result in dietary modifications under influence of rumors about unproven cures spreading through social media platforms, which can have serious effects on the mental health of the ones exposed to unverified information (Banerjee, 2020). However, lifestyle changes can be a positive coping mechanism that can have significant associations with worry and mood. Moreover, social support and resilience factors can play an important role in the isolation and recovery periods. Social support is reported to have increased during lockdown (El-Zoghby et al., 2020) and is negatively associated with anxiety (Labrague & De los Santos, 2020).

Overall, the COVID-19 outbreak poses many challenges physically, socially, economically and as a consequence, mentally. It is capable of evoking an existential anxiety that threatens one's accustomed identity and sense of place in the world for those infected (Peteet, 2020). These recent results call for further investigation of the psychosocial outcomes and mental health concerns of those infected with the virus, which have been explored in this study. Limited studies have documented experiences of COVID-19 patients at different stages, however, in order to highlight the ongoing nature of the experience and the potential after effects of the disease, we specifically selected participants who were in the recovery phase (Dehkordi et al., 2020; Sun et al., 2021). The present study focused on patients who had completed the 14 day quarantine

period at the time of the study after being infected by the virus. The uncertainty of complete remission of the disease post-recovery and the unpredictability of a relapse can cause patients to experience indefinite stigmatization and discrimination. A study by Roy and colleagues (2020) found that when participants were questioned about the inclusion of recovered COVID-19 patients back in society, they reflected significant fear, apprehension, and possible stigma associated with their health condition. Therefore, it is important to look at how individuals themselves are coping with these ongoing challenges to further inform interventions and health policies. Extending the present literature on COVID-19 related difficulties, we assessed levels of worry, current mood, perceived discrimination, reported social support and lifestyle changes along with the willingness to donate plasma to help other patients.

2. Method

2.1 Background

Due to the unprecedented nature of the pandemic several governmental and non-governmental organizations developed rapid action programs to address the growing anxiety and uncertainty across all sections of the Indian society. COVID Response team (consisting of three non-profit organizations working in the area of mental health) along with Governmental medical agencies came together to provide mental health assistance to residents of Delhi and the surrounding region (also called the National Capital Region or NCR). Residents called in via an open and free helpline to speak with trained counsellors and discuss their fears and anxieties brought about by the pandemic, through the first few months of the lockdown. A second phase was initiated in July

and August 2020, wherein counsellors reached out to residents who had been diagnosed with COVID-19 with the help of a Government database. These were recovered or recovering patients of COVID-19 who had been registered onto the database at the time of their testing and diagnosis. The main aim of this initiative was twofold- firstly this was a follow-up effort to provide mental health support to those who had been diagnosed with coronavirus and were presently recovering from the infection. Secondly, this was also a means of reaching out to seek assistance for the blood plasma donation drive that was being tried out as a potential safeguard against the virus at that time (“COVID-19 Convalescent Plasma Donation” - Delhi Fights Corona, 2020). The data presented in this paper consists of respondents who were contacted during this phase in the month of August 2020.

2.2 Participants

Participants were recruited through the telephonic helpline that was part of the COVID Response initiative. Through the months of July and August 2020, counsellors reached out to residents who had tested positive for coronavirus and had been in either of the three types of quarantines (home, hospital, non-medical institutions or special COVID care setups) as mandated by the Delhi Government. Data was collected from 707 patients who responded to the telephonic calls upto August 2020. After cleaning the dataset, a total of 511 participants’ data was included in this study. 165 participants identified as female, while 346 were males. The age of participants ranged from 20 to 89 years, with a majority of participants being in the 20-39 age range. 62% of the participants were in the age group ranging from 20-39 years. 32% were in the age group of

40-59 years. Only 6% of the patients were above the age of 60 years. A majority of the participants (83%) had been in home isolation during the 14 day recovery period.

Insert Table 1.

2.3 Materials

A comprehensive online survey was constructed using Google Forms to measure the relevant conditions. The measures were built on information collected previously through the same helpline, wherein callers responded to questions on mood, sleep patterns, availability of support factors like medical care and family. The earlier survey was conducted with individuals from the general population who were calling in on the helpline during the lockdown, and were not patients of COVID-19 specifically. We retained some of these measures and added new measures of worry and perceived discrimination for the second round of data collection with recovering participants. After collecting demographic information, we asked about the current mood of the caller. Mood was measured by presenting 10 options of mood states (Shacham, 1983; McGuirk, 2012) ranging from negative (helpless, stressed, irritable) to positive (hopeful, relieved and supported). We used one item to measure levels of worry, which was adopted from the state anxiety scale (Marteau & Bekker, 1992; Gosselin, 2013). This was modified to ask how worried the respondent felt at the time of the call when compared to the time of diagnosis. This was measured on a scale from one to five, with one being no feelings of worry and five indicating high levels of worry. Sleep pattern post-recovery was measured by one item that asked respondents to report how comfortable their sleep was on a scale of one to five, with one being not at all and five being very much. This was followed by another question on sleep that asked

participants to indicate reasons for discomfort (nightmares, insomnia, physical changes through recovery, effects of medicines, etc). We asked about the respondent's willingness to donate plasma (yes, no, maybe), if yes then we recorded the reasons as well as any perceived risk factors in donation (pregnancy, substance use, diabetes, etc.). The next item enquired whether the participant had made any lifestyle changes (yes/ no/ prefer not to say), if yes then what kind of changes specifically (physical activity, meditation, eating healthier food, sleeping well, quitting smoking and reduced consumption of alcohol). We asked about perceived discrimination with three questions (i. Did you face any discriminatory behavior post your diagnosis from your community or peers? ii. Did you hide your diagnosis in order to avoid discomfort or discrimination from your community or peers?, iii. Did you observe any changes in people's attitudes towards you post-recovery?). We asked participants to report available protective factors with four options- i) support of family and friends, ii) availability of adequate medical care, iii) mental health and emotional support and iv) financial stability. Lastly, the counsellors did a quick mood check with the same list of mood states followed by conclusive remarks and follow up instructions before ending the call.

2.4 Procedure

Post-recovery mental health support calls were made to patients who had recovered from COVID-19 and expressed their interest in the call by responding to a broadcast text message. Thus, participants consented to take part in the study by opting in. As the counsellors spoke to participants, all ethical measures were followed and caution was taken to give full disclosure about the purpose of the call and the intent of the helpline. The form was in English and the

counsellors used both English and Hindi in their verbal communication with the callers. Following initial rapport building, they inquired about the topics covered in the online survey with particular focus on our five main psychosocial factors. The survey was distributed among counselors through Google Forms and took about ten to fifteen minutes to complete. However due to the nature of the assistance program and data collection by counsellors while on the helpline call, it was kept completely voluntary and as less intrusive as possible. Data collection was designed keeping in mind the health status and possible related distress of the respondent, and the sensitive nature of some of the questions. Participants could choose to not respond to any question that caused discomfort.

2.5 Analysis

The data was sorted in Microsoft Excel and analyzed with the use of R programming language and statistical software. Worry and sleep pattern post-recovery were measured on a five point scale. Most of the measures were coded into categorical variables corresponding to the options- Perceived discrimination was coded from 0 to 2 respectively for yes, no and prefer not to say. Lifestyle change was also coded as a categorical variable with responses ranging between yes, no and prefer not to say. Willingness to donate plasma was similarly coded across yes, no and maybe/undecided. Lastly, there were four protective factors, namely support from family and friends, adequate medical care, emotional support or mental health assistance and financial stability. Each of these factors was coded as a categorical variable for the analysis. Along with descriptives, we conducted bivariate and multivariate analysis (ANOVA) to identify possible

associations between the five main psychosocial factors as well as the covariates of age, gender, and location of isolation.

3. Results

3.1 Descriptives

Insert Table 2.

Table 2. includes the frequencies for all the psychosocial factors. Most participants (72%) reported positive mood outcomes in terms of current feelings. Common descriptors included relieved, satisfied and supported. However, 16% of participants had negative feelings of anxiety, stress, and tension. 12% reported mixed feelings, with many participants feeling relieved but also feeling tired or bored. Worry was examined on a scale from one to five, with one being no feelings of worry and five indicating high levels of worry. Most participants had lower feelings of worry post-recovery as compared to when they were diagnosed with coronavirus. 36% of the patients reported no feelings of worry and 26% reported extremely low feelings of worry. Participants were asked to rate how comfortable their sleep was at present on a scale from one to five, with five being extremely comfortable, to which 70% reported having comfortable sleep while 15% indicated discomfort in sleep. Common reasons for sleep disturbances included feeling nervous or worried, insomnia, and physical changes post coronavirus diagnosis.

Eating healthier food and applying social distancing were among the highly reported lifestyle changes. Other major changes to everyday lifestyle adopted by participants post-recovery were avoiding public places, engaging in some form of physical activity, greater hand washing,

wearing protective masks and staying at home. 19% of participants reported not having any major changes to their lifestyle, while 10% preferred not to answer the question. It is possible that some of them were already taking appropriate precautions and thus did not report any changes post-recovery. In order to understand the stigma associated with being infected with COVID-19, callers were asked about discriminatory behavior and people's attitudes towards them. We observed that 66% of patients reported not facing any discriminatory behavior post their diagnosis from their community and peers and only 18% reported facing some form of discriminatory behavior, while others preferred not to answer the question. In terms of people's attitude towards them, no change was observed by 69% of the respondents. On the other hand, 18% reported a positive change and 13% reported a negative change in others' attitudes post-recovery. Additionally, we observed that 79% of the respondents did not feel the need to hide their diagnosis from their community or peers in order to avoid any discomfort.

Reporting of protective factors can be viewed in Figure 1. A significant proportion of respondents (90%) reported having support from friends and family. Furthermore, 54% said that they had adequate medical care, 39% indicated emotional support and/or mental health care and 32% reported having financial stability. While it is positive to know that many people received the support of their family and friends, it is also important to note that only 54% had adequate medical care. This could not be investigated further due to the nature of the data collection but it would be interesting to investigate whether other forms of support were considered more important than adequate medical care when it came to coping with the virus.

Insert Figure 1.

One of the factors explored in the survey was the willingness to donate plasma. Research suggests that those who have fully recovered from COVID-19 can donate their plasma to help currently ill patients as the convalescent plasma may contain antibodies for COVID-19 (Ye et al., 2020; Liu et al., 2020). Only participants who are eligible for general blood donation can donate convalescent plasma. This factor was included in the study due to the Delhi Government's emphasis on donation, particularly during the summer of 2020. However, looking into willingness to donate also provides insight into acts of prosocial behaviour, particularly in the context of the pandemic. We observed two extremes to the responses when exploring willingness to donate plasma. While 41% were not willing to donate plasma, 38% showed willingness to donate their plasma. The rest of the participants were unsure and indicated "maybe" as their response. The major motivation behind the inclination towards donation was the desire to help other coronavirus patients to recover faster, reported by 76% of those willing to donate. Moreover, 41% of total participants reported health concerns that hindered their ability to donate, such as diabetes, pregnancy, and low weight. This finding should be held with much caution as the information on blood plasma donation was not always clear and this could have affected the overall attitude and willingness to donate. Moreover, as this medical option did not become widely popular and has since been selectively implemented nationally and internationally, we have not delved into the analysis of this measure in detail hereafter.

3.2. Partial correlations and ANOVA

Insert Table 3.

Participant's reported age had a significant positive correlation with current mood, $r(509) = 0.11$, $p = .01$, willingness to donate plasma, $r(508) = 0.26$, $p < .0001$ and lifestyle changes, $r(453) = -0.11$, $p = .02$. Levels of worry were significantly associated with a number of factors, as seen in Table 3. Worry was significantly correlated with gender $r(509) = 0.15$, $p = .001$, current mood $r(509) = 0.25$, $p < .0001$, reported lifestyle changes after recovery $r(453) = -0.20$, $p < .0001$, perceived discrimination $r(509) = 0.16$, $p = .0002$, sleep comfort $r(509) = -0.17$, $p = .002$, willingness to donate plasma, $r(508) = 0.22$, $p < .0001$, and presence of adequate medical care $r(508) = 0.10$, $p = .02$. The associations were significant after controlling for gender as well. The other three protective factors were not associated with levels of worry. There was also a significant association between the reported current mood of the participants and perceived support of friends and family, $r(509) = 0.11$, $p = .01$. Comfortable post-recovery sleep had a significant correlation with lifestyle changes, $r(453) = 0.13$, $p = .004$, wherein lower sleep comfort levels were associated with making lifestyle changes.

Significant findings from the bivariate analysis were further explored using analysis of variance (ANOVA) in order to better understand the associations. Levels of worry differed significantly across age, $F(6, 504) = 2.66$, $p = .02$ with those in the age range of 70-79 reporting significantly higher levels of worry (mean = 4.33, SD = 0.58) than all other age categories. Means for levels of worry across each age group can be found in Table 4. It also significantly varied across gender, $F(1, 509) = 11.43$, $p = .001$, with women reporting (mean = 2.50, SD = 1.17) higher states of worry than men (mean = 2.12, SD = 1.17).

Insert Table 4., Figure 2. and Figure 3.

As seen in Figure 4, reported feelings of worry significantly differed depending on the current mood during the time of the call, $F(2, 508) = 42.68, p < .0001$. Participants who reported a negative current mood (mean = 3.25, SD = 1.14) had the highest levels of worry, followed by mixed feelings (mean = 2.44, SD = 1.18) and positive mood (mean = 1.99, SD = 1.11).

Insert Figure 4.

Levels of worry were also found to significantly differ when comparing those who made lifestyle changes after recovering from coronavirus and those who did not make any changes, $F(2, 504) = 14.93, p < .0001$. Participants who did not make any lifestyle changes (mean = 1.72, SD = 1.01) reported significantly lower levels of worry than those who made lifestyle changes (mean = 2.32, SD = 1.22) and those who preferred not to answer (mean = 2.75, SD = 1.23). This relationship between worry and lifestyle changes can be found in Figure 5. Lifestyle changes were also found to be linked with sleep comfort levels, $F(2, 504) = 5.32, p = .005$. Lower sleep comfort levels were reported by participants who indicated making lifestyle changes (mean = 3.82, SD = 1.26) when compared to those who did not make any lifestyle changes (mean = 4.22, SD = 1.08). The difference between those who did not make changes and those who preferred not to answer (mean = 3.63, SD = 1.09) was also significant. Figure 6 highlights that while the difference in sleep comfort was found to be significantly different between the two groups, it is important to note that both groups reported fairly high levels of comfort.

Insert Figure 5. and Figure 6.

Figure 7 showcases that worry also significantly differed depending on perceived discrimination reported by the respondents, $F(2, 508) = 14.14, p < .0001$. Pairwise comparisons highlighted that those who preferred not to answer (mean = 2.89, SD = 1.14) the question on discrimination had significantly higher levels of worry than those who answered yes (mean = 2.16, SD = 1.22) and those who answered no (mean = 2.11, SD = 1.18).

Insert Figure 7.

Among protective factors, levels of worry significantly differed when comparing those who reported having adequate medical care and those who did not, $F(1, 508) = 5.07, p = .02$. Participants who stated adequate medical care as a protective factor (mean = 2.13, SD = 1.19) reported lower levels of worry than those who did not report adequate medical care (mean = 2.38, SD = 1.23), as seen in Figure 8. Reported levels of worry differed significantly ($F(2,507) = 14.56, p < 0.001$) between those who were willing to donate plasma (mean = 1.98, SD = 1.13) and those who were not (mean = 2.58, SD = 1.27). There was also a significant difference between those who were not willing to donate and those who were unsure/undecided (mean = 2.07, SD = 1.09). These findings can be seen in Figure 9 and indicate those who were less worried were more willing to donate plasma when compared to those who indicated higher levels of worry. However, it is important to note that overall levels of worry were quite low (mean = 2.24, SD = 1.22).

Insert Figure 8. and Figure 9.

4. Discussion

Meta-analytic reports have now underlined high rates of pandemic related anxiety and worry globally (Salari et al., 2020). Yet, our findings showed that self reported worry during recovery was lower than at the time of diagnosis, with the majority participants reporting positive mood. This indicates a positive shift towards a more relieved and relaxed mental state, possibly because the uncertainty and fear of contracting the virus and its potential threat was already out of the way, corroborating findings from other contexts (Pérez-Fuentes et al., 2020). Sun et al. (2021) reported a similar trend among recovering patients where initial feelings of fear, distress, rejection and anxiety were replaced by calmness, resilience and gratitude through the recovery phase. This indicates that much of the anxiety around the virus is related to the fear of infection and anticipated threat from the virus, and sustained mental health follow-ups can add to the naturally occurring post disease growth. Secondly, most of the participants for this study had been in home isolation, thereby indicating less severe COVID symptoms, which could also be related to lower rates of worry. Those in the age range of 70-79 reported significantly higher levels of worry as compared to the other age categories. Older patients have been found to develop more severe symptoms and make up a higher percentage among deceased patients of coronavirus (Jin et al., 2020). Such a severity in condition or higher vulnerability due to age and health conditions could be one of the reasons for greater levels of worry. However, the levels of worry in the 80-89 age group were significantly lower than those in the 70-79 age range, which warrants further investigation. Adding to meta-analytic findings from studies with the general population, women were found to be more worried post-recovery (Kowal et al., 2020; Salari et al., 2020).

Worry was also associated with current mood with those indicating positive mood showing lower levels of worry. This is not surprising given that affect states are usually correlated with worry and stress in general (McLaughlin et al., 2007) and specifically with respect to the pandemic. Pérez-Fuentes et al. (2020) reported a similar pattern of anticipatory stress from threat of the virus which was closely related to negative affect states which further predicted irritation and apprehension.

An interesting finding was that levels of worry differed significantly across participants who reported making lifestyle changes during and after their recovery. Those who made these changes seemed to be more worried than those who did not. Making lifestyle changes was also associated with comfortable sleep post-recovery, with those who reported making changes also indicating poorer sleep. This has been reported previously by Solomou & Constantinidou (2020) who found a similar pattern of increased anxiety associated with following personal hygiene measures and health precautions concerning the pandemic. A certain degree of worry about contracting the disease again or infecting others could be related to following precautionary measures and making positive lifestyle changes more thoroughly. Worrying during the spread of an infectious disease can mediate the relationship between information seeking and compliance to safety protocols (Liu, 2020). Compliance measures are an important part of the overall public health discourse around the ongoing coronavirus and emphasizing positive lifestyle changes that are closely associated with good health in general, could be an effective message to further ensure sustained protective compliance. Along with media messaging on the importance of washing hands, use of sanitizers, wearing masks and so on, we recommend the use of messaging

around lifestyle changes like increased physical exercise, healthy eating and reduction in substance use.

Perceived support from friends and family was significantly associated with positive mood at the time of the call. Social support is an essential component of positive recovery, which has gained new meaning in the world of COVID-19. The pandemic has created stressful situations of isolation, loneliness and fear of contagion, which further exacerbates anxiety, depression and other mental health concerns (Coelho et al., 2020). During the lockdown, people also felt the need to talk to others and share their concerns, thus emphasizing the need to reach out to systems of social support (Roy et al., 2020). Therefore having the support of friends and family and being connected to them seems to be particularly integral to the recovery process (Sun et al., 2021).

Availability of adequate medical care was a significant factor in the differing levels of worry, with those who had medical care showing lower levels of worry. General health anxiety is correlated with anxiety around the virus and there has been a reported fear around inadequate and overrun medical facilities (Coelho et al., 2020; Thombs et al., 2020). Our findings highlight that the availability of medical support is a relevant and significant protective factor associated with reduced levels of worry among recovering and recovered coronavirus patients. Healthcare, especially during an ongoing pandemic, is effective when it is sustained and accessible (COVID-19 showed us the importance of access to quality healthcare without financial risks: UN Sec-Gen Antonio Guterres - Health News, Firstpost, 2020). Those who have recovered from the disease continue to live through the pandemic and therefore need the assurance of sustained care to relieve some anxiety and ensure coping.

We also found that those who were more worried were less willing to donate plasma. Our results support previous findings that anxiety is a common theme that emerges when non-donors account for why they do not donate blood (McVittie et al., 2006). Additionally, most of the respondents who were willing to donate . reported their reason as wanting to help other COVID positive patients. Prosocial motivations have been found to be a frequently self-reported factor in relation to reasons for blood donation in general (Bednall & Bove, 2011). Pandemics often create a sense of shared fate and suffering, which can accentuate prosocial behaviors towards others in the community, particularly towards those who are perceived to be going through the same experience (Van Bavel et al., 2020). Our findings are in line with this assumption. Varma et al. (2020) has also found that prosocial behaviour led to greater positive affect and social connectedness during the pandemic. However, some studies have reported that prosocial behaviors during the pandemic are associated with heightened anxiety among adolescents (Alvis et al., 2020). Moreover, it is to be noted that almost the same number of respondents were unwilling to donate as those who were willing. This could be largely due to health concerns as 41% of participants reported risk factors such as diabetes, hyperthyroidism and pregnancy that would make them ineligible to donate plasma. The lack of clear information on the blood plasma program and the general fear regarding blood donation could also be contributing factors.

There were several limitations to this study. Firstly the participant pool was restricted to those who responded to the calls and were available and willing to interact. This eliminated many individuals who had been infected and were not contacted in the process and resulted in a highly skewed sample in terms of age and gender (mostly between the ages of 20-60 and men). Secondly, as this was an intervention based real-time data collection process, the forms were

filled by counsellors based on their telephonic conversations with participants, responding to the counsellors instead of directly self-reporting. This is not ideal, but was the only way to reach a diverse population of COVID-19 patients in and around Delhi. Lastly, the multiple answer format preferred by counsellors was prioritized instead of scaled measures and we followed an exploratory design to accommodate a wide range of potential factors and opinions, which may have restricted the analysis beyond preliminary correlations. However, as the calls were also meant to be follow up mental health checks, counsellors were aware that intrusive or demanding scales would not be appropriate. We hope that some of the preliminary findings presented here can be taken up for further specialized research on assistance and intervention for recovery from coronavirus.

The findings highlight some of the complex, yet positive, psychosocial indicators among recovering patients of Covid. While levels of worry seem to decline, the necessity of medical care, the importance of lifestyle changes that continue to have a possible association with worry, and the relationships between social support and mood indicate the complicated nature of recovery from this novel disease. Beyond mental health implications, our findings are also aligned with general policy suggestions for an informed transition to recovery from the pandemic. We emphasize the need to share information internationally, to investigate the effects of the virus from a multi-sectoral and multidisciplinary approach, to have adequate follow-ups with recovered patients to better understand the still dubious long terms effects of the disease and in the process be more prepared for similar future occurrences (Balachandar, et al., 2020; Fakhruddin et al., 2020).

5. Conclusion

We as a global community are in the process of coping with and recovering from the unprecedented effects of COVID-19. Those who were directly affected by the virus have been susceptible to anxiety, stigma and a sustained state of uncertainty; as health experts continue to understand and document the often contradictory and novel after effects of the disease. When the COVID Response team came together, we were particularly interested in conducting this study simultaneously with the intervention program, to help develop better informed models of intervention. We had observed that there was a mushrooming of mental health assistance programs through the lockdown, many of which were not informed by appropriate strategies and credible health policies. Therefore we hope that this real-time intervention based study will provide a direction to programs in India and elsewhere that are working with communities affected by the virus. We want to highlight that recovering from the disease but living through the pandemic, can create many complex and contradicting psychosocial conditions; making positive lifestyle changes while also feeling a sense of worry, identifying or reporting discrimination and experiencing related worry and so on. Yet, protective factors like medical care and support of friends and family are significantly related to lower levels of worry and positive mood respectively, thereby emphasizing the importance of sustained institutional and social support during and after recovery.

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