ORIGINAL RESEARCH PAPER

Effectiveness of tele-counselling services among the suspected COVID-19 quarantined individuals with a history of international travel

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ABSTRACT

Background: A pandemic has a grave impact on the moral and social fabric of society. It affects the quarantined individual more by heightening their vulnerability. Psychosocial intervention is imminent to prevent the psychological breakdown of such individuals. **Objectives:** To investigate the effectiveness of tele-counselling services for psychological care among suspected COVID-19 quarantined individuals' with a history of international travel. **Method:** An experimental research study with pre and post without control among a cohort of 42 consenting adults who had an international travel history suspected to have COVID-19 were home quarantined for 28 days by the district administration were recipients of tele-counselling services. Institutional ethics committee approval was obtained. They were assessed on Self-Reporting Questionnaire (SRQ) at three-point of times, once at the entry, in the middle and once at the exit. **Results:** The present study found very high psychological distress during the initial assessment on SRQ, significant improvement in scores over the time points (pre and mid intervention ($t = 7.68$, $p < 0.001$), mid and post-intervention ($t = 9.68$, $p < 0.001$) and between pre and post-intervention ($t = 14.71$, $p < 0.001$), suggesting the effectiveness of tele-counselling were observed. **Conclusion:** Tele-counselling for mental health was found to be effective and should be made mandatory and implemented for all quarantined individuals.

Keywords: Quarantine, pandemic, COVID19, mental health, tele-counselling

INTRODUCTION

What was initially thought to be a cluster of pneumonia cases[1] in Wuhan, China in December 2019 turned out to be a virus infection. The infected people showed symptoms that varied from fever, coughing, breathing difficulties to shortness of breath, chest pain and abdominal discomfort to severe acute respiratory distress that required ventilator support. In early January 2020, a novel coronavirus (nCoV) was identified as the causative agent and an outbreak of viral phenomenon occurred in China and spread all over the world due to people travel in and out of Wuhan, China. Due to the massive number of people affected and died, World Health Organisation (WHO) announced the novel COVID 19 as a pandemic.[2] Following this announcement, many countries around the world have gone for lockdown, which is completely shutting down the activities and with very minimal movements in order to reduce the spread of COVID19.

The main source of cases of COVID-19 is those with travel history. The Indian government made a minimum compulsory self-quarantine of 14 days for returning Indians from foreign lands.

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In parts of Karnataka such as the Udupi district, the quarantine was hiked up to 28 days.

The word quarantine has been in news ever since the outbreak of the pandemic. Quarantine as a measure to contain the spread of contagion is a century-old practise, with varying degrees of success. It dates back to the days of cholera and plague. Quarantine is a measure that separates persons who have been potentially exposed to an infectious agent from the general community.[3] It includes restricting the movement of those people who are exposed to a contagious disease to ascertain that if they develop symptoms, they do not spread it to those who are not sick.

In an earlier coronavirus outbreak in 2002, Severe Acute Respiratory Syndrome (SARS) quarantining the exposed and ill people met with great success in its containment of the disease. Similarly, the Ebola outbreak called in for complete quarantine of entire villages in many African countries.[4] In the same way, when there was an outbreak of Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2012 making it an epidemic phenomenon affecting over 27 countries.[5] Most of the countries went for quarantining the affected and those exposed. MERS-CoV reappeared in 2015 in South Korea resulted in the quarantine of about 17,000 people for 14 days helped contain the epidemic within 2 months. Quarantine is an integral measure in the prevention of the spread of an epidemic.[6] However, quarantine results in a severe psychological impact on the individuals ranging from fear, anxiety, depression, boredom to stigma.[7]

Psychological counselling was given by social workers who volunteered with the district health department. People who were quarantined had stressors/worries that varied from fear of having the disease, fear of spreading the disease to someone in the family in case they were infected and how to spend their day in self-isolation.

This study assessed individuals who were home quarantined and assessed their psychosocial conditions to enhance their psychological well-being, by providing appropriate supportive care.

Objectives

To investigate the effectiveness of tele-counselling services for psychological care among suspected COVID-19 quarantined individuals' with a history of international travel.

MATERIALS AND METHOD

This study was conducted in April 2020 among the home quarantined individuals who had a recent history of international travel and returned to their home state Karnataka, India.

An experimental study with pre and post assessment without control group design was adopted for this study. A cohort of 47 individuals who were assigned to the researchers formed the sample. The quarantined individuals were from different parts of the Udupi district. Among the 47 referred for tele-counselling intervention; 2 were below 18 years of age, 2 phone numbers were incorrect and 1 person never answered the phone calls altogether a total of 5 were excluded. A total of 42 persons could be contacted and they were followed up for tele counselling. During the first contact, the individual who consented to participate were assessed on socio-demographic details and a self-reported questionnaire (SRQ).[8] It is a WHO tool to assess the mental health issues such as (i) negative effects, (ii) somatic complaints and (iii) hopelessness. Each tele-counselling session lasted for about 10 to 15 minutes. Participants were contacted during the day between 09:00 and 16:00 hours Indian Standard Time. During each such tele-counselling contact they were asked about their activities of daily living, quarantine experience, issues faced by them and any other issues brought up by the individuals. Participants were encouraged to discuss problems facing because of the quarantine.

As the start date of quarantine was not uniform for all the respondents, the baseline was adjusted as a covariate and RM ANOVA was done (adjusted for the day of assessment). Of the 42 who responded, their dates of arrival at Indian airports were different and hence their day of starting quarantine was also not the same. All the individuals had 28 days quarantine and the mean assessment from the day of quarantine were 11.5 days (SD±4.4) for pre-assessment, 11.5 days (SD±4.4) for mid-

assessment and 24.67 days (SD±2.7) for post-assessment. People were notified to go into quarantine at the time of arrival at the airport.

Analysis was done using Statistical Package for the Social Sciences SPSS -16.[9] Descriptive statistics, paired t-test and repeated measure ANOVA (RM ANOVA) were the statistical methods employed.

RESULTS

Table 1 Socio-demographic characteristics (n = 42)

Variables	Variable category	*f*	%
Age in years	(mean ± SD)	38 ± 11.5	
Sex	Male	34	81
	Female	08	19
Religion	Hindu	26	62
	Muslim	09	21.4
	Christian	07	17
Marital Status	Single	12	28.6
	Married	30	71.4
Education	Secondary		26
	Graduates		26
	Professional		24
	Elementary		14
	Diploma		4
	Pre-university		2
	Imam		2

Table 1 depicts the distribution of the socio-demographic profile of the respondents. The mean age of the respondents was 38 years. A large proportion of the respondents were Hindu religion (62%) followed by Muslims and Christians. The majority of the respondents were married (71%). It is implied an overwhelming per cent (81%) were males and the rest were female. All the females except one were homemakers.

Secondary school (SSLC) and graduates comprised 26% each, while professional education accounted for 24%. People with elementary education comprised 14%, diploma holders constituted 4%, 2% each were pre-university and Arabic (Imam).

Figure 1 shows respondents' occupations. Twenty-four per cent each were professionals and in administration jobs, followed by homemakers (18%), 9% each are accountants and technicians, followed by retired (6%), hospitality industry (4%) and one person (2%) was an Imam.

Figure 1 Respondents' occupation

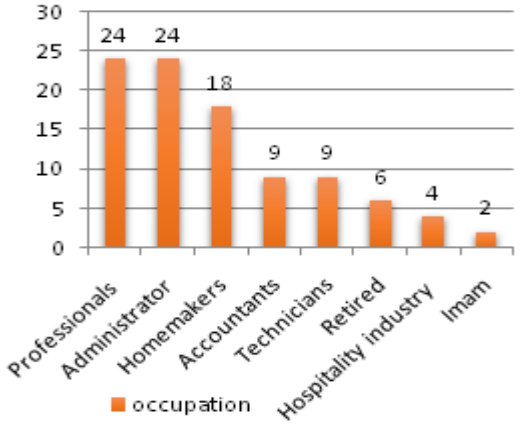

Figure 2 Countries of boarding

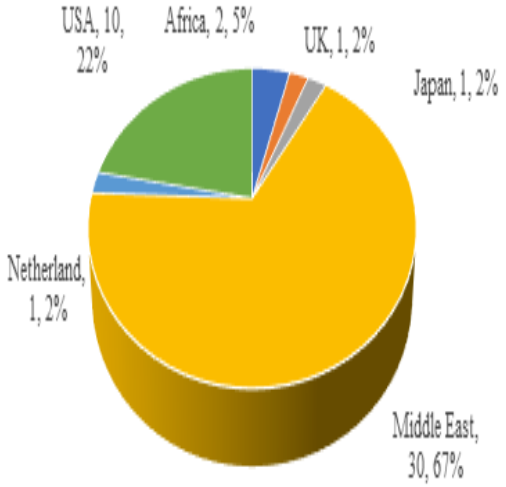

Figure 2 shows a significant per cent (67%) of respondents who had returned from the Middle East (Bahrain, Oman, Dubai, Saudi Arabia and Abu Dhabi) followed by the United States of America (22%) and Africa (5%). The United Kingdom (UK), Japan, Netherlands had 2% each. None of the persons quarantined developed symptoms of COVID-19, however, two were tested on multiple occasions following exposure to someone who was tested positive for COVID-19.

Table 2 depicted that paired t-test was used to see the effectiveness of intervention between any two-time points, unadjusted time differences in the mean days of quarantine at baseline. It's how participants mean score on subscales, somatic complaints, negative effect, hopelessness and total SRQ vary between the three different timelines of testing namely, pre-intervention reported as Pre, mid

intervention, reported as mid and post-intervention reported as a post. Higher mean scores indicate higher levels of psychological distress on the particular subscale.

Table 2 Comparison pre-post mean score on

Pairs	Sub Scale	Mean	t
Pre – Mid	Somatic Complaints	1.21	7.68**
Pre – Post		3.05	14.71**
Mid – Post		1.83	9.68**
Pre – Mid	Negative Affect	1.62	8.40**
Pre – Post		4.07	17.35**
Mid – Post		2.45	11.96**
Pre – Mid	Hopelessness	0.05	1.43
Pre – Post		0.19	3.12*
Mid – Post		0.14	2.61*
Pre – Mid	Total	2.88	9.95**
Pre – Post		7.31	24.31**
Mid – Post		4.43	17.66**

** p<0.001,* p<0.05

The subscale somatic complaints shows differences in the mean scores across the timelines which was also had statistical significance between the time points 'pre intervention and mid intervention' ($t = 7.68$, $p < 0.001$), between 'mid intervention and post intervention' ($t = 9.68$, $p < 0.001$) and between 'pre intervention and post intervention' ($t = 14.71$, $p < 0.001$).

Similarly, the mean scores on subscale negative effect, varied between the time points pre and mid intervention, mid and post-intervention and pre and post-intervention. The difference found between any two time points of assessment had statistical significance, between pre and mid ($t = 8.40$, $p < 0.001$); mid and post ($t = 11.96$, $p < 0.001$) and pre and post ($t = 17.35$, $p < 0.001$).

However, the subscale hopelessness overtime period mid-post and pre-post assessment was found significant with a p-value less than 0.05, while the same scale was found with a statistically insignificant difference between time points pre-mid.

Table 3 shows the mean scores of SRQ-20 domains among the respondents. Since the start date of quarantine was not uniform for all the participants, the baseline was adjusted as a covariate. After the adjustment for the time difference, repeated-measures ANOVA was done. Among the three subscales of SRQ – 20, except for the subscale of hopelessness, significant improvement was noted following the intervention against the three-time scales of assessment pre, mid and post.

Table 3 Psychological impact among quarantined study respondents (n=42)

SRQ	Timeline			F Value
	Pre	Mid	Post	
Somatic complaints	4.12 ± 1.77	2.9 ± 1.68	1.1 ± 0.95	12.44*
Negative affect	4.83 ± 1.50	3.21 ± 1.39	0.76 ± 0.79	47.98*
Hopelessness	0.26 ± 0.45	0.21 ± 0.42	0.07 ± 0.26	2.12 NS
Total	9.21 ± 2.27	6.33 ± 1.87	1.90 ± 0.95	58.10*

* p<0.001, NS – Nil Significant

Somatic complaints of the respondents during the initial contact (pre-test) were found very high with a mean score of 4.12 which was reduced during subsequent contacts following tele-counselling. During the mid-term assessment, after 3 sessions of tele-counselling, symptoms reduced to 2.9. On the post-assessment, it was further reduced to 1.1. Tele-counselling was indicated to have made significant (12.44, p<0.001) and positive changes on somatic complaints. Of the 8 items in the somatic complaints, appetite, sleep, tiredness, uncomfortable feelings in the stomach were frequently reported by respondents during the initial contact.

The negative effect of the respondents too found to be very high with a mean score of 4.83 during the pre-assessment. During the subsequent assessments, mid and post-intervention, the respondent reported less distress with mean scores of 3.21 and 0.76 respectively. Also, tele-counselling was found to be significantly effective in terms of reducing distress over the periods of assessments (47.98, p<0.001). Of the 9 items on the subscale Negative affect, unhappiness, inability to enjoy daily activities, loss of interests, feeling tense & nervous, daily work affected and easily frightened were more frequently reported by the respondents.

Subscale hopelessness comprised three items namely unable to play an important part in life, worthlessness and suicidal ideation. A few respondents reported being unable to play an important part in life and worthlessness.

Interestingly, none of the respondents reported suicidal intent or ideation. RM ANOVA found no significant difference between the time periods of assessment. It indicates that not many reported hopelessness.

The mean total SRQ score dipped from 9.21 reported at the initial assessment to 6.33 during the mid-assessment to 1.90 at the post-assessment. The variability of mean score across three assessment points was found significant at (58.10, $p<0.001$) indicating the tele-counselling intervention helped individuals overcome distress.

DISCUSSION

Problems faced by COVID-19 suspected quarantined individuals

The problems faced by those who were quarantined due to international travel were many. Starting with why there is a different number of quarantine days in different places within the state? A group of individuals who had just returned from abroad placed in forlorn houses faced boredom due to the lack of physical company of others. The notices outside their places of stay stuck by law enforcement stating their COVID-19 quarantine was felt as stigmatising. Some of the individuals faced a lack of edible things and difficulty in getting them as and when needed, as they had to wait till the curfew hours be lifted for someone to bring their food. Almost all the respondents reported fear of carrying the disease and few presumed themselves to be a carrier of the pathogen. They expressed reluctance in meeting the families after the quarantine is over. This is attributable to the ever-evolving facets of COVID-19, such as the ways it spread, window period, an alarming number of new cases in India and constant updates on the number of people who died every day.

One of the respondents was a doctor who told that the updates on COVID-19 in the media, especially social media keep people on their toes. A good number of respondents entered the country with the prospects of being with their family which was thwarted by being under quarantine. They were worried that they may have to leave the country immediately after the quarantine. This resulted in resentment and sadness. It may be attributable to the fact that most of them worked as a technical and administrative worker who returns to homeland ones every two years.

The respondents were initially reluctant to speak as the quarantine was forced upon them and developed psychological reactance. The respondents initially perceived tele counselling as yet another coercive tactic. With pre-session orientation and their choice to participate opened up the individuals about the psychological distresses. Questions regarding longer periods of quarantine was answered with the help of the district COVID helpline. Interdepartmental reach out was there while providing help to the quarantined individuals, such as with Asha health workers, police and district helpline. One of the study participant's spouses and children had to travel to reach the respondent's ailing mother. There was limited pass been provided to travel between the districts. It was facilitated by coordinating with the police department.

The results of the current study reveal higher psychological distress suggestive of psychological symptoms among the study subjects. SARS quarantine psychological impact studies too have reported high nervousness, worries, fear and sadness.[3,10,11] RM ANOVA, adjusted for time of assessment, suggests longer the period of quarantine, the higher the psychological distress (pre-assessment 11.5 days with a standard deviation of 4.4 days). A study using SRQ – 20 comparing participants with and without quarantine has found a significant difference in the reported distress between the groups.[12]

The present study has found that tele-counselling service has positively impacted the psychological state of quarantined individuals. An integrated internet-based psychosocial intervention by a psychologist, social worker, psychiatrists and physicians had a positive impact on the psychological outcome of the quarantined,[13] while fear seems to be the consequences of mass quarantine, with the media reports on death due to contagion furthers the anxiety, fear and depression, coupled with inadequate mental health services.[14]

A timely and mandatory mental health support service to all the quarantined would alleviate

the psychological distress. The present study had found very high psychological distress and improvement seen over tele-counselling intervention which is in line with findings of other studies. Fear, depressive cognitions.[3,15] anger and frustration arising out of quarantine are multifactorial such as fear of contracting contagion, passing it to family members, media influences, loaded information on the newly contracted and voluminous report on dying, dynamic information on how the disease spreads, a rebellious attitude of the community in some parts[4] and it may have a lasting impact on quarantined individuals in the absence of psychosocial support at the time of quarantine.[16,17] An American study on after-effects of the SARS epidemic has found that quarantine for disease containment cause adverse psychological consequences, not to the persons but also to their children and parents if it does not follow proper psychosocial intervention.[18]

Participants of the present study had undergone a mandatory quarantine period of 28 days. The informants were told 14 days of quarantine at the time of landing in India, however, it was revised to 28 after a few days. The participants reported irritability and disappointment as to why it was extended. It increased their anxiety when their friends in other districts were told 14 days quarantine. A Canadian study had found a direct relationship between psychological distress and period of quarantine, higher the distress when lengthier the quarantine was.[19] Insufficient information, confusion on the period of quarantine and absence of sufficient explanation[20] and lack of understanding of the rationale were reported to increase psychological distress[21] as people not only face health hazards but also feel a high degree of social insecurity, fear and mistrust.[22] Clear, consistent and believable communication with the quarantined population has brought cooperation, support and reduced negativity among the quarantined.[23]

Respondents of the current study reported improvement on SRQ scores over weeks of tele-counselling. It shows that information sharing, open communication, and facilitation of ventilation has reduced subjective distress. A Hubei province-based study reports health education combined with counselling shows positive change in mental health.[24] A Korean study, post-2015 MERS-CoV, suggests mental health problems that may arise post isolation period could be avoided by providing accurate information, appropriate supplies of food and accommodation.

The quarantined individuals had many unanswered questions that added to their psychological distress. The study participants had questions such as why the period of quarantine was increased to 28 days instead of 14 days, whether the individual is a carrier, whether they have infected their family members. Some of the individuals reported difficulty in getting their rations, engaging themselves meaningfully while in isolation. Some individuals reported missing spending time with their family and children as they visit India once a year. These thoughts cause psychological distress to individuals. Though the quarantined individuals get daily visits from health workers, many of their questions remain unanswered. Most of the individuals on tele counselling responded well by reporting their worries and concerns were reduced when their queries were answered. Knowledge about nCoV in itself gave good relief to the individuals. All respondents in this study reported a sense of seclusion and feeling lonely must be the source of anxiety found very high in this study. Providing meaning for quarantine by explaining the rationale and alleviating their fear of being infected with COVID19 would help. Post-traumatic stress disorder among people who were quarantined.[3]

This study has found evidence to support the previous studies on endemic quarantined. This study also underscores the need for psychosocial support and the importance of addressing the same in a pandemic situation. This study is the first documented interventional study on tele-counselling for mental health during the current pandemic in India. Also, it is cost-effective and replicable in a developing economy like India.

Limitations

The study has the following limitations like small sample size, all the respondents assigned to the researcher were included for the study. This may not be representative of the vast number of people who are quarantined (without travel) and hence the results are difficult to generalise. The study respondents

were not homogenous in terms of days of quarantine. Some of the respondents were quarantined earlier than others. Also, all of them were referred to psychosocial support after the passage of a week to two weeks into quarantine. The variability on the start date of quarantine and that of the tele-counselling may have a negative impact on the psychological state of those quarantined.

CONCLUSION

One size fit for all strategy will not work as people quarantined are from diverse social and economic backgrounds. Individual approach on case to case to basis should be helpful. Psychosocial need assessment and tele-counselling should start alongside quarantine and continued support to individuals should be provided until the last day of quarantine.

Uniformity on days of quarantine across the districts and states will help reduce unwanted stress. With the increase in the number of positive COVID-19 cases, we should heighten the mental health and psychosocial support to the individuals affected.

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Ethical Clearance: An expedited ethical review was conducted for the study and Institutional ethics committee approval was taken [Protocol number YEC–1/2020/021]

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