Iran J Psychiatry 2020; 15: 3: 205-212

Original Article

The Effect of Brief Crisis Intervention Package on Improving Quality of Life and Mental Health in Patients with COVID-19

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Abstract

Objective: COVID 19 is having a devastating effect on mankind's life. Individuals with COVID-19 will experience high levels of stress, depression, anxiety, and low quality of life. The goals the of present study were to investigate the effect of brief crisis intervention package on stress, depression, anxiety, and quality of life in patient with COVID-19.
Method: In this randomized controlled clinical trial, 30 patients were randomly selected and divided into control and experimental groups. The experimental group was examined in four 60-minute sessions for one month. During this period, the control group received only routine treatment and therapy. Before and after the intervention, DASS21, the Symptom Checklist (SCL-25), and WHO-QOL were used to measure and record patient mental health and quality of life. Finally, data were analyzed using SPSS 24 software.
Results: The average mental health score was assessed with WHO-QOL, DASS21, and SCL-25 before intervention and was not statistically significant ($P => 0.05$), and the mean score of stress, anxiety, depression, WHO-QOL, SCL-25 after intervention was statistically significant ($P < 0.001$). Therefore, results showed the brief crisis intervention package was effective in improving the quality of life ($P < 0.05$) and mental illnesses ($P < 0.05$) in patients with COVID-19.
Conclusion: The brief crisis intervention package can reduce the negative effect of patients with COVID-19. Therefore, this intervention can be used as a beneficial treatment to improve mental disorder symptoms and to improve the condition of people who suffer from COVID-19.

Key words: *COVID-19; Intervention; Mental Disorders; Quality of Life*

In December 2019, the outbreak of Coronavirus disease 2019 (COVID-19) was reported in Wuhan, Hubei province (1). The virus spread in China and worldwide (2).

Since the outbreak of COVID-19, the world has been drawn together in the effort to fight and contain it. Apart from the well-known physical symptoms of COVID-19, psychological stress has frequently been seen among hospitalized COVID patients. However, little attention has been paid to the psychological well-being of these patients. There are reports of cardiac and mental complications, such as palpitation, chest pain, breathlessness, anxiety, and agitation.

Those most at risk, including caregivers, pregnant women, and the elderly may be more vulnerable physically and mentally than the general public, raising issues as to how their mental state can receive more extensive attention and care (3). Now people feel fear, worry, anxiety, and agitation due to constant media warnings about the prevalence of this disease (4, 5).

Subsyndromal mental health problems are a common response to the COVID-19 pandemic (6).

COVID-19 has caused much fear and stress and this problem requires the implementation of programs aimed at increasing mental health (7).

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Article Information:
Received Date: 2020/06/21, Revised Date: 2020/07/06, Accepted Date: 2020/07/12

In another research, the results showed the psychological consequences of the COVID-19 could be serious. Psychological interventions that reduce stress and cure sleep durations need to be made available to the home-quarantined people (1).

Researchers have estimated the life expectancy of people with severe stress to be between 13 and 30 years less than healthy people (8). At the individual level, despite the catastrophic events, the COVID-19 prevalence has been a constant crisis for all members of the society. Stressful events, such as natural or unnatural disasters and human injuries, can have a significant effect on mental health and can occur in conditions such as posttraumatic stress disorder (PTSD) and depression (9). However, the impact of acute, pervasive, persistent, social and psychological stressors on the prevalence of highly infectious and deadly diseases (10) is not well understood. In addition, there is little information about the prevalence and risk factors for mental health problems when faced with such stressors. Studies of the prevalence of SARS in 2003 found that during the epidemics, different groups of people, from the general public to health care workers, have varying degrees of psychological problems, such as fear and anxiety (11) PTSD, and depression (12).

In another study in Wuhan, China, the results showed the mental health problems of parents of children hospitalized during an epidemic were more serious and that anxiety and depression were more pronounced (13).

In a study, Banerjee (2020) advises the psychiatrists to use 5 components in their interventions to decrease mental disorders caused by COVID19, which are as follow:

1. Providing advises for psychological health promotion; people at risk can be educated about acute stress, health, anxiety, and fear of COVID or substance abuse.
2. Encouraging health-related behaviors: People need to go to reputable sources of information to prevent wrongdoing when a crisis occurs, and false information should be avoided .
3. The integration of existing health care by psychiatrists through the teaching of important topics can play an important role in improving the quality of care during the COVID19 pandemic, so that other medical staff become aware of the needs of mental health and make crucial interventions in such critical circumstances.
4. In this case, we need to help people learn problem-solving skills and make decisions in critical situations, and use this skill to choose the right solution, such as avoiding cultural meetings, avoiding travel, etc. Also, they have to replace various forms of social communication (for example, using cyberspace instead of face-to-face visiting.)
5. Empowering patients, their families, and medical staff.

Anxiety, frustration, extreme fear of death, and insomnia are often the effects of isolation and quarantine. These effects can even lead to chronic posttraumatic stress disorder and even increase a person's tendency to drug abuse. Therefore, it is necessary to consider the social-psychological interventions for these people, especially those who are in-home quarantine, via providing the necessary facts and information (14).

Also, a study by Chinese researchers concluded that the psychological consequences of COVID-19 could be serious. They recommended psychological interventions be done to reduce fear of COVID19 and improve mental health and quality of life (15). Therefore, the goals of the present study were to investigate the effect of brief crisis intervention package on stress, depression, anxiety, and quality of life in patients with COVID-19.

Materials and Methods

This was a randomized controlled clinical trial in which 30 patients with diagnosis of COVID-19 who were admitted to Ziaeian general hospital from May 5 to June 5, 2020 were included in the study. The randomly selected participants were divided into 2 groups (experimental and control groups), and the patients were intervened in the order of the beds. These patients were selected out of an initial clinical sample of about 100 treatment seekers (Diagram 1).

Inclusion criteria were having COVID19 based on chest CT-Scan and PCR test, age between 18-65 years, and willingness to participate in the study.

Patients with major depressive disorder, psychotic disorder, or major psychosomatic disorder or physical disorders were excluded from the study.

Also, those reporting apparent psychiatric disorders or those taking drugs or undergoing psychotherapeutic treatment were excluded from the study.

Instrument

Data were collected using the following instruments:

1) WHO-QOL-BREF

The WHO-QOL-BREF is a self-report questionnaire consisting of 26 items (with a 5-point Likert-type scale), which assesses the broad domains such as physical health, psychological health, social relationships, and the environment of adults aged18 years. The WHO-QOL-BREF is a shorter version of the original tool that may be more convenient for use in large research studies or clinical trials. The WHO-QOL BREF has good internal consistency. Convergent validity between the WHO-QOL BREF and the Beck Depression Inventory (BDI) was statistically significant (16). Yousefy et al reported that the Iranian version of the WHO-QOL-BREF domain scores demonstrated suitable internal reliability (Cronbach's Alpha between 0.76 to 0.82) as well as criterion and discriminant validity. The physical health domain contributed most in the overall quality of life, while the environment domain

made the least contribution. Factor analysis provided evidence for construct validity of the 4-factor model of the tool (17).

2) **DASS$_{21}$(Depression, Anxiety and Stress Scale)**
This questionnaire consists of 21 items and items 3, 5, 10, 13, 16, 17, and 21formed the depression subscale; items 2, 4, 7, 9, 15, 19, and 20 formed the anxiety subscale, and items 1, 6, 8, 11, 12, 14, and 18 formed the stress subscale. The DASS has been confirmed to be a reliable and valid measure in assessing mental health in various general populations (18,19). The Persian version of DASS-$_{21}$ was found to have commendable psychometric properties. It is reliable, valid, and easy to administer. The test-retest reliability was 0.8, 0.81, and 0.78 for stress, depression, and anxiety, respectively. Also, the Cronbach's alpha was 0.87, 0.85, and 0.75 for stress, depression, and anxiety respectively. Its utility by clinicians will enhance the diagnoses of depression, anxiety, and stress in general populations (20).

3) **Symptom Checklist-25 (SCL-25)**
Symptom Checklist-90 (SCL-90) is a mostly applied tool in studying mental health domain. Despite researchers' interest for using this tool, the large number of items restricted this process. Tanhaye Reshvanloo and Saadati Shamir (2015) designed and validated the short version of SCL-90. The Symptom Checklist-25 consisted of 25 items in total, which were divided into 7 symptom domains including somatization (SO), obsessive-compulsive disorder (O-C), interpersonal sensitivity (INT), phobia (PHOB), anxiety (ANX), psychotic (PSY), and depression (DEP). The results showed confirmatory factor analyses show a good fitness with 7 factor fundamental model. Also, SCL-25 has a high internal consistency (Cronbach alpha between 0.71 to 0.95) and split-half coefficient (0.65 to 0.96) for subscales and the whole scale score (21).

4) **Brief Crisis Intervention Package**
The four sessions are presented in Table 1.
This package was performed by 2 clinical psychologists with a PhD degree who were trained to diagnose and treat mental disorders. The content of treatment package was adapted from various scientific literature (22,23). The content validity of package was approved by 2 psychiatrists and 5 clinical psychologists, and the questionnaires were collected from the experimental and control groups before and after the intervention.

Written informed consent and assent were obtained from each patient. Participants in the intervention group received crisis intervention package, while those in the control group only received standard individual psychotherapy. Both groups were evaluated before and after intervention. Therapeutic sessions were held at the psychological center of Ziaeian hospital by 2 clinical psychologists with a PhD degree who were trained to diagnose and treat mental disorders.

In this study the potential sources of bias included covariate variables, error variance, drop in samples, and selection bias. In the case of error variance, as our tools were valid and reliable, this variance was minimized. Randomization was also used to reduce selection bias. The effect of covariate variables on analysis was also eliminated.

Data Analysis

Changes in primary and secondary outcomes after the intervention were compared between 2 groups using ANCOVA (with adjustment for baseline values). In addition, the level of statistical significance was set at $P < 0.05$.

Ethics

This study was confirmed by Tehran University of Medical Sciences (grant number: (IR.TUMS.VCR.REC.1399.332); all participants were informed about the study's goals and all of them provided informed consent.

Results

Of the 30 patients who consented to participate in this study, all completed the baseline assessment and were randomized into 2 groups. Demographically, 53.3% of the participants were female and 46.7% male. The participants' ages ranged from 20-70 years. Also, 36.6% were single, and 63.4% married; moreover, 46.6% held a high school diploma or less, 36.7% a bachelor's degree, and 16.7% MSc degree or higher (Table 2).

All patients filled out the questionnaire without data leakage. The mean±SD scores of DASS, quality of life, and SCL-25 between control and intervention group before and after intervention were reported (Table 3).The mean scores of S-Cl-25, DASS21, and WHO-QOL-BRIEF before intervention in the 2 groups was not statistically significant ($P > 0.05$) (Table 3), the t- test results also showed that the average score of depression, anxiety, and stress after intervention was statistically significant ($P < 0.05$) (Table 3). Compared to the control group, the experimental group had reduced depression, anxiety, and stress levels and their quality of life improved after 4 intervention sessions (Table 3).

The results of ANCOVA showed significant differences between the experimental and control groups in quality of life, depression, anxiety, stress, and mental health in the posttest stage ($P < 0.05$) (Table 4). Therefore, crisis intervention could improve the health-related quality of life of patients with COVID-19.

Most of the participants showed improvement after 4 sessions of crisis intervention. An overwhelming majority of participants were able to manage stress, depression, and anxiety symptoms after the intervention program. Therefore, this program addresses stress, depression, and anxiety and also helps reduce mental illnesses and increase quality of life.

Table1. A Brief Description of Crisis Intervention Sessions (4 sessions)

Sessions	Title of Sessions	Goal	Techniques
First Session	Greeting and introducing the brief crisis intervention package for patients with COVID19	Creating empathy with acute stress and anxiety for the client	a)Look, listen, link b)Develop case study c)Identify reaction d)Role play, feedback forms in the COVID19 e)Relaxation training
Second session	Adjustment skills	Learning adjustment techniques for the unnatural disease	Teach adjustment techniques for COVID19
Third Session	Responsibility and factualism	Learning commitment to solve the problems and barriers	Teaching responsibility techniques to increase resiliency to COVID19
Forth Session	Spirituality	Creating a logo in life to change life style	a)Tension reduction techniques b)Teaching cognition and meta cognition

Table 2. Sociodemographic Information of Patients with COVID-19

Sociodemographic variables	Experimental Group *n* (%)	Control Group (%)	P value
Gender			
Male	7(50%)	7(43.8%)	0.73
Female	7(50%)	9(56.2%)	
Age (M± SD)	41.92±12.2	44.7±14.2	0.53
Age (range)	27–62 years	20-70 years	
Marital status			
Single	4 (28.6%)	7(43.8%)	0.38
Married	10 (71.4%)	9(56.2%)	
Education			
Diploma or lower	9(64.3%)	7 (43.8%)	0.28
Bachelor	4(28.6%)	5 (31.3%)	
MSc or higher	1(7.1%)	4(25%)	

Table 3. Mean (SD) Scores of Depression, Anxiety and Stress Scale, Quality of Life, and SCL-25 between Control and Intervention Groups before and after Intervention

variables / Groups			Experimental	Control	P value
DASS	Depression	Before intervention	14.5±4.5	12.2±3.6	0.13
		After intervention	12.1±3.4	9.05±2.1	0.01
	Anxiety	Before intervention	17.5±4.8	14.2±4.2	0.59
		After intervention	11.7±3.5	9.1±3.2	0.03
	Stress	Before intervention	20.2±4.1	13.8±4.5	0.62
		After intervention	15.1±4.2	10.3±3.3	0.02
Total score of quality of life		Before intervention	69.2±13.1	76.5±9.7	0.93
		After intervention	85.1±15.7	82.9±11.3	0.03
Total score of Scl-25		Before intervention	40.5±14.6	33.8±14.3	0.21
		After intervention	26.7±12.8	20.3±16.4	0.04

Table 4. Results of Analysis of Covariance on Mean Scores of Depression, Anxiety, Stress, Quality of Life, and Mental Health in Posttest

Variables	Stages	Sum of Squares	df	Mean Squares	F	P- Value	Partial Eta Squared	power
	Pretest score	2.1	1	2.1	3.1	0.56	0.17	0.10
Depression	grouping	32.18	1	32.18	5.2	0.03	0.2	0.59
	Grouping*Pretest score	17.1	1	17.1	2.5	0.12	0.1	0.33
	Pretest score	2.92	1	2.92	.27	0.60	0.01	0.07
Anxiety	grouping	61.57	1	61.57	5.8	0.02	0.30	0.63
	Grouping*Pretest score	14.1	1	14.1	1.5	0.22	0.11	0.22
	Pretest score	2.1	1	2.1	0.3	0.51	0.01	0.08
Stress	grouping	150.16	1	150.16	21.8	0.00	0.52	0.99
	Grouping*Pretest score	1.1	1	1.1	0.2	0.87	0.01	0.05
	Pretest score	548.7	1	548.7	3.1	0.09	0.13	0.38
Quality of Life	grouping	1636.1	1	1636.1	9.1	0.00	0.31	0.81
	Grouping*Pretest score	1.2	1	1.2	0.01	0.93	0.01	0.05
	Pretest score	269.29	1	269.29	3.4	0.07	0.15	0.42
Mental Health	grouping	261.34	1	261.69	3.3	0.05	0.14	0.41
	Grouping*Pretest score	132.75	1	132.75	1.7	0.19	0.08	0.24

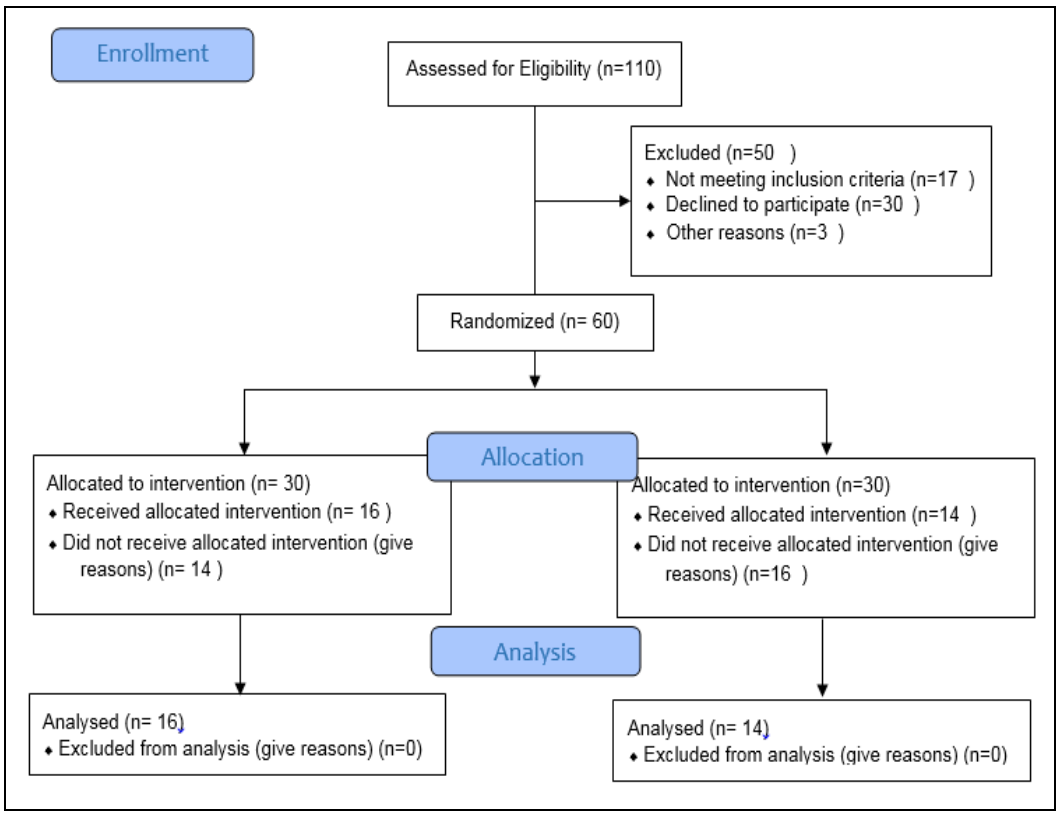

Diagram 1. CONSORT 2010 Flow Diagram

Discussion

The purpose of this study was to investigate the effects of crisis intervention in patients with COVID-19. The results showed brief crisis intervention package is an effective way to reduce anxiety, depression, stress, and improve quality of life in patients with COVID-19 .

Previous studies showed the effect of relaxation therapy on anxiety levels in young women (24) with early breast cancer (25). Our study found crisis intervention affects the quality of life in patients with COVID-19. Previous studies have shown the impact of this technique on quality of life and found that crisis intervention can reduce complications and improve quality of life (26).

Seyedi et al also showed that relaxation therapy can reduce fatigue and improve sleep quality in patients with COPD (27). The reason for the decrease in depression, anxiety, and stress of patients with COVID19 after crisis intervention may be the balance between the anterior and hypothalamic nucleus. By reducing the activity of the sympathetic nervous system, side effects of stress and anxiety can be prevented, and physical and mental relaxation can be increased (28). Similar to other studies, patients in this study achieved relaxation by learning how to regularly tighten and relax muscles and change their mind and identify symptoms of stress.

Also, Carlbring et al (2018) showed that cognitive behavior therapy was as effective as face-to-face treatment for depressive symptoms, social anxiety disorder, and other psychological or somatic disorders (29).

According to Jeong et al (2016), for Middle East Respiratory Syndrome (MERS), they reported that the period of the disease lasts between 8 to 37 days. Standard recommendations for preventing the outbreak of MERS include handwashing, avoiding raw foods, wearing a mask, and practicing social distancing. However, these recommendations are not adhered to by people with mental illness (30). Zandifar and Badrfam (2020) reported the effect of COVID-19 on mental health and found health anxiety, fear of death, fear of losing social connections, and fear of losing family members were some of the social stressors that led to mental illness during COVID-19, which if not treated, it will lead to chronic mental illness in the future (31).

Therefore, it can be concluded that due to the negative emotional effects of this disease, effective and even short-term psychological interventions for patients with this disease can prevent chronic mental illness and may also prevent disease in the patient's entourage.

We found that patients of the intervention group exhibited significantly reduced levels of stress, anxiety, and depression symptoms compared to those of the control group, indicating that our intervention showed a rapid improvement on mood disturbance (6), and thus it should be applied in the management of psychological distress in COVID-19 patients. Dubey et al (2020) reported that to better deal with these psychosocial issues in patients with COVID-19, psychosocial crisis prevention and intervention models must be immediately performed by the health services, health care personnel, and other stakeholders (32).

According to the results of this study, crisis intervention has a positive effect on improving quality of life and mental health in patients with COVID-19. Due to the strong contagion of COVID-19, isolation treatment and the effects of drugs on patients increase their levels of anxiety and mental disorders. Based on the results of this study, it is recommended that this treatment package be provided to psychologists and psychiatrists involved with COVID-19 disease and be compared with other therapies. Based on our knowledge, it is the first time that the efficacy of this crisis package intervention has been evaluated for COVID-19 patients with psychological distress. However, more studies should be done with larger samples to increase the generalizability of the results. Although the efficacy of this method has been confirmed in addiction studies, suicide prevention, and natural disasters (23, 33-38), this was the first time that this method was used in patients with COVID-19.

Based on previous studies, patients experience acute anxiety and stress after the onset of COVID-19 and the onset of symptoms due to the unknown nature of the disease, which can sometimes lead to depression and lifestyle changes. To sum it up, brief crisis intervention helps to reduce stress among patients by creating empathy and teaching adaptive skills in the second and third sessions, which can lead to increased patient resilience in the face of COVID-19, ultimately reducing patient anxiety.

In the fourth session, an attempt was made to encourage patients to make a metacognitive change, which improves their quality of life.

Finally, given the significant reduction in stress and depression after a short intervention, it can be concluded that reducing the scores of these 2 components (stress and anxiety) will eventually lead to further reduction of depression and lifestyle changes.

Limitation

The results of the present study should be interpreted in light of several limitations. First, the limitations of our study were the confounder variables, such as individual differences and psychological conditions of the participants, the influence of cultural factors on the individual status, and the patient's attention during the hospital stay. Second, the sample size of each group was comparatively small, which limited its statistical power to interpret real effects. Third, the study period of 1 month was comparatively short for efficacy appraisal. Taken together, the results of the present study need to be stabilized in further studies that resolve those limitations.

Forth, due to the need for intervention, mental health promotion and the use of the results of this study, it was not possible to perform the follow-up phase, but the main purpose of this intervention was to improve mental

health during the disease (3 weeks) and not after the disease.

Conclusion

Based on the results of the previous study, we found that COVID-19 disease due to rapid transmission through social interactions led to isolation of individuals (both infected and non-infected) in order to prevent the spread of the disease. This social isolation includes neurotic symptoms, such as acute stress, anxiety and depression, and sleep quality, leading to impaired problem-solving skills and decision-making in individuals. Short-term crisis interventions are recommended to be taught to psychiatrists, psychologists, caregivers, and medical staff and to be compared with other adjuvant therapies.

Acknowledgment

The thanks to all of the participants.

This study was approved by Tehran University of Medical Sciences and Health Services, (grant number: 47876).

Conflict of Interest

All authors have read and approved the final manuscript; they have no conflict of interest.

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