Effects of the Acceptance and Commitment Therapy on Resiliency, Self-Compassion, and Corona Disease Anxiety on Medical Staff Involved in COVID-19 Pandemic

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Abstract

Background: Since the beginning of 2020, the world has been grappling with a common problem, the coronavirus or COVID-19, causing a significant increase in worry, anxiety, and stress worldwide. In Iran, the rapid spread of the COVID-19 virus has posed serious threats to individuals' physical and mental health. Due to their extensive physical contact with infected individuals, medical staff experience high anxiety levels compared to other members of society.

Objectives: The present study aimed to investigate the effectiveness of the acceptance and commitment approach on the resilience, self-compassion, and corona disease anxiety of medical staff involved in the COVID-19 response in Hamadan, Iran.

Methods: This study utilized a semi-experimental design, including pre-test, post-test, follow-up, and control group. The study population included all medical staff involved in the COVID-19 response in Hamadan in 2021. From this population, 40 individuals were purposely selected and randomly assigned to either the experimental or control groups (20 participants in each group). Before the intervention, both groups underwent measurements (pre-test) using the Connor and Davidson Resilience Questionnaire (2003), the Neff Self-Compassion Scale (2003), and Alipour et al.'s Corona Disease Anxiety Questionnaire (2018). After the intervention of acceptance and commitment therapy for the experimental group, the same tests were conducted again for both groups (post-test). Finally, three months later, the same measurements were repeated for both groups (follow-up). The data were analyzed using repeated measures analysis of variance in SPSS-25.

Results: The findings demonstrated the significant impact of acceptance and commitment therapy in enhancing resilience ($P \leq 0.001$) and self-compassion ($P \leq 0.001$), as well as reducing COVID-19 anxiety among the medical staff in Hamadan ($P \leq 0.001$). Moreover, these effects remained stable during the follow-up phase.

Conclusions: The results underscore the importance of utilizing acceptance and commitment therapy to enhance resilience and self-compassion while reducing anxiety among medical staff managing the disease. Additionally, hospital educational and executive managers should prioritize training medical staff in acceptance and commitment skills to effectively address COVID-19 anxiety.

Keywords: Acceptance and Commitment Therapy, Corona Disease Anxiety, COVID-19, Resiliency, Self-compassion

1. Background

Since 2020, the world has grappled with a common problem known as Coronavirus or COVID-19, leading to increased worry, anxiety, and stress worldwide [1]. Iran, like many other countries, faced the rapid spread of the COVID-19 virus, which seriously threatened individuals' physical and mental health [2]. Amidst this pandemic, medical personnel have been frontline warriors, playing a crucial role in society's care, treatment, and well-being [3]. Due to their direct contact with patients, medical staff experience high anxiety levels compared to others in various situations, and this fear can extend to their families and friends, impacting their personal lives [4]. While anxiety is a natural human reaction, excessive

anxiety can become a mental health concern characterized by generalized and uncontrollable fear accompanied by physical presentations (5). The fear of contracting the virus, known as "Corona Disease Anxiety," can lead to mental and psychological disturbances, weakening the immune system and hampering the body's ability to combat diseases within the community, including healthcare professionals such as nurses and doctors (6, 7).

Resilience plays a significant role in alleviating anxiety among medical staff (8). Resilience entails learning, adapting, and responding flexibly to challenges, enabling individuals to maintain their well-being and happiness amidst internal and external stresses (3). It represents the strength and composure to face difficult situations, actively engaging with the environment to restore psychological and biological balance during challenging circumstances (9). Self-compassion is another crucial factor in reducing anxiety among medical staff (10). Considered a key aspect of mental health, self-compassion contributes to better interpersonal interactions, perseverance in pursuing goals, and efficient coping with challenges (11). Self-compassion involves acknowledging emotions, breaking free from self-indulgence, reducing self-pity and loneliness, and fostering reunion and connection (10).

Given the close physical contact medical staff have with COVID-19 patients and the lack of resources, long working hours, and psychological pressures they face, it becomes essential to explore interventions that can enhance resilience and self-compassion among medical professionals, safeguarding them from external and internal stressors. In this context, acceptance and commitment therapy (ACT) is a contemporary and popular psychotherapeutic approach. Rooted in mindfulness, ACT is a third-wave behavioral therapy emphasizing six core principles: acceptance, defusion, present moment awareness, self-observation, values, and committed action (12). This approach highlights moral values as the central core of spirituality and has the potential to bolster resilience and self-compassion (13).

Drawing from previous research, studies have explored the efficacy of acceptance and commitment therapy on mental health (14), resilience and mental well-being (15), emotional intelligence and self-efficacy (16), self-compassion (17), mental health improvement and anxiety control (18), and enhanced emotional state and psychological flexibility (19).

In Iran, the virus's rapid spread has particularly impacted medical personnel, who face heightened anxiety due to their close contact with patients. This anxiety affects the medical staff and extends to their families, potentially leading to mental health issues and weakened immune systems. To address this concern, the role of resilience and self-compassion in reducing anxiety among medical staff has been recognized. However, there is a lack of research on the effectiveness of acceptance and commitment therapy, a popular psychotherapy approach, in enhancing resilience and self-compassion while alleviating COVID-19-related anxiety in Iran's healthcare system. This study aims to fill this research gap and provide valuable insights to support medical staff during this critical period.

2. Objectives

Considering the effectiveness of this treatment in various psychological fields, which is one of the third-wave behavioral treatments and claims that training can increase skills such as communication skills, self-compassion, and resilience in a relatively short time, and so far, no research has been conducted on the effectiveness of this approach on the dependent variables of the current research. Therefore, this research aims to fill the existing research gap and support medical staff in the pandemic conditions of infectious diseases such as COVID-19, which has seriously endangered the country's health system. The question is: Can the acceptance and commitment approach reduce corona disease anxiety and increase resilience and self-compassion among medical staff in Hamadan?

3. Methods

The present study was semi-experimental with a pre-test, post-test, and follow-up design with a control group. The statistical population of this research was all medical staff involved in COVID-19 care in Hamadan in 2021, which included 700 people. Based on Krejcie and Morgan's table (20), in the first stage, among 700 staff involved in COVID-19 care from Shahid Beheshti, Be'sat, Sina, and Shahid Motahari hospitals in Hamedan, 250 people were selected by purposive sampling method. The research questionnaires, created online using Google Forms, were distributed among the samples through WhatsApp and Telegram groups in coordination with each hospital's administration. Then, among the responses received, those with low scores in resilience (scores below sixty-three) and self-compassion (scores below seventy-eight) and high scores in corona disease anxiety (scores above twenty-seven) were assessed, and 110 individuals out of 250 had such conditions. Finally, 40 individuals who met the inclusion criteria and consented to cooperate with the researcher were selected as the

samples and were randomly assigned to two groups: control (20 individuals) and experimental (20 individuals) groups. Inclusion criteria included a willingness to cooperate, the absence of acute psychiatric disorders and drug abuse, no recent grief and loss, informed consent to participate in the research, a minimum high school diploma degree, and not being enrolled in a course or educational program concurrently. Nonattendance or irregular attendance at training sessions, unwillingness to continue cooperation, and the use of psychiatric medications were among the exclusion criteria.

After making the necessary arrangements with the hospitals and sampling, the experimental group received eight 75-minute sessions consultations per week from a clinical psychologist under the supervision of a university professor. The control group did not receive any treatment. After the conclusion of the intervention sessions, both groups were given a post-test. Eventually, the subjects were evaluated a third time after three months to determine the intervention's durability. To comply with the research's ethical standards, the control group received eight 75-minute sessions of the same intervention.

3.1. Research Tools

Resilience Questionnaire: The resilience questionnaire was created by Connor & Davidson (2003) after reviewing research sources from 1979 to 1991. Connor and Davidson's resilience questionnaire consists of 25 items rated on a Likert scale from 0 (not true) to 5 (always true). This test aims to measure people's resilience based on their competence, personal strength, tolerance of negative emotions, restraint, and spirituality. The test response range is of the Likert type. The total scores of all the questions are added together to get the total score of the questionnaire. This score will range from 0 to 100. The higher the score, the more resilient the respondent is. The cut-off point for this questionnaire is 50 points. In other words, a score higher than 50 indicates high resilience. Cronbach's alpha method was used to calculate the reliability, and the reliability coefficient was 0.89. The validity was 0.87 by factor analysis (21). In addition, this questionnaire has been validated in various studies in the country, among which Rezaeipandar et al.'s research can be mentioned, where Cronbach's alpha was calculated as 0.89 (22).

Self-Compassion Questionnaire (Neff, 2003): Neff's Self-Compassion Scale (2003) was used to measure self-compassion. This self-report scale was created in 2003 by Neff. It has twenty-six items with a five-point Likert scale (strongly agree to disagree strongly) and measures self-compassion. This questionnaire measures the positive

and negative aspects of the three main dimensions of self-compassion: self-kindness against self-judgment, human commonality against isolation, and vigilance against increased identification. A survey found that the retest coefficient of this test was 0.89 (11). Azizi et al. confirmed the validity and reliability of the questionnaire with experts in the field, obtaining a Cronbach's alpha score above 70%. (23).

Corona Disease Anxiety Scale (CDAS): Alipour et al. prepared and validated this questionnaire in 2020 to assess COVID-19 anxiety in Iran. The final version of this tool has 18 items and two psychological and physical components. This tool is scored on a 4-point Likert scale (never = 0, sometimes = 1, most of the time = 2, and always = 3). Therefore, the highest and lowest scores obtained by respondents in this questionnaire are between 0 and 54. High scores in this questionnaire indicate a higher level of anxiety in people. The reliability of this tool was obtained using Cronbach's alpha method for the whole questionnaire (a = 919%). The questionnaire's reliability was examined through correlation with the GHQ-28 tool, and the outcomes were satisfactory (24).

Acceptance and commitment therapy: The acceptance and commitment therapy was implemented in eight sessions of 45 minutes by the researcher weekly as described in Table 1, according to the protocol (25).

After collecting the data, the information was analyzed. The resulting data were analyzed using repeated measurements, and hypotheses were investigated using variance analysis methods. Data analysis was done with SPSS-25.

4. Results

According to Table 2, 60% of the participants were women, and 40% were men. Most of the participants in this research were nurses, while financial managers and accountants comprised the smallest group.

According to Table 3, the mean and SD of the control group for research variables in the pre-test stage was M = 60/450 and SD = 17.94 for resilience, M = 78.850 and SD = 14.95 for self-compassion, and M = 36.700 and SD = 8.86 for corona disease anxiety. Furthermore, the mean and SD of the experimental group for the research variables in the pre-test stage were M = 59.750 and SD = 13.606 for resilience, M = 81.100 and SD = 7.999 for self-compassion, and M = 36.450 and SD = 5.408 for corona disease anxiety. The mean and standard deviation of the control group for the research variables in the post-test phase was M = 65.700 and SD = 9.852 for resilience, M = 76.600 and SD = 6.064 for self-compassion, and M = 35.900 and SD = 5.408 for corona disease anxiety. Additionally, the mean and

Table 1. Acceptance and Commitment Group Therapy Protocol

Session	Description
1st Session	(1) Introducing the therapist and group members; (2) Warmup: Brief talk of blessings and challenges; (3) Discuss the meeting's purpose and treatment expectations; (4) Establishing group rules, such as timeliness, task completion, secrecy, and mutual respect; (5) We advise the group to close their eyes and imagine they have a magic wand to change anything in their lives and those around them. How would they modify their lives? What benefits does this change provide them and others? (6) Commitment and acceptance of education.
2nd Session	(1) Greeting and warmup; (2) Examining the work and defining the group's values and essential people; (3) In this section, resilience and self-compassion are explained and defined; (4) Practice tug-of-war with the OCD monster
3rd Session	(1) Examining homework and sharing the experiences of group members; (2) The subject of acceptance with conscious breathing exercises; (3) Discussion of acceptance with the metaphor of gardening
4th Session	(1) Examining tasks; (2) Mindfulness, the metaphor of mental wildlife, body scanning practice; (3) In the following, we will return to the discussion of values
5th Session	(1) Examining tasks; (2) Intelligent planning training; (3) Restating experiential avoidance and acceptance with the ball and pool metaphor and presenting examples to the group.
6th Session	(1) Examining tasks; (2) Mindfulness retraining along with body scanning; (3) Examining the concept of self-conceptualization with the metaphor of a chessboard; (4) Practicing yourself as a tissue with rapid repetition of thoughts about yourself
7th Session	(1) Examining homework and its effect on people with group discussion; (2) Re-discussion about the consequences of past and future dominance; (3) Discussion about defusion; (4) The practice of singing thoughts for defusion
8th Session	(1) Examining tasks; (2) Using the metaphor of bus passengers to teach the concept of defusion simultaneously; (3) Summary of contents; (4) Convincing members to do the tasks following the course

Table 2. Demographic Characteristics of the Studied Subjects

Characteristics	Frequency (%)
Gender	
Man	24 (60)
Woman	16 (40)
Occupation	
Nurse	15 (37.5)
Financial manager and accountant	4 (10)
Paramedic	7 (17.5)
Physician	6 (15)
Others	8 (20)

SD of the experimental group for the research variables in the post-test phase were M = 85.450 and SD = 9.875 for resilience, M = 96.450 and SD = 4.071 for self-compassion, and M = 22.150 and SD = 4.344 for corona disease anxiety. Finally, the mean and SD of the control group for research variables in the follow-up phase were M = 63.45 and SD = 9.74 for resilience, M = 73.75 and SD = 7.80 for self-compassion, and M = 30.50 and SD = 8.19 for corona disease anxiety. The mean and SD of the experimental group for the research variables in the follow-up phase were M = 84.75 and SD = 9.59 for resilience, M = 95.50 and SD = 3.81 for self-compassion, and M = 21.60 and SD = 4.89 for corona disease anxiety.

Two standard indices were used to check the normality and normality, including skewness and elongation. In the present study, according to Table 3, the skewness and kurtosis of the research variables in the pre-test and post-test stages for the control and experimental groups were less than three and less than 10, respectively.

Therefore, the distribution of all research variables in the two pre-test and post-test stages in the control and experimental groups was normal, and parametric tests can be used to analyze the data. The analysis of variance tests with repeated measurements was used to analyze data.

Levine's test was used to check the homogeneity of error variances in the investigated variables ($P < 0.05$). The test showed that the homogeneity of variances was met, and Levine's test was not significant for any variables.

The Wilks' Lambda test in Table 4 indicates a significant difference between the control and experimental groups for the new variable created through a linear combination of dependent variables. (Wilks' lambda = 0.598, $P < 0.001$; F = 760/12).

A sphericity test yielded significance levels of 0.001, 0.002, and 0.004, leading to the rejection of the sphericity assumption. Consequently, the Greenhouse-Geisser tests were employed to explore treatment effects across subjects.

Table 3. The Mean and SD of the Pre-test and Post-test Variables in the Control and Experimental Groups

Variables	Mean ± SD	Skewness	Kurtosis
Pre-test			
Control			
Resilience	60.450 ± 17.94	0.305	-0.601
Self-compassion	78.850 ± 14.95	-2.423	5.621
Corona disease anxiety	36.700 ± 8.862	0.305	-0.601
Experimental			
Resilience	59.750 ± 13.606	-0.607	-0.223
Self-compassion	81.100 ± 7.999	-1.836	4.229
Corona disease anxiety	36.450 ± 11.071	-0.607	0.223
Post-test			
Control			
Resilience	65.700 ± 9.852	-0.377	-0.814
Self-compassion	76.600 ± 6.064	0.152	-0.382
Corona disease anxiety	35.900 ± 5.408	-0.334	-1.354
Experimental			
Resilience	85.450 ± 9.875	-1.718	3.178
Self-compassion	96.450 ± 4.071	-0.570	-0.002
Corona disease anxiety	22.150 ± 4.344	1.620	1.834
Follow-up			
Control			
Resilience	63.45 ± 9.74	0.102	-0.966
Self-compassion	73.75 ± 7.80	-0.119	-0.533
Corona disease anxiety	30.50 ± 8.19	-1.057	-0.072
Experimental			
Resilience	84.75 ± 9.59	-1.720	1.246
Self-compassion	95.50 ± 3.81	-0.019	0.347
Corona disease anxiety	21.60 ± 4.89	0.988	1.583

The validity of the remaining variance analysis assumptions was not called into question.

The analysis of Table 5 shows that according to the F value obtained in three stages (pre-test, post-test, and follow-up), they show a significant difference at the 0.001 level, which means that there was a significant difference in the level of resilience, self-compassion, and corona disease anxiety among the medical staff of the control and experimental groups in the three stages of implementation. According to the mean values, the average resilience and self-compassion in the experimental group were significantly higher in the post-test and follow-up stages than in the control group. In contrast, the average corona disease anxiety was significantly lower in the experimental group than in the control group. Therefore, it can be concluded that the acceptance and commitment to treatment caused a significant increase in resilience and self-compassion and reduced corona disease anxiety among medical staff involved in COVID-19 care.

5. Discussion

This study examined the effects of acceptance and commitment therapy on resilience, self-compassion, and corona disease anxiety among Hamadan medical staff. Acceptance and commitment therapy increased resilience and self-compassion and decreased corona disease anxiety in medical staff who participated in COVID-19 in Hamedan and remained stable in the follow-up phase.

Regarding the effectiveness of acceptance and commitment therapy on resilience, the findings are consistent with the results of research conducted in Iran by Talebi & Teymuri [26], Tavakoli Saleh & Ebrahimi [15], Valizadeh et al. [27], Haddadi et al. [28] and also consistent with the results of studies by Wynne et al. [29], Levin et al. [30]. However, they contradicted the findings of the study by Han et al. [31]. Talebi & Teymuri concluded that the online training of therapy based on acceptance and commitment significantly increased the resilience of nurses suffering from COVID-19; this is consistent with the results of the current research [26]. The results of Haddadi et al. showed that acceptance and commitment therapy significantly improved nurses' resilience [28].

Resilience is a significant psychological structure necessary for perceiving excitement, motivation, and conduct. People with high self-resilience tend to experience more positive emotions, enthusiasm, self-confidence, and psychological adjustment because they are more flexible. People who are conservative, inflexible, and have little resilience are more likely to behave inconsistently when faced with challenging conditions. Consequently, people with psychological training, education, and a pragmatic approach toward acceptance and commitment, such as those in counseling or treatment, are more adaptable and resilient in the face of challenges. Mindfulness helps people change negative behavioral patterns, automatic thoughts, and health-related actions, which increases resilience [12].

According to this research, acceptance, and commitment therapy significantly increased the self-compassion of the medical staff involved in COVID-19 care in Hamadan. These findings are consistent with the results of Khamoshi Ghalenoi & Mansouri [17] and Yadavaia et al. [32]. However, they were contradictory to the findings of Carvalho et al. [33]. Khamoshi Ghalenoi

Table 4. The Results of Multivariate Analysis of Variance to Compare the Research Variables in the Subjects of the Control and Experimental Groups

Exam	Amount of Value	F	Hypothesis df	Error df	P-Value
Wilks' Lambda	0.598	12.760	3	31	0.001

Table 5. The Results of Repeated Measures Analysis of Variance to Compare the Scores of the Investigated Variables in Three Stages of Implementation

Variables	Greenhouse-Geyser	Degrees of Freedom	F	Significance Level	Eta Squared
Resilience	0.014	3	612.17	0.001	0.78
Self-compassion	0.021	3	549.85	0.001	0.62
corona disease anxiety	0.032	3	709.28	0.001	0.71

& Mansouri showed that acceptance and commitment therapy effectively increased self-compassion in people with opioid use disorder [17]. Yadavaia et al. also revealed that intervention with ACT promoted self-compassion [32]. By combining the results of the present study with the results of other researchers, it can be concluded that treatment based on commitment and acceptance can effectively promote self-compassion.

The following conclusion may be made when attempting to explain the efficacy of acceptance and commitment therapy (ACT) on self-compassion. Engaging in ACT can have an impact on the way we practice self-kindness and reduce our tendency towards self-criticism. Both the idea of psychological flexibility and having self-compassion share analogous connections. When viewed through the lens of acceptance and commitment therapy (ACT), the fundamental idea of self-kindness may closely connect to self-acceptance.

Acceptance and commitment therapy teach nurses that a crucial component of self-compassion is never to promise that they will not feel nervous tomorrow. Reduce anxiety dissatisfaction, become friends with physical and mental discomfort, and accept it. Due to its perspective, acceptance and commitment treatment increases self-compassion by limiting emotional thoughts, especially negative ones, which regulate mood and reduce anxiety [32]. In contrast, in a 2021 research conducted by Han and his colleagues, acceptance and commitment therapy had no significant impact on self-compassion [31].

Another part of the findings of this research that the acceptance and commitment therapy was effective in reducing corona disease anxiety of medical staff involved in COVID-19 care in Hamadan was consistent with the results of Levin et al. [18] and Haddadi et al. [3].

Acceptance and commitment therapy helps reduce corona disease anxiety among COVID-19 treatment staff. By promoting awareness of negative emotions and using acceptance and defusion techniques, ACT fosters psychological stability, emotional regulation, and stress reduction. This approach deals with negative emotions through awareness, enhances psychological resilience, regulates emotions effectively, and reduces stress. Setting values and making progress in taking action helps maintain treatment outcomes and enables medical staff to overcome obstacles and pursue their dreams, leading to reduced corona disease anxiety. ACT teaches thought control methods and emotion management, effectively reducing COVID-19 fear. ACT is a robust solution to support frontline forces' mental well-being against COVID-19.

The research findings demonstrated that acceptance and commitment therapy (ACT) had a substantial impact on enhancing resilience and self-compassion while effectively reducing COVID-19 anxiety among medical staff. Moreover, follow-up studies indicated that the positive effects of this treatment persisted for up to three months after the completion of the intervention.

5.1. Limitations

The limitations of this study are that non-random and convenience sampling methods were used, which could limit its generalizability. Data collection through questionnaires may have introduced measurement bias. External motivating factors and confounding variables were not fully controlled. The short follow-up duration may have restricted the exploration of long-term effects. Future research should address these limitations to provide more reliable insights into the effectiveness of acceptance and commitment therapy in supporting healthcare professionals during challenging times, such as the COVID-19 pandemic.

5.2. Conclusions

Acceptance and commitment therapy are valuable and effective approaches in enhancing resilience, self-compassion, and emotional well-being while reducing corona disease among medical staff. Its sustainable effects over time make it a promising intervention to support healthcare professionals on

the frontline during challenging times like the COVID-19 pandemic. Implementing ACT-based interventions can be instrumental in promoting the mental health and well-being of medical staff and, consequently, enhance their ability to provide high-quality care during public health crises.

Future research should include medical staff from other hospital departments, such as ICU and cancer departments, and use random sampling methods. It is recommended to improve acceptance and commitment therapy (ACT) based educational programs for healthcare and nursing staff combating COVID-19. These programs can be effective in increasing resilience and self-compassion, reducing corona disease anxiety, and improving the overall quality of life of individuals. Paying attention to the positive relationships between accepting negative emotions, enhancing emotional tolerance, and reducing self-criticism can strengthen self-compassion and improve psychological well-being. The significance of the study's results in society is highlighted by the crucial role of healthcare professionals in facing health crises, including the COVID-19 pandemic. Continuous psychological support for healthcare staff is essential as they play a fundamental role in providing healthcare services and support to the community. Therefore, implementing ACT programs in healthcare settings can lead to improved healthcare, reduced mental and physical fatigue among healthcare professionals, and lead to an overall enhancement of the quality of healthcare services.

Footnotes

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