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Effectiveness of Acceptance and Commitment Therapy (ACT) for Anxiety, Depression, and Stress during COVID-19 Pandemic: A Narrative Review

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ABSTRACT

The impact of the COVID-19 pandemic on mental health crisis may have a long-lasting effect amidst people who went through loss of lives, self-quarantine, social distancing, job loss, the threat of illness, psychosocial and economic crisis. The dramatic increase of mental health difficulties makes psychotherapeutic assistance a vital need. Recent literature states that Acceptance Commitment Therapy is one of the effective methods to moderate psychological distress resulting from the uncertainties of a pandemic. In this study, we aim to identify literature on the effectiveness of ACT in treating anxiety, depression, and stress during the COVID-19 pandemic, and by doing so observe its effectiveness and potential use in pandemic like situations that may arise in the future. The narrative review method is adopted in the study. By focusing on acceptance, mindfulness, and values-based action, Acceptance and Commitment Therapy (ACT) efficiently alleviates anxiety, depression, and stress that are associated to the COVID-19 pandemic. Small sample sizes, inconsistent evidence quality, a shortage of knowledge of long-term impacts, and a lack of attention to the therapeutic process are some of the study gaps, though. Future research should examine ACT protocols, provide manuals tailored to the pandemic, and look into technology-assisted psychotherapy like cyberpsychotherapy. *Key words:* Acceptance and Commitment Therapy (ACT), COVID-19, anxiety, depression, stress.

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Novelty and Significance

What is already known about the topic?

- ACT interventions have been shown to be effective in reducing anxiety and stress in a variety of groups, particularly among nurses working in Covid wards and individuals concerned about COVID-19.
- Various studies have found that ACT interventions not only reduced distress but also increased psychological flexibility, mindfulness, and overall well-being.

What this paper adds?

- This study provides insights on how to develop effective interventions and support networks for those experiencing stress, anxiety, and depression during a general crisis such as the COVID-19 pandemic.
- The findings are relevant to a wide spectrum of professions, from clinicians and psychotherapists to mental health policymakers.
- This study emphasizes the convenience of preventive preparedness for future crises, encouraging online counselling venues.

The war against COVID-19 may have died down, its impact lives on. The traumatic stress that was created by the devastating experience the world faced during the first few waves of this pandemic cannot be easily taken away. This had a long-lasting effect on the psychosocial and physiological wellbeing of the people around the globe (Rajkumar, 2020; Zhou, Liu, Xue, Yang, & Tang, 2020). As per WHO there had been 430,257,564 confirmed cases of COVID-19, including 5,992,047 cases of death (as of CET, 25 Feb 2022, World Health Organization, 2022). Most people who were

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personally affected by the coronavirus will experience acute stress disorder, many will experience post-traumatic stress disorder (PTSD), but some people will have a deeper trauma in the form of lingering anxiety disorders, depressive episodes, neurotic disorders and personality deformities (Alhalafi, 2020; Chong, Chien, Cheng, Kassianos, Gloster, & Karekla, 2021; Gloster *et alia*, 2020). Other psychological issues like anxiety to attend any public gathering, not being able to say a healthy, final goodbye to the loved ones, concerns about job, income and security were also noted (Zhou *et alia* 2020, Araújo, Veloso, Souza, Azevedo, & Tarro, 2020).

In a study, close to half of the Americans who were surveyed reported increased symptoms of anxiety or depressive disorder, and 10% of them stated that their mental health needs were not met (Vahratian, Blumberg, Terlizzi, & Schiller, 2021). People with mental disorders or illnesses were found to be more likely to die than those without mental disorders or illnesses (Wang, Yang, Ren, Shao, Tao, & Dai, 2021). Individuals afflicted with COVID-19 may experience a number of symptoms related to brain and mental health, including Cognitive and Attention deficits (Velichkovsky, Razvaliaeva, Khlebnikova, Manukyan, & Kasatkin, 2023), Anxiety and Depression (Daly & Robinson, 2022), Psychosis (Chaudhary, Musavi, Saboor, Javed, Khan, & Naveed, 2022), Seizures (Vossler, 2023), Suicidal Behaviour (Farooq, Tunmore, Ali, & Ayub, 2021). In an investigation of the mental health repercussions of the COVID-19 pandemic in China, Zhou *et alia* (2020) found significantly high prevalence rates. 25.5% symptoms of anxiety disorders, 16.9% depression, and 26.2% for insomnia were found in individuals who were seeking professional psychiatry outpatient support (Oppenauer, Burghardt, Kaiser, Riffer, & Sprung, 2021).

According to World Health Organization (WHO, 2022), COVID-19 pandemic set off a 25% increase in the prevalence of anxiety, and depression around the globe which was a call for action to all nations to enhance their mental health services and provide increased support (Kupcova, Danisovic, Klein, & Harsanyi, 2023). An online survey conducted among Austrian participants revealed that 4 weeks into the lockdown, there was an increase in the prevalence rates of depression and anxiety symptoms (Pieh, Budimir, & Probst, 2020).

Acceptance and Commitment Therapy, commonly known as ACT, emerged as the third wave of Cognitive Behavioural Therapy (CBT). It is an experiential therapy with a pragmatic world view of Functional Contextualism (Hayes, Strosahl, & Wilson, 2011). It is philosophically based in clinical behaviour analysis and has a theoretical basis in Relational Frame Theory (RFT) (Freeman, Felgoise, Nezu, Nezu, & Reinecke, 2006; Hayes, Luoma, Bond, Masuda & Lillis, 2006; Pierson & Hayes, 2007; Li, Shang, Wang, Yang, & Guo, 2022).

It is a behavioral approach which emphasizes the importance of valued engagement in life. It operates on six primary principles, a hexagon model to move from psychological inflexibility to flexibility: acceptance, cognitive flexibility, present-moment awareness, self-as-context, values, and committed action. Through these principles, ACT uses a non-eliminative approach which encourages individuals to embrace their internal experiences, including their thoughts and emotions, in order to move toward value-based psychological flexibility (Freeman, Felgoise, Nezu, Nezu, & Reinecke, 2006; De Houwer, Barnes-Holmes & Barnes-Holmes, 2016; Stoddard & Afari, 2014).

Researchers have found that ACT reduces psychotic symptoms, experiential avoidance, and improves quality of life with an acceptable dropout rate (Prokopowicz, Stańczykiewicz & Uchmanowicz, 2021). It has also been seen to improve emotional

regulation (Burhan & Karadere, 2021; Khakbaz, Khanjani, Younesi, Ardkani, Safi, & Hosseinzadeh, 2022). ACT has demonstrated significant reduction in anxiety and depressive symptoms (Bai, Luo, Zhang, Wu & Chi, 2020; Heydari, Masafi, Jafari, Saadat & Shahyad, 2018).

The effective and practical nature of ACT Therapy may serve as a great therapeutic approach for psychological distress in the context of COVID-19 pandemic. Based on the ideas of functional contextualism and grounded in applied behavioural analysis, ACT redirects focus away from past events and onto current experiences by utilizing mindfulness. Frontline workers, particularly medical professionals, bear the brunt of severe stress during these trying times. An intervention that rapidly alleviates psychological distress, such as ACT, is of crucial importance not only for their wellbeing, but for their prompt return to their roles. This emphasizes the imperative to explore and popularize the efficacy of ACT in alleviating psychological distress during the pandemic.

There is a scarcity of systematic literature review on the effectiveness of ACT in helping people with stress, anxiety, and depression in the pandemic situation. The shortage of literature on ACT in pandemic settings is mainly due to the unprecedented occurrence of a pandemic during the history of ACT. The objectives of the study are to find literature on the effectiveness of ACT in treating Anxiety, Depression, and stress during the COVID-19 pandemic. Its effectiveness when it is administered along with other interventions as part of an integrative approach is also observed. It stands out by including even remotely administered ACT interventions. The review also aims to find the different psychological problems induced by the COVID-19 pandemic for which studies suggest ACT as a suitable intervention. By observing the effectiveness of ACT during the COVID-19 pandemic, the study aims to observe its effectiveness and use in similar situations that may arise in the future.

The narrative review method is adopted as it enables the research to explore the relationship within the data and the assessment of the strength of evidence, investigate heterogeneous studies, and paves way for a summary of knowledge related to the specific questions of the review which can be used in further practice or policy making. The review includes studies that investigate the effectiveness of ACT in treating COVID-19 induced a variety of psychological distress that vary in research design, participant characteristics, and in combinations of interventions (see Figure 1 for a graphical representation of the Prisma flow chart for search methodology).

This pandemic is new for the medical and psychological field for which qualitative narrative synthesis would help to describe the various psychological effects it had on people, and how ACT by itself and in combination with other interventions helped participants to overcome those struggles. Therefore, narrative synthesis is more appropriate for this review than statistical techniques. The Guidance on the Conduct of Narrative Synthesis in Systematic Reviews (Popay et alia, 2006) will be used to elucidate the data synthesis process. All the data extracted from the papers are presented narratively in text and summary tables.

This research is highly relevant for clinicians, psychotherapists, and mental health policymakers, indicating the potential effectiveness of ACT in addressing pandemic-related psychological distress. It brings to the awareness of the clinicians, the current limitations in the evidence base and the need for more rigorous research. It also suggests the potential significance of online platforms in cyberpsychotherapy and digital health interventions in mental health which can be of crucial importance during times of lockdown or social distancing. The study emphasizes the gravity of the mental health

crises during the COVID-19 pandemic and advocates for the potential benefits of ACT as a therapeutic intervention, and the need for more comprehensive research before its widespread application in similar crises that may arise in the future.

The primary focus of this review is to explore the effectiveness of Acceptance and Commitment Therapy (ACT) in addressing anxiety, depression, and stress stemming from the COVID-19 pandemic. Furthermore, the study aims to determine whether the outcomes of this investigation can provide insights into ACT's potential application in managing psychological distress during future pandemic scenarios.

The research sets out with several distinct objectives. Firstly, there's a focus on identifying literature that speaks to the efficacy of ACT when treating anxiety, depression, and stress amid the COVID-19 pandemic. The next goal is to observe how ACT functions specifically in the context of the COVID-19 pandemic. Lastly, the study aims to evaluate how ACT might be employed effectively in potential pandemic scenarios that could emerge in the future.

METHOD

Search Strategy

The following seven databases were searched in December 2022 from database inception: MEDLINE, PsycINFO, ERIC, PubMed, JSTOR, Scopus and ScienceDirect. Relevant papers from the reference sections of the articles found were also considered and screened using the inclusion and exclusion criteria.

The search strings included terms that represented the following: Depression, Anxiety, Mental health, COVID-19, pandemic, Pre- and Post-pandemic periods, Effectiveness of Acceptance and Commitment therapy as an intervention for Depression, Anxiety, and Stress. The terminology used in review papers with similar objectives was used as guidance to generate keywords and search strings for each of the above-mentioned areas of interest.

Data Extraction and Procedure

The relevant details from each article will be extracted and entered into a Microsoft Excel spreadsheet. The coding scheme will be used to identify the components that are relevant to the inclusion criteria, and to address the research questions. The coding scheme included the year of publication, location of the study, study design, number of participants, participants' characteristics, research methodology, data collection methods, tools used, methods of data analysis, sampling, major findings, the effectiveness of ACT in treating COVID-19 induced anxiety, depression and stress, the different psychological problems induced by the COVID-19 pandemic for which studies suggest ACT as a suitable intervention, and limitations of the studies.

Eligibility Criteria

The studies included in this review must have participant over 14 years of age. The review includes studies with interventions of different types of administrations and combinations which include: Studies that find the effectiveness of ACT in treating COVID-19 induced Anxiety, Depression, and Stress, Studies that find the effectiveness of ACT in combination with other therapies on COVID-19 induced Anxiety, Depression,

and Stress, Studies that compare the effectiveness of ACT in combination with other therapies in treating COVID-19 induced Anxiety, Depression, and Stress, and Studies that suggest ACT as a suitable intervention for psychological problems induced by the COVID-19 pandemic. The intervention can be web-based or face-to-face, administered by self or therapist, and by individual or group.

The review covers various research designs, including experimental, semi-experimental, randomized control trials, mixed methods, non-concurrent multiple baseline designs, randomized clinical trials, pilot studies, quasi-experimental designs, online surveys, longitudinal studies, and cross-sectional prevention program studies. It ensures a holistic evaluation of the subject matter by including studies in various settings, including pre-test and post-test designs, pre-test and post-test follow-ups, and online surveys.

The study establishes specified inclusion-exclusion criteria for research designs (see Table 1). It specifically excludes investigations with differently abled participants. Participants having a history of substance misuse or those diagnosed with psychiatric conditions are additionally excluded. This ensures that the study’s target population and objectives can be met specifically. The study has defined some exclusion criteria. It specifically excludes systematic review papers. Furthermore, any research published prior

Table 1. Inclusion and Exclusion Criteria.

Inclusion Criteria	
Population, Participants, and conditions of interest.	Participants over 14 years
Interventions	(i) Studies that find the effectiveness of ACT in treating Covid-19 induced Anxiety, Depression, and Stress. (ii) Studies that find the effectiveness of ACT in combination with other therapies on covid-19 induced Anxiety, Depression, and Stress. (iii) Studies that compare the effectiveness of ACT in combination with other therapies in treating covid-19 induced Anxiety, Depression, and Stress. (iv) Studies that suggest ACT as an effective intervention for various psychological problems induced by the COVID-19 pandemic. [The intervention can be web-based or face-to-face, self-administered or administered for a therapist, and individual or group sessions] i) ACT is effective in treating Anxiety, Depression, and Stress during the Covid-19 pandemic. (ii) ACT is suggested as an effective intervention for various psychological problems induced by the COVID-19 pandemic.
Outcomes of Interest	(ii) ACT is suggested as an effective intervention for various psychological problems induced by the COVID-19 pandemic.
Setting	Any Setting
Study Designs	(i) Experimental study using Pre- and Post-test design with control. (ii) Semi-experimental research performed with experimental and control groups with pre-test and post-test design. (iii) Randomized control trial using a web application. (iv) Mixed method (Interventional, Time-Series design). (v) A non-concurrent multiple baseline design. (vi) Randomized clinical trial. (vii) Pilot study with pre-test and post-test follow up with control group. (viii) Quasi-experimental pre-test and post-test design with a control group. (ix) Online Survey. (x) Longitudinal Study. (xi) Cross-sectional Prevention Program Study
Exclusion Criteria	
Population, Participants, and conditions of interest.	(i) Differently abled participants. (ii) Participants with substance abuse. (iii) Participants diagnosed with psychotic disorders.
Study Designs	(i) Systematic Review papers. (ii) Studies that were published before 2020. (iii) Case studies

to the year 2020 is excluded. Case studies are also outside the scope of this research. These criteria are intended to ensure a clear and relevant research scope for the study's objectives (see Figure 1 for a graphical representation of the Prisma flow chart).

Quality assessment of the studies included in the review will be done using the Critical Appraisal Skills Program (CASP) checklists as it allows the appraisal of different study designs using its quantitative and qualitative versions.

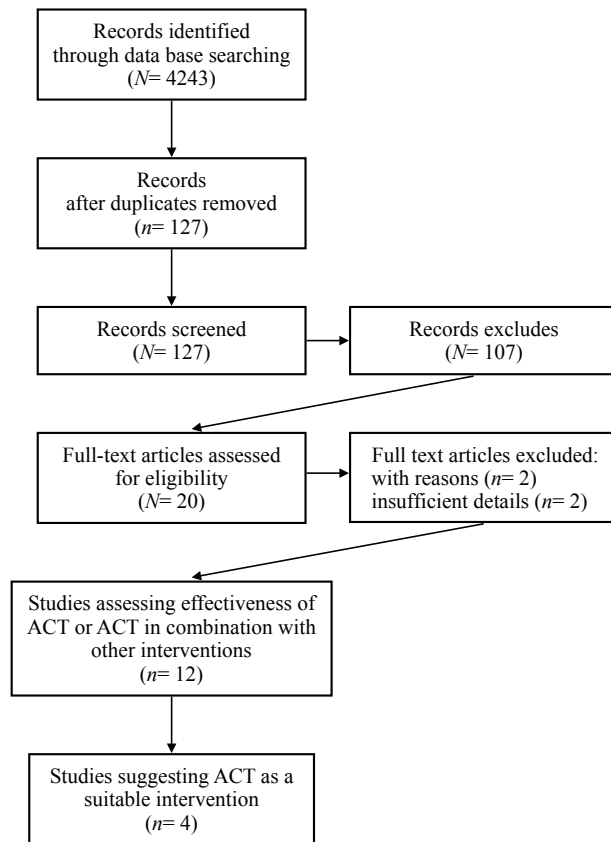


Figure 1. Prisma flow chart for search methodology.

RESULTS

A total of 16 studies met the inclusion criteria (See Table 1). The studies were conducted in Iran ($n= 7$), USA ($n= 5$), UK ($n= 1$), Turkey ($n= 1$), Italy ($n= 1$), and Indonesia ($n= 1$). The studies were conducted between 2020 and 2022.

Twelve of these sixteen studies aimed to assess the effectiveness of ACT (alone, or in combination with other interventions) in managing the symptoms of or alleviating conditions like anxiety, depression, and stress (the studies included in the review are detailed in the Table 2).

Table 2. Effectiveness of ACT in treating Anxiety, Depression, and Stress during the Covid-19 Pandemic.

Study and Location	Methodology	Participants	Diagnosis	Instruments	Main results
Al-Alawi et alia, 2021. Oman	RCT	1539 participants	Anxiety and depression	- PHQ-9 - GAD-7).	ACT along with CBT reduced anxiety and depression.
Badrkhani et alia, 2022. Iran	Quasi-experimental pre- post-test design.	45 participants, all women. Age 20-60 years.	Death Obsessions	- DOQ	Reducing the death obsessions more effective with DBT and ACT are found to be the same.
Berger et alia, 2021. USA	A non-concurrent multiple baseline design	5 participants; Age range= 25 to 64 years	Overweight and obesity	- PAAQ - VLQ	ACT together with physical activity proved to be effective in improving the physical activity of participants. Mindfulness exercise and value-based behaviors served as a protective factor during COVID-19.
Dinarvand et alia, 2022. Iran	Pilot study with pretest and posttest follow up with control group.	30 participants	Anxiety	- GAD-7	Study showed that CBT and ACT reduced anxiety in comparison with the control group; There is no significant difference between the effectiveness of CBT and ACT.
Faizah, 2021 Indonesia	Quasi-experimental study with dependent pre-test and post-test samples.	Intervention group (n=106) 24.5% early old age individuals, predominantly males.	Patients infected by Covid-19	- SWLS - MHI.	Social support and ACT improved mental health and subjective wellbeing in COVID-19 patients
Fishbein & Arch, 2021. USA	RCT	73 cancer survivors. Participants completed primary treatment for cancer.	Anxiety	- GAD-7 - CARS - EAC	When compared with MEUC, ACT led to greater improvements on the outcome; 8-month trial Follow-up results found to be consistent with main findings.
Joharifard et alia, 2022. Iran	Semi experimental study with Intervention and Control groups in a pre- post-test design.	20 participants; randomly selected (10 female)	Worried because of COVID19	- CDAS	Anxiety about COVID19 and physiological and psychological symptoms of the disease significantly reduced in Participants of Intervention group. Also increased mindfulness and acceptance leading to psychological flexibility, and development of adaptive and resilient responses to life events.
Khademian et alia, 2020. Iran	Randomized Control Trial with a web application.	100 College students, Age range= 20-35 years.	Stress	- PSS - PSQI	Increased ability to manage stress; Improved sleep quality; Promotion of healthy behaviors
Mosazadeh et alia, 2021. Iran	Experimental with Pre- and Post-test design with control.	30 nurses; 3 years' work experience, Working in Covid wards; Mean age= 39.53 years.	High anxiety	- BAI - SOSQ.	ACT intervention reduced occupational stress and anxiety, greater acceptance of feelings, strengthened psychological flexibility, enlightened personal values, increased ability to encounter prolonged work hours.
Otares et alia, 2021 Iran	RCT with a web application.	40 healthcare participants; Mean age 33.4 (SD= 4.49)	Depression and anxiety	- BDI - BAI - QOLI - GAF - AAQ-II	Significant reduction in level of depression and anxiety; Improvement in Quality of Life.
Shepherd et alia, 2022. UK	Mixed method (Interventional, Time-Series design)	48 participants; 18 years old or over	Anxiety	- SWEMWBS - CompACT- - DASS-21 - OLQ.	Significant improvement in wellbeing, increase in overall psychological flexibility, behavioral awareness, and valued action; Reduction in general psychological distress; No significant changes were found in COVID19 related distress, but participants reported increased ability to cope with general psychological distress.
Sobhani et alia, 2022. Iran	Quasi-experimental pre-post-test design with Control group.	35 participants; all women; age= 21 years or older	Depression	- BDI-II - WHOQOL- - BREF	Depression means scores decreased in Intervention group compared with Control group. Quality of Life increased significantly compared with Control group.

Notes: AAQ-II= Acceptance and Action Questionnaire-II; ACT= ; BAI= Beck Anxiety Inventory; BDI and BDI-II= Beck Depression Inventory; CARS= Concerns about Recurrence Scale; CBT Cognitive Behavior Therapy; CDAS= Corona Disease Anxiety Scale; CompACT= Comprehensive assessment of Acceptance and Commitment Therapy; DASS-21= Depression Anxiety and Stress Scale -21; DOQ= Death Obsession Questionnaire; DBT= Dialectical Behavior Therapy; EAC= Emotional Approach Coping Scale; GAD-7= General Anxiety Disorder; GAF= Global Assessment of Functioning Scale; MHI= Mental Health Inventory; OLQ= Online Qualitative Survey; PHQ-9= Patient Health Questionnaire-IX; PSS= Perceived Stress Scale; PAAQ= Physical Activity Acceptance Questionnaire; PSQI= Pittsburgh Sleep Quality Index; QOLI= Quality of Life Index; SWEMWBS= Short Warwick Edinburgh Mental Well-Being Scale; SWLS= Satisfaction with Life Scale; SOSQ= Steinmetz Occupational Stress Questionnaire; VLQ= Valued Living Questionnaire; WHOQOL-BREF= World Health Organization Quality of Life Questionnaire-Bref.

Furthermore, four of the sixteen studies recommend ACT as a suitable intervention for anxiety, depression, stress, and related mental health issues. Their ages ranged from 18 to 65. these studies are included in Table 3).

Most of the studies had some noticeable limitations, which point out particular gaps in the research and results that might not be generalizable. While some studies had a control group as part of their design (i.e., Faizah, Kartini, Yunita Sari, Rohmawati, Afiyah, & Suryadi Rahman, 2021; Joharifard, Nouri, Harzati, & Harani, 2022; Khademian,

Table 3. Studies that suggest ACT as a suitable Intervention for treating other problems during the COVID-19 Pandemic.

Study and Location	Methodology	Participants	Diagnosis	Instruments	Main Results and Recommendations
Daks et alia, 2020 USA	Online Survey	742 co-parents of children 5-18 years old.	- Psychological Inflexibility - Parent distress - COVID-19 stressors - Greater Family discord and co-parent discord leading to inconsistent and aggressive parenting	MPFI COVID-19R SND CHAOS, PPQ APQ CBCL PHQ CIS CQ FAD	Psychological inflexibility, parent-child distress, and more family and co-parent conflict (resulting in inconsistent and combative parenting, are stressors associated with COVID-19. Aside from ACT, family therapy (based on mentalization and therapy based on attachment) were also recommended
Arslan alia, 2020 Turkey	Online Survey	451 adults 18-65 years old.	Psychological inflexibility and psychological problems.	CSM PSS OPM AAQ-II BSI-18	COVID-19 strongly mediates the association between psychological inflexibility and psychological difficulties. A significant predictive influence on optimism and pessimism. Optimism and psychological adaptability can lessen COVID-19 related effects. ACT can make a good first aid.
Landi et alia, 2022 Italy	Longitudinal Study	382 participants	PTSD	MPFI IES-R PTGI	Higher post-traumatic growth, present-moment awareness, defusion of emotion, values, and committed activities were all linked to psychological flexibility. Evidence-based strategies, like as ACT, encourage post-traumatic growth and adjustment in individuals with high post-traumatic stress both during and after the pandemic.
Kroska et alia, 2020 USA	Cross-sectional Prevention Program Study	485 participants	Psychological Inflexibility, Psychological Distress, and Peritraumatic Distress.	PAM Comp ACT PDI KPDS	The components of psychological inflexibility, psychological distress, and peritraumatic distress were found because of the covid-19 stress. Recommend ACT targets both behavioral awareness and openness to experience to involve in meaningful actions. It can be well suited to ameliorate the psychological impact of pandemic related adversity.

Notes: AAQ-II= Acceptance and Action Questionnaire-II; ACT= Acceptance and Commitment Therapy; APQ= Alabama Parenting Questionnaire; BSI-18= Brief Symptom Inventory; C-19R= COVID-19 Risk; CBC= Child Behavior Checklist; CHAOS= Confusion Hubbub and Order Scale; CIS= Coparental Interaction Scale; CompACT= Comprehensive assessment of Acceptance and Commitment Therapy; CQ= Coparenting Questionnaire; CSM= Corona Stress Measure; FAD= Family Assessment Device; IES-R= Impact of Event Scale-Revised; KPDS= Kessler Psychological Distress Scale; MPFI= Multidimensional Psychological Flexibility Inventory; OPM= Optimism and Pessimism Measure; PAM= Pandemic Adversity Measure; PDI= Peritraumatic Distress Inventory; PHQ= Patient Health Questionnaire; PPQ= Parenting Practices Questionnaire; PSS= Perceived Stress Scale; PTGI= Post-Traumatic Growth Inventory; SND= Stress and New Demands.

Aslani, Ravangard, Bastani, Nami, & Jafari, 2020; Mosazdeh, Blachnio, & Pirnia, 2021; Sobhani, Pour, & Khalili, 2022), some did not (i.e., Al-Alawi *et alia*, 2021; Berger, García, Catagnus, & Temple, 2021; Otared, Moharampour, Vojoudi, & Najafabadi, 2021; Shepherd, Golijani-Moghaddam, & Dawson, 2022). Online questionnaires were used in some studies (i.e., Arslan, Yildrum, Tanhan, Bulus, & Allen, 2020; Daks, Peltz, & Rogge, 2020; Shepherd *et alia*, 2022). Comparing the results of the various studies proves to be challenging owing to the differences in circumstances and the age demographics of the participants in each study. Many of the studies achieved a strong or moderate rating on the CASP checklists. Some of the studies failed to report whether they had piloted the survey before administering the surveys and questionnaires (i.e., Arslan *et alia*, 2021; Daks *et alia*, 2020; Shepherd *et alia*, 2022).

Most of the studies has gender-mixed sample which allows comprehensive understanding through representativeness. Although, gender differences can also lead to the problem of confounding variables and may possibly mask some gender-specific differences within the groups (Holdcroft, 2007).

About the effectiveness of ACT in treating anxiety, depression, and stress during the COVID-19 pandemic our review has shown that ACT reduced physiological and psychological symptoms of anxiety in participants concerned about the COVID-19 disease, as well as helped them develop adaptive and resilient responses to life events amidst life-threatening worries and feelings (Joharifard *et alia*, 2022).

ACT delivered via a web application was found to improve sleep quality, stress management skills, and healthy behaviour (Khademian *et alia*, 2020).

The degree of depression among healthcare professionals was shown to be significantly reduced as a result of group-based ACT treatment, improving Quality of Life (Otared *et alia*, 2021). The levels of work-related stress and anxiety were shown to decrease after the ACT session. Additionally, it was found to increase Psychological Flexibility, enabling front-line workers like nurses to put in longer hours (Mosazdeh *et alia*, 2021).

There was no discernible difference in the efficacy of CBT and ACT when ACT was given in conjunction with Cognitive Behaviour Therapy (CBT), and it was seen to lessen both Anxiety and Depression (Al-Alawi *et alia*, 2021; Dinarvand, Bakthiarpour, & Heydarei, 2022). It was discovered that when given together with exercise, it increased physical activity in subjects who were obese or overweight during the COVID-19 pandemic. Researchers observed that they were more mindful of their calorie intake and exercise level. During the COVID-19 epidemic, adding mindfulness and values-based habits acted as a protective factor.

Dialectical Behavioural Therapy (DBT) and Acceptance and Commitment Therapy (ACT) were both shown to be equally beneficial at reducing death obsessions in the female population (Badrkhani, Motlag, & Pirani 2022). ACT was seen to significantly improve Quality of Life and reduce depression levels in a sample of women with chronic pain (Sobhani *et alia*, 2022). According to a research, ACT caused more improvements than Minimally Enhanced Usual Care (MEUC) during the course of an 8-month trial follow-up in a group of 73 worried cancer survivors (Fishbein & Arch, 2021). Patients who were affected by COVID-19 have shown improved mental health and subjective well-being after receiving ACT on a regular basis and having access to social assistance.

ACT has been suggested as a suitable intervention for different problems during the COVID-19 Pandemic. For example, in order to manage parent-child distress, COVID-19 stressors, greater family Discord, and co-parent discord leading to inconsistent and

aggressive parenting, a study with 742 Co-Parents of Children Belonging to the Age Group of 5-18 years, showed that ACT targets of psychological inflexibility as a suitable intervention along with family-based therapy (Daks *et alia*, 2020).

In another example, a study (Arslan *et alia*, 2020) conducted on 451 adults within the age group of 18 to 65 found that COVID-19 had significant predictive effect on their levels of optimism and pessimism, and that it significantly mediated the relationship of psychological inflexibility with psychological problems. The study suggests the evidence-based Acceptance Commitment Therapy as a first aid.

In summary, this review found that the ACT intervention significantly reduced occupational stress and anxiety, improved psychological flexibility, and strengthened personal values. Participants experienced reduced anxiety about COVID-19 and its symptoms, and developed adaptive and resilient responses to life events. The intervention improved sleep quality, promoted healthy behaviors, and improved overall wellbeing. Participants reported increased ability to cope with general psychological distress, reduced depression and anxiety levels, and improved quality of life. ACT, combined with physical activity, was effective in improving participants' physical activity levels. Mindfulness exercise was less effective than value exercise, but adding mindfulness and value-based behaviors served as a protective factor during COVID-19. The study found no significant difference between the effectiveness of CBT and ACT in reducing anxiety and depression. The experimental group experienced decreased depression mean scores and significantly increased quality of life compared to the control group. ACT led to greater improvements in outcomes compared to MEUC. The study involved 53 participants divided into two groups, receiving social support along with ACT for 5 sessions.

DISCUSSION

According to the results of this review, ACT is an effective treatment for anxiety, depression, and stress brought on by COVID-19 (Landi *et alia*, 2022). A majority of the trials that were included showed statistically significant reductions in anxiety and depressive symptoms after ACT treatment. To assist people to develop psychological flexibility and lessen their battle with distressing emotions and thoughts associated to the COVID-19 traumatic epidemic (Kroska, Roche, Adamowicz & Stegall, 2020; Ye, Chen, Zhang & Yang, 2022), ACT places an emphasis on acceptance and mindfulness (Witarto *et alia*, 2022).

ACT teaches individuals to embrace and to acknowledge their feelings, rather than to suppress and eliminate them (Hayes, Levin, Plumb-Villardaga, Villatte & Pistorello, 2013). This approach is beneficial in the context of global crisis, catastrophe and war-like traumatic situations like COVID-19 where people may experience a sense of uncertainty, loss, and fear. The research studies on the effectiveness of ACT also focuses on values-based action which encourages individuals to engage in activities that are aligned with their personal values. That's where we find that some of the studies included ACT in combination with other interventions to create value directed action.

Given the numerous challenges posed by the pandemic, most of the people lost purpose and meaning (Todorova *et alia*, 2021). ACT enables them to find meaning and purpose through valued direction and action (Harris, 2019). Which ultimately leads to healthy mental capacity. However, the studies taken for this research paper have some limitations. The noticeable number of research works included relatively very

small participants and the quality of evidence varied among the included studies (i.e., Badrkhani *et alia*, 2022; Berger *et alia*, 2021; Mosazadeh *et alia*, 2021; Otared *et alia*, 2021; Shepherd *et alia*, 2022; Sobhani *et alia*, 2022). The duration of follow-up assessments also varied amongst the studies which limits the understanding of long-term effects of ACT for COVID-19 induced anxiety and depression (i.e., Dinarvand *et alia*, 2022; Fishbein & Arch, 2022).

Furthermore, there were heterogeneity in the ACT interventions implemented, including variations in treatment duration, therapist expertise, and treatment setting (i.e., Al-Alawi *et alia*, 2021; Badrkhani *et alia*, 2022; Berger *et alia*, 2021; Dinarvand *et alia*, 2022; Faizah *et alia*, 2021; Fishbein & Arch, 2022; Joharifard *et alia*, 2022; Khademan *et alia*, 2020; Otared *et alia*, 2021; Shepherd *et alia*, 2022; Sobhani *et alia*, 2022). These factors may have influenced the results and limited generalizability of the findings. Only a few studies used ACT manuals systematically in implementing the therapy.

Most of the studies fall under the category of Psychotherapeutic outcome research. There are no studies to explain the psychotherapeutic process and the way therapeutic alliance happened in the process of administration of the therapy (Ardito & Rabellino, 2011). The process of rupture and repair in the psychotherapeutic process is a very important point to note (Walser & O'Connell, 2021) which most of the studies failed to do. In the future, a vast in-depth study on the effectiveness of ACT as a process and outcome research can help to know the effectiveness through an in-depth analysis. Studies can also be taken to analyze the long-term effects of the therapeutic outcome (Barney, Lillis, Haynos, Haynos, Forman, & Jurascio, 2019).

Creating a structured manual specifically for the pandemic situations can help the therapists, organizations in the future. It will be helpful and handy (Hermann, Meyer, Schnurr, Batten, & Walser, 2016; O'Donoghue, Morris, Oliver, & Johns, 2018). Creating such a readily available structure for administering the therapy in this specific context can prevent the frontline mental health workers from groping in darkness when a worldwide crisis arises suddenly (Presti *et alia*, 2020; Washburn, Yu & Zhou, 2021; Watson *et alia*, 2022). Studies can also be done to explore technological uses in psychotherapeutic administration and implementation, and the possibility of ACT as a cyberpsychotherapy can be explored (Botella, Palacios, Baños & Queros, 2009; Nosirovich, Umarovich & Khayot, 2022).

Anxiety, depression, and stress associated with COVID-19 have been proven to be successfully treated with Acceptance and Commitment Therapy (ACT). In order to increase psychological flexibility and deal with upsetting emotions, it places a strong emphasis on acceptance, mindfulness, and values-based action. Small sample numbers, varied evidence quality, and a lack of knowledge of long-term impacts are some of the gaps in research. A lack of attention to the therapeutic process was also seen. Future studies should look at the ACT procedure and results, create manuals specifically for use during pandemics, and study technology-assisted psychotherapy such as cyberpsychotherapy.

The clinical significance of the article lies in its potential to inform and improve mental health care during other similar global crises by offering evidence-based insights that aid in the creation of efficient interventions and support systems for people who experience stress, anxiety, and depression in such situations. The relevance of the study lies in its usefulness to multiple stakeholders including a broad spectrum of professionals ranging from clinicians and psychotherapists to mental health policymakers. The study's focus on addressing the psychological distress caused by the COVID-19 pandemic which is a very contemporary and pressing global issue increase the relevance of the study.

Important novelties of the present study would be its focus on the need for preparedness for similar cases in the future, and its emphasis on Acceptance and Commitment Therapy, a relatively novel therapeutic approach in the world of psychotherapy and the value of online platforms for therapy, particularly during lockdowns or social distancing orders.

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