

Mindfulness Skill of Dialectical Behavior Therapy in The Prevention of Suicidal Ideation Among Older Farmers of Punjab

Abstract

Objective

The study examines the efficacy of mindfulness skills in dialectical behavior therapy (DBT) on older farmers with suicidal ideation, psychological distress, helplessness, hopelessness, and low resilience. It was hypothesized that the mindfulness skills of DBT would alleviate suicidal ideation, hopelessness, helplessness, and psychological distress and enhance resilience in older farmers of Punjab.

Method

A total of 46 older farmers out of 285 who participated in the study belonged to various villages of Fatehgarh Sahib, Patiala, Sangrur, Gurdaspur, Faridkot, Barnala, Bathinda, and Mansa districts of Punjab were screened based on a threshold score of the Suicide Behaviours Questionnaire-Revised (SBQ-R, Osman et al., 2001). The 46 older farmers were given intervention over six weeks. The average age was 69.87 years old (65-82).

Results

Paired sample t-test results revealed that intervention had significantly alleviated suicidal ideation, hopelessness (HOP), helplessness (HLP), psychological distress, and enhanced resilience in the farmers.

Conclusion

The findings suggest the mindfulness skill of dialectical behavior therapy (DBT) was effective for distressed older farmers and helped them restore their psychological functioning.

Key Words: Suicidal Ideation, mindfulness, dialectical behavior therapy, older farmers, Punjab.

Introduction

Old age is characterized by various physical, psychological, social, and behavioural changes that have both positive and negative consequences. Erikson^[1] explained in his theory of psychosocial stages of human development that individuals in their late adulthood either achieve sense of integrity of the self by accepting the lives they have lived or more likely to feel despair, hopeless, and that their life has become meaningless which is not worth living. In that case, suicide can be seen as a “legitimate exit” from life loss of dignity, increased hopelessness, and emotional insolation are experienced.^[2] Thus, later life suicide or suicidal behaviour are an important topic for the gerontological scientific community.

Suicide is defined as death caused by self-directed injurious behavior with an intent to die as a result of the behavior^[3] and it usually starts from brooding about suicide to attempting suicide to an act that ends up to death.^[4] World Health Organisation^[5] reported that every year over 703000 people lose their lives by suicide. Globally, the majority of deaths by suicide occurred in low-and-middle-income countries (77%). Suicide rates in India accounted for 12.7 per 1,00,000 suicides in the South-East Asia region countries in 2019.^[5] Evidence from Global Burden of Disease (GBD) reveals that suicide mortality rates are highest globally among older adults aged 65 and above.^[6] The National Crime Record Bureau^[7] suggested that a total of 1,53,052 suicides reported in India during 2019 showing an increase of 10.0% in comparison to 2018. A total of 13,126 suicides were reported among individuals of aged above 60 in India during 2019 accounting for 8.5 % of total suicides. Whereas, in 10,677 persons in the farming sector during 2019 committed suicide accounting for 7% of total suicides (1,53,052) in the country.^[7] Thus, it is necessary to give needful attention to suicide among the older farming community of Punjab and its risk and protective factors so that further steps will be taken to protect farmers from engaging in suicidal behaviours and preventive design policies.

There is a large body of empirical research that is devoted to identifying the biopsychosocial risk factors associated with suicidal ideation among older adults. Studies have shown that physical illnesses such as malignancies, chronic pain, stroke, rheumatoid arthritis, and Parkinson's disease emerged out to be the significant predictors of suicidal ideation, or suicidal behaviour among older adults.^[8-10] Among psychosocial variables, research has shown that several including hopelessness, helplessness, depression, thwarted belongingness, perceived burdensomeness, psychological distress and low resilience emerged out to be the possible mechanisms that may underlie the development and maintenance of suicidal ideation and behaviour.^[11-13] Similarly, research has shown that psychotherapy principles- based interventions has been effective in the prevention of various mental disorders including depression, bipolar disorder, anxiety disorder, substance use disorders and suicidal ideation and suicidal behaviour.^[14-15]

Recently, in the third-phase of therapeutic development, a lot of attention has been given to the incorporating Eastern philosophical elements (e.g. dialectical philosophy, mindfulness, acceptance, relationship, and spirituality) in earlier behavioural and cognitive treatment approaches.^[16-17] It is observed that mindfulness skill or meditation is a central aspect of these third-wave therapies. Mindfulness Skills, which is being taught in Dialectical Behavior Therapy^[18] is growing empirical evidence in preventing suicide over the years.^[19-20] DBT is a cognitive behavioural treatment developed by Marsha Linehan and covers four main skills: mindfulness, emotion regulation, interpersonal effectiveness, and distress tolerance.^[18, 21] The main aim DBT skills is to reduce emotional dysregulation, enhance resilience, interpersonal relationships, and self-compassion.^[21] DBT is based on capability and motivational deficit model which is directed at enhancing client capability. The mindfulness skill is considered to be important in DBT because mindfulness skill is a theme running through all three of the other skills.

The mindfulness skills in DBT emphasise on changing maladaptive patterns of behaviors, emotions, thinking and help individuals reducing hopelessness and increase resilience. In the present study, two mindfulness skills were introduced to the older farmers. These mindfulness skills include “what” skills, and “wise-mind” skills. The “What” skills are about what to do: “observe”, “describe”, and “participate”. Observing skills involve learning to attend to events, experiences, and other behavioral responses, without necessarily trying to terminate them when the events are painful or prolong the event when are pleasant.^[21] A second skill of “what” skills is describing the unpleasant or pleasant events in verbal form. Whereas, in the third skill of “what” involves the ability to participate without self-consciousness. The second mindfulness skill trained in the current study, wise mind, is the “synthesis or integration of opposites: emotion mind and reasonable mind”.^[21] “Wise mind” is the mindfulness practice of accessing inner wisdom and it is the vehicle for balancing “emotion mind” and “reasonable mind”.^[21] Several researches have shown that DBT, specifically Mindfulness skill can be effective in the management of suicidal ideation, or behaviour, depression and increasing resilience among individuals.^[20,22]

Despite the previous research evidence, the overwhelming majority of DBT trials have been conducted in western, educated, industrialized, rich, and democratic (WEIRD) settings with limited inclusion of culturally diverse samples. There is little evidence available non-WEIRD countries about the efficacy of DBT especially at the community level^[23], specifically with older rural farmers. Thus, the application of mindfulness skill of DBT might be helpful in providing insight about the idiographic differences in treatment response.

The main objective of the present study was to see the effectiveness of mindfulness skill of dialectical behavior therapy on older farmers of Punjab with suicidal ideation, psychological distress, helplessness, hopelessness, and low resilience. It was hypothesised that mindfulness

skill of DBT would alleviate suicidal ideation, hopelessness (HOP), helplessness (HLP), psychological distress, and enhance resilience in older farmers of Punjab.

Method

Participants

The sample for the present study comprised of 46 illiterate male farmers from various villages of Fatehgarh Sahib, Patiala, Sangrur, Gurdaspur, Faridkot, Barnala, Bathinda, and Mansa districts of Punjab with in the age range of 65-82 years old ($M=69.87$, $SD= 4.53$) living in nuclear and joint family types. These farmers were identified by 32 peer support volunteers of (15 males and 17 females) belonging to Fatehgarh Sahib, Patiala, Sangrur and Mansa districts. The sample for the present study was selected by purposive sampling. A total of 46 male farmers out of 285 participated in the study who were screened based on a threshold score of Suicide Behaviours Questionnaire-Revised.^[24]

Measures

The Suicide Behaviours Questionnaire-Revised^[24]

The SBQ-R is a 4- item that measures four level of suicidality, suicidal ideation/ suicidal behaviour/, frequency of suicidal ideation, intent to communicate suicide and the likelihood of committing suicide in the future. The cut-off score for general adult population is 7 and psychiatric population is 8. It means those who score above than or equal to these cut-off score is found to be clinically significant. The score ranges from 3 to 18. Higher the score, higher will be the suicidal behaviour. Research indicate that it yields good psychometric properties. Aloba, Ojeleye and Aloba^[25] found its internal consistency to be $\alpha=.83$.

The Modified Scale for Suicidal Ideation

The MSSSI is an 18-item which the measure the intention of suicidal ideation, competence to attempt suicide, and amount of communication about suicide.^[26] Each item rates on a 4-point

scale and responses are summed up to derive a total score. Severity ranges on the MSSSI are as follows: 0–8 = none/low, 9–20 = mild/moderate, 21+ = severe. Research indicate that it possesses good internal consistency $\alpha = .94$.^[26]

The Cognitive Distortions Scale^[27]

The scale is a 40-item, which is measured on 5-point Likert scale, 1(never) to 5 (very often) for 18 years to 91 years old adults. It measures dysfunctional pattern of thinking in adults. The scale measures five subscales each having eight items, Self-Criticism (SC), Self-Blame (SB), Helplessness (HLP), Hopelessness (HOP), and Preoccupation with Danger (PWD). The raw scores for each subscale are first converted into T-scores, and if T is equal to or greater than 70, that particular distortion would be considered clinically significant. Briere^[27] has found that it yields an internal consistency for hopelessness $\alpha = .97$, helplessness $\alpha = .94$, self-criticism $\alpha = .93$, self-blame $\alpha = .92$ and preoccupation with danger $\alpha = .89$. These values indicate very high internal consistency reliability for adult sample. In the present study, a total of 16 items out of 40 items were used to assess the hopelessness and helplessness among older farmers of Punjab.

General Health Questionnaire-12^[28]

The General Health Questionnaire^[28] is a 12- item self-administered screening tool of mental health recommended by the World Health Organization. The GHQ-12 was used to identify the severity of psychological distress experienced by an individual within the past few weeks. There are four response possibilities for each item on the scale, ranging from "better than usual" to "far less than usual." For this study, the GHQ scoring system (0-0-1-1) was adopted over the basic Likert scale of 0-1-2-3. The total score was calculated by adding all of the components on the scale, which ranged from 0 to 12. High scores imply psychological distress, as well as deterioration in health. As a result, the GHQ-12 is a useful tool for determining general mental health.

The Connor-Davidson Resilience Scale ^[29]

The Connor-Davidson Resilience Scale ^[29] is a 25-item self-report measure that ranges from not true at all (0) to, rarely true (1), sometimes true (2), often true (3), and true nearly all the time (4). Respondents choose their responses based on how they felt in the month leading up to the assessment. A higher number indicates better resilience. The overall score ranges from 0 to 100. The CD-RISC has good psychometric qualities and can distinguish between people who are more resilient and those who are less resilient. It has a high level of internal consistency of reliability (.89).

Reliability of the tools used

The internal consistency for the farmers (N= 120) was determined by Cronbach's alpha. The result showed that the Modified scale for Suicidal Ideation had a reliability of $\alpha = .69$. In terms of Cognitive distortion scale's dimensions, Helplessness (HLP) had a reliability $\alpha = .70$, and Hopelessness (HOP) had a reliability of $\alpha = .63$. The General Health Questionnaire-12 (GHQ-12) which measures psychological distress had a reliability of $\alpha = .67$. In addition, the result showed that Connor-Davidson Resilience scale had a reliability of $\alpha = .84$. Therefore, internal consistency for the farmers was found to be good for all the scales used in the present study.

Procedure

The present study comprised of three stages in the research. In the *first stage*, 46 distressed older farmers were screened out of 285 farmers, based on a threshold score of Suicide Behaviours Questionnaire-Revised ^[24], and those who scored above the threshold score of 8 were given Modified scale for Suicidal Ideation ^[26], Cognitive Distortions Scale ^[27], General Health Questionnaire-12 ^[28], and Connor-Davidson Scale. ^[29] These farmers were identified by psychological first aid trained peer support volunteers (PSVs), volunteering for the Indian Council of Agricultural Research. The information of these farmers were brought to the

attention of the author, a trained clinical psychologist and co-author, a trained community psychologist and DBT therapist who further rendered volunteer services for the individuals.

In the second stage, mindfulness skill of DBT (Table 1) was given to the 46 older farmers over a period of six weeks. In the final stage, MSSSI, GHQ-12, CD-RISC, and CDS were again administered to the older farmers to see whether mindfulness skills of DBT has been effective in terms of alleviating the suicidal ideation and hopelessness, helplessness, psychological distress and enhancing the resilience among older farming community.

Table 1

The week-wise intervention layout of mindfulness skills

Week 1 (Initiation and Rapport Building) Rapport building with the participants was initiated and participants were assessed their suitability for inclusion criteria. Participants were sensitised about the mindfulness program. Chain analysis was done to understand the occurrence of suicidal ideation in adults where the participants were assessed on:

- Vulnerability factors
- Prompting event
- Links (thought, emotion, behavior, other events of self and others)
- Target behavior
- Consequences (short term and long term)

Week 2 &3 (WHAT Skills)

The goal of the session to make the participant aware of his/her the surroundings and to experience reality as it is. In the beginning of the session, participants were psycho-educated about the

mindfulness and its benefits. A 5 minutes' body-scan exercise was conducted with the participants. In these two weeks, they were introduced with the "*What Skills of Mindfulness*". The 'What Skills' are what we do when we practice mindfulness. It includes three following skills:

- Observing
- Describing
- Participating

These skills were explained to the farmers with mindfulness exercises and discussions

Week 4 & 5 WISE-MIND Skill

The goal of this session was to make participants understand about they can take a non-judgemental stance ("nonjudgmentally") and focusing one thing in the moment ("one-mindfully"). In this session, two skills were introduced to the participants:

- Non-judgemental
- One-Mindful

These skills were taught to the participants with help of discussion, examples, practice exercises

Week 6 Consolidation & Termination

In the final week of the intervention, consolidation of the change initiated during last 4 weeks. The post assessment of old farmers was done using GHQ-12, MSSSI, CD-RISC, CDS.

Ethical Consideration

Ethical clearance was obtained by Empowered Committee (EC) of National Agricultural Science Fund (NASF)-Indian Council of Agricultural Research (ICAR) which authorised it via letter no. NASF/SS-6003/2016-17. The participants were informed that he/ she could withdraw any time from the study without giving the reasons for the same. The confidentiality of the information was assured and written informed consent was also obtained from the participants or their primary caregivers.

Data Analyses

A paired sample t-test was utilised to examine the difference in pre-post intervention scores on suicidal ideation, hopelessness (HOP), helplessness (HLP), psychological distress and resilience in the sample under study. In the analysis IBM SPSS for Windows version 20 was used.

Results

Table 2

Demographic characteristics of sample and mean scores on each measure.

Demographic characteristics	N	%age	Min.	Max.	Mean	SD
Age(Years)	46		65	82	69.87	4.53
District						
Bathinda	5	10.6				
Mansa	15	31.9				
Patiala	5	10.6				
Fatehgarh Sahib	5	10.6				
Gurdaspur	2	4.3				
Faridkot	6	12.8				
Sangrur	6	12.8				
Barnala	2	4.3				
Family Type						
Nuclear	31	67.3				
Joint	15	32.6				
Marital Status						
Married	35	74.5				

Unmarried	2	4.3				
Widower	9	19.1				
Suicidal ideation			0	20	7.50	5.35
Hopelessness			44	100	84.13	20.70
Helplessness			67	100	96.86	7.70
Psychological Distress			1	12	9.74	2.70
Resilience			9	91	46.07	23.11

Table 2 shows the demographic characteristics of the sample and overall descriptive statistics. The table 2 indicates that maximum farmers were from Mansa district i.e. 31.9 %. A total of 67.3% farmers were from nuclear family setup and majority of farmers in the study were married, i.e. 74.5%.

Table 3

Paired samples t –test comparing the pre and post-intervention scores of older farmers.

Paired Groups	Post-Pre intervention Mean Difference	SD	df	t	sig
Pair 1 Suicidal Ideation	7.45	5.36	45	9.42	0.005*
Pair 2 Psychological distress	7.63	3.30	45	15.67	0.001**
Pair 3 Helplessness	38.76	14.46	45	18.17	0.001**
Pair 4 Hopelessness	32.67	22.70	45	9.75	0.005*
Pair 5 Resilience	-25.26	21.41	45	-8.00	0.001**

Paired samples t-test results of pre and post intervention phases (Table 3) revealed that intervention has significantly reduced scores on psychological distress, $t(45) = 15.67, p < 0.01$, suicidal ideation, $t(45) = 9.42, p < 0.05$, helplessness, $t(45) = 18.17, p < 0.01$, hopelessness, $t(45) = 9.75, p < 0.005$, while improving scores on resilience, $t(45) = -8.00, p < 0.01$.

Discussion

The present study examined the therapeutic relevance of mindfulness skill of DBT on the suicidal ideation along with hopelessness, helplessness, psychological distress, and resilience. As it had been proposed, the paired sample t-test results revealed that mindfulness skill-based DBT intervention has been effective in improving the scores of suicidal ideation, hopelessness, helplessness, psychological distress, and enhancing resilience among vulnerable older farmers of Punjab.

The findings of the present study are in line with previous findings. Previous studies have demonstrated that mindfulness-based therapeutic approach such as, Mindfulness-based Cognitive therapy (MBCT), Acceptance and Commitment Therapy (ACT) and Dialectical behavior therapy (DBT) has been effective in treating suicidal ideation or behaviour, depression, hopelessness, emotional difficulties, low resilience or self-esteem and borderline-personality disorder.^[20, 30-32]

In addition, numerous studies have shown that mindfulness based therapy has been effective in the reduction of psychological distress and enhancement of resilience among adults.^[33-34]

A study conducted by Adelianet *al.*^[35] explored the effect of mindfulness-based stress reduction (MBSR) on resilience of vulnerable women at drop-in centres in the southeast of Iran. A total sample of 63 vulnerable women were randomly assigned into the intervention (n = 30) and control (n = 33) groups. The MBSR intervention was conducted for the intervention group in eight 90-min sessions. Demographic information questionnaire and Connor-Davidson resilience scale was administered to collect data prior to and one month after the MBSR intervention. The result showed that the post-test resilience score in the intervention group was found to be increased as compared to the control group.

As suggested by the Deployment Focused Model ^[36], the ultimate test of an intervention is when it is conducted by providers in the real-world setting, with real-world clients against treatment-as usual. Thus, the present study's results add a cardinal piece of evidence about the potency of mindfulness-based dialectical behavior therapy in the community settings specifically in the case old age farmers of Punjab. The possible explanation of effectiveness of mindfulness based DBT in the management of suicidal ideation, cognitive distortion (hopelessness and helplessness), psychological distress and resilience could be that the mindfulness model of suicidality ^[37] deals with four psychological processes of an individual who is suicidal.

According to the model ^[37], mindfulness is composed of four distinct processes i.e. *contact with the present moment*, *psychological acceptance*, *cognitive defusion*, and *self as context*. The model suggests that individual who are suicidal specifically in old age tends to find suicide as an escape or avoid intolerable psychological experiences, including psychological pain known as "psychache", ^[38]aversive self-evaluations, ^[39] and current situation as hopeless and helpless. In that case, the first aspect of mindfulness i.e. *contact with the present moment* allows an individual to have non-judgmental contact with psychological and environmental events as they occur i.e., present-moment awareness, ^[40] without getting caught up in unhelpful comparisons, evaluations, or get stuck in the future or past. Similarly, the second aspect of the model i.e. allows a suicidal individual to embrace the psychological events coupled with one's history, without unnecessary attempts to alter or remove them. ^[41] The acceptance of one's own history would allow an individual to gravitate flexibly towards meaningful life.

The third aspect, *cognitive defusion*, allows an individual to gain psychological distance from internal experiences such as thoughts and feelings, seeing them as mere events in the mind rather than as accurate, truth-based reflections of reality". ^[42] Lastly, the fourth aspect of

mindfulness, *self as context* allows suicidal individuals who often sees themselves as hopeless or damaged to generate contact with a transcendent sense of self that is distinct from the content of their experiences and helps them to experience a sense of self that is larger than their story.

However, no study is without limitations. First, only experimental group was employed in the present study. The study was conducted in the field-settings, and therefore control group was not possible in that case which could endanger the internal validity of the study. Secondly, this study was conducted only in few villages of eight districts of Punjab with a small sample size. Therefore, it is recommended to future researchers to conduct similar studies in other settings with larger sample sizes and to examine the effects. A follow-up study is also recommended to assess the effectiveness of the mindfulness skill of DBT training as well as the possibility of verifying temporal aspects in suicidal ideation.

Despite the limitations, the present study possesses few strengths as well. The present study helped in empowering by mindfulness training those villages of above mentioned districts by giving trainings on mindfulness, and it can further be carried later on in those villages. Another strength of the study was that establishing community-level psychological first-aid trained peer support volunteers helped identify older farmers who were at risk for suicide. The study represents the first systematic evaluation of culturally adapted mindfulness skill of DBT training in a non-WEIRD context, and stand-alone as a treatment for suicidality in a geriatric farming population of Punjab.

Conclusions

The present study extended the evidence of therapeutic relevance of mindfulness-skill based DBT in the geriatric farmers of Punjabi rural community. The geriatric farmers experienced rapid and consistent reductions in suicide ideation, psychological distress, hopelessness,

helplessness and gains in resilience after therapy began. Future research should look into the extent to which mindfulness skill of DBT mediate observed improvements in suicidal ideation, using large sample and group-comparison approaches at the community level. The current study also highlights the importance of community-based peer support volunteers in youth, which can act as an informal support system to individuals in adverse conditions and through them the identification of geriatric farmers was possible. The present study is particularly relevant to educational settings and community settings: - for example, in colleges, by providing training and sensitization programs to youth, aimed at developing and inculcating more sensitivity towards mental health issues, with the ultimate goal of increasing the welfare of others; as well as community work for eradicating psychosocial issues like suicide, and stigmas and stereotypes about mental illness.

REFERENCES

1. Erikson EH. Young man Luther: A study in psychoanalysis and history. WW Norton & Company; 1993 Jun 17.
2. Kölves K, Kölves KE, De Leo D. Natural disasters and suicidal behaviours: a systematic literature review. *Journal of affective disorders*. 2013 Mar 20;146(1):1-4. doi:10.1016/j.jad.2012.07.037.
3. O'Connor RC, Kirtley OJ. The integrated motivational–volitional model of suicidal behaviour. *Philosophical Transactions of the Royal Society B: Biological Sciences*. 2018 Sep 5;373(1754):20170268. doi:10.1098/rstb.2017.0268.
4. Wetherall K, Cleare S, Eschle S, Ferguson E, O'Connor DB, O'Carroll RE, O'Connor RC. From ideation to action: Differentiating between those who think about suicide and those who attempt suicide in a national study of young adults. *Journal of affective disorders*. 2018 Dec 1; 241:475-83. doi:10.1016/j.jad.2018.07.074.

5. World Health Organisation [Internet]. Suicide. [cited 2021 June 17]. Available from:<https://www.who.int/news-room/fact-sheets/detail/suicide>.
6. Dicker D, Nguyen G, Abate D, Abate KH, Abay SM, Abbafati C, Abbasi N, Abbastabar H, Abd-Allah F, Abdela J, Abdelalim A. Global, regional, and national age-sex-specific mortality and life expectancy, 1950–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The lancet*. 2018 Nov 10;392(10159):1684-735.
7. National Crime Record Bureau. Suicides In India [internet]. 2020 [cited 2020 Aug 18] Available from <https://ncrb.gov.in/sites/default/files/chapter-2-suicides-2018.pdf>.
8. Conejero I, Olié E, Courtet P, Calati R. Suicide in older adults: current perspectives. *Clinical interventions in aging*. 2018;13:691. doi:10.2147/CIA.S130670.
9. Troya MI, Babatunde O, Polidano K, Bartlam B, McCloskey E, Dikomitis L, Chew-Graham CA. Self-harm in older adults: systematic review. *The British Journal of Psychiatry*. 2019 Apr;214(4):186-200.doi:10.1192/bjp.2019.11.
10. Heisel MJ, Flett GL. Screening for suicide risk among older adults: assessing preliminary psychometric properties of the Brief Geriatric Suicide Ideation Scale (BGSIS) and the GSIS-Screen. *Aging & Mental Health*. 2022 Feb 1;26(2):392-406. doi:10.1080/13607863.2020.1857690.
11. Arslanoglou E, Banerjee S, Pantelides J, Evans L, Kiosses DN. Negative emotions and the course of depression during psychotherapy in suicidal older adults with depression and cognitive impairment. *The American Journal of Geriatric Psychiatry*. 2019 Dec 1;27(12):1287-95. doi:10.1016/j.jagp.2019.08.018.
12. O’Beaglaioich C, McCutcheon J, Conway PF, Hanafin J, Morrison TG. Adolescent suicide ideation, depression and self-esteem: relationships to a new measure of gender role conflict. *Frontiers in psychology*. 2020:111.

13. Kim BJ, Kihl T. Suicidal ideation associated with depression and social support: a survey-based analysis of older adults in South Korea. *BMC psychiatry*. 2021 Dec;21(1):1-9. doi:10.1186/s12888-021-03423-8.
14. Firth J, Torous J, Nicholas J, Carney R, Prata A, Rosenbaum S, Sarris J. The efficacy of smartphone-based mental health interventions for depressive symptoms: a meta-analysis of randomized controlled trials. *World Psychiatry*. 2017 Oct;16(3):287-98. doi:10.1002/wps.20472.
15. Rosen B, Preisman M, Hunter J, Maunder R. Applying psychotherapeutic principles to bolster resilience among health care workers during the COVID-19 pandemic. *American Journal of Psychotherapy*. 2020 Dec 1;73(4):144-8. doi:10.1176/appi.psychotherapy.20200020.
16. Mark J, Williams G, Swales M. The use of mindfulness-based approaches for suicidal patients. *Archives of suicide research*. 2004 Oct 1;8(4):315-29. doi:10.1080/13811110490476671.
17. Zeifman RJ, Boritz T, Barnhart R, Labrish C, McMain SF. The independent roles of mindfulness and distress tolerance in treatment outcomes in dialectical behavior therapy skills training. *Personality Disorders: Theory, Research, and Treatment*. 2020 May;11(3):181. doi:10.1037/per0000368.
18. Linehan MM. *Skills training manual for treating borderline personality disorder*. Guilford press; 1993.
19. Kiosses DN, Alexopoulos GS, Hajcak G, Apfeldorf W, Duberstein PR, Putrino D, Gross JJ. Cognitive Reappraisal Intervention for Suicide Prevention (CRISP) for middle-aged and older adults hospitalized for suicidality. *The American Journal of Geriatric Psychiatry*. 2018 Apr 1;26(4):494-503. doi:10.1016/j.jagp.2017.11.009.

20. Simon GE, Shortreed SM, Rossom RC, Beck A, Clarke GN, Whiteside U, Richards JE, Penfold RB, Boggs JM, Smith J. Effect of offering care management or online dialectical behavior therapy skills training vs usual care on self-harm among adult outpatients with suicidal ideation: a randomized clinical trial. *JAMA*. 2022 Feb 15;327(7):630-8.doi:10.1001/jama.2022.0423.
21. Linehan MM, Korslund KE, Harned MS, Gallop RJ, Lungu A, Neacsiu AD, McDavid J, Comtois KA, Murray-Gregory AM. Dialectical behavior therapy for high suicide risk in individuals with borderline personality disorder: a randomized clinical trial and component analysis. *JAMA psychiatry*. 2015 May 1;72(5):475-82.doi:10.1001/jamapsychiatry.2014.3039.
22. Hashemi R, Moustafa AA, Rahmati Kankat L, Valikhani A. Mindfulness and suicide ideation in Iranian cardiovascular patients: Testing the mediating role of patience. *Psychological reports*. 2018 Dec;121(6):1037-52. doi:10.1177%2F0033294117746990
23. Ramaiya MK, McLean C, Regmi U, Fiorillo D, Robins CJ, Kohrt BA. A dialectical behavior therapy skills intervention for women with suicidal behaviors in rural Nepal: A single-case experimental design series. *Journal of clinical psychology*. 2018 Jul;74(7):1071-91.doi:10.1002/jclp.22588.
24. Osman A, Bagge CL, Gutierrez PM, Konick LC, Kopper BA, Barrios FX. The Suicidal Behaviors Questionnaire-Revised (SBQ-R): validation with clinical and nonclinical samples. *Assessment*. 2001 Dec;8(4):443-54. doi:10.1177%2F107319110100800409.
25. Aloba O, Ojeleye O, Aloba T. The psychometric characteristics of the 4-item Suicidal Behaviors Questionnaire-Revised (SBQ-R) as a screening tool in a non-clinical sample of Nigerian university students. *Asian journal of psychiatry*. 2017 Apr 1;26:46-51. doi:10.1016/j.ajp.2017.01.017.

26. Miller IW, Norman WH, Bishop SB, Dow MG. The Modified Scale for Suicidal Ideation: reliability and validity. *Journal of consulting and clinical psychology*. 1986 Oct;54(5):724.doi:10.1037/0022-006X.54.5.724.
27. Briere J. *Cognitive distortion scales: Professional manual*. Psychological Assessment Resources, Incorporated; 2000.
28. Goldberg DP. General Health Questionnaire-12. *Australian Journal of Psychology*. 1978.
29. Connor KM, Davidson JR. Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depression and anxiety*. 2003 Sep;18(2):76-82.doi:org/10.1002/da.10113.
30. Nararro-Haro MV, Hoffman HG, Garcia-Palacios A, Sampaio M, Alhalabi W, Hall K, Linehan M. The use of virtual reality to facilitate mindfulness skills training in dialectical behavioral therapy for borderline personality disorder: a case study. *Frontiers in psychology*. 2016 Nov 2;7:1573. doi:10.3389/fpsyg.2016.01573.
31. Calati R, Courtet P, Lopez-Castroman J. Refining suicide prevention: a narrative review on advances in psychotherapeutic tools. *Current psychiatry reports*. 2018 Feb;20(2):1-0. doi:10.1007/s11920-018-0876-0.
32. Mann JJ, Michel CA, Auerbach RP. Improving suicide prevention through evidence-based strategies: a systematic review. *American journal of psychiatry*. 2021 Jul;178(7):611-24. doi:10.1176/appi.ajp.2020.20060864.
33. Luoma JB, Kohlenberg BS, Hayes SC, Fletcher L. Slow and steady wins the race: a randomized clinical trial of acceptance and commitment therapy targeting shame in substance use disorders. *Journal of consulting and clinical psychology*. 2012 Feb;80(1):43.

34. Tickell A, Ball S, Bernard P, Kuyken W, Marx R, Pack S, Strauss C, Sweeney T, Crane C. The effectiveness of mindfulness-based cognitive therapy (MBCT) in real-world healthcare services. *Mindfulness*. 2020 Feb;11(2):279-90. doi:10.1007/s12671-018-1087-9.
35. Adelian H, Shahraki SK, Miri S, Farokhzadian J. The effect of mindfulness-based stress reduction on resilience of vulnerable women at drop-in centers in the southeast of Iran. *BMC women's health*. 2021 Dec;21(1):1-0.
36. Weisz JR. Bridging the research-practice divide in youth psychotherapy: the deployment-focused model and transdiagnostic treatment. *Verhaltenstherapie*. 2015;25(2):129-32.
37. Luoma JB, Villatte JL. Mindfulness in the treatment of suicidal individuals. *Cognitive and behavioral practice*. 2012 May 1;19(2):265-76. doi:10.1016/j.cbpra.2010.12.003.
38. Shneidman ES. Some controversies in suicidology: Toward a mentalistic discipline. *Suicide and Life-Threatening Behavior*. 1993 Dec;23(4):292-8. doi:10.1111/j.1943-278X.1993.tb00199.x.
39. Baumeister RF. Anxiety and deconstruction: On escaping the self. In *Self-inference processes: The Ontario symposium 1990 Jan 1* (Vol. 6, pp. 259-291). Lawrence Erlbaum Associates Hillsdale, NJ.
40. Luoma JB, Hayes SC, Walser RD. *Learning ACT: An acceptance & commitment therapy skills-training manual for therapists*. New Harbinger Publications; 2007.
41. Hayes SC, Luoma JB, Bond FW, Masuda A, Lillis J. Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour research and therapy*. 2006 Jan 1;44(1):1-25. doi:10.1016/j.brat.2005.06.006.
42. Forman EM, Chapman JE, Herbert JD, Goetter EM, Yuen EK, Moitra E. Using session-by-session measurement to compare mechanisms of action for acceptance and

commitment therapy and cognitive therapy. Behavior therapy. 2012 Jun 1;43(2):341-54. doi:10.1016/j.beth.2011.07.004.

UNDER PEER REVIEW