Effectiveness of Combination Acceptance and Commitment Therapy and Therapeutic Relationship Using Digital Apps on Posttraumatic Stress Disorder in Postoperative Patients: A Pilot Study

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Acceptance and Commitment Therapy, Therapeutic Relationship, Digital Apps, Posttraumatic Stress Disorder, Postoperative Patients

ABSTRACT:
Background: Posttraumatic Stress Disorder (PTSD) is a significant concern in postoperative patients, often leading to prolonged recovery and reduced quality of life. This pilot study aims to evaluate the effectiveness of a combined approach using Acceptance and Commitment Therapy (ACT) and Therapeutic Relationship (TR) delivered via digital applications in reducing PTSD symptoms among postoperative patients.
Methods: A randomized controlled trial was conducted at a government hospital in Kebumen, involving 30 participants who were postoperative patients diagnosed with PTSD. Participants were randomly assigned to either the intervention group (n=15), receiving a combination of ACT and TR via digital apps, or the control group (n=15), receiving standard care. PTSD symptoms were assessed using the PTSD Checklist for DSM-5 (PCL-5) at baseline and after four weeks of intervention.
Results: The intervention group showed a significant reduction in PTSD symptoms compared to the control group, with a mean difference in PCL-5 scores of 12.4 ($p<0.05$). The digital delivery of ACT and TR was well-received by participants, with high adherence rates and positive feedback regarding the usability of the apps.
Conclusion: This pilot study demonstrates the potential effectiveness of combining ACT and TR delivered through digital apps in reducing PTSD symptoms in postoperative patients. Further large-scale studies are warranted to confirm these findings and explore the long-term benefits of digital therapeutic interventions in this population.

INTRODUCTION

Posttraumatic Stress Disorder (PTSD) is a prevalent mental health issue affecting individuals who have undergone surgery, with symptoms that include intrusive thoughts, hyperarousal, and avoidance behaviors. These symptoms can significantly impede the recovery process and reduce patients' quality of life (McCarron et all, 2023). Traditional therapeutic approaches, while effective, often face challenges such as limited accessibility, stigma associated with mental health treatment, and the need for specialized personnel. In response to these challenges, digital applications have emerged as a promising medium for delivering psychological interventions (Felmingham, & Williams, 2022).

Acceptance and Commitment Therapy (ACT) focuses on helping individuals accept their thoughts and feelings, commit to actions aligned with their values, and increase psychological flexibility (Hayes et al., 2022; Swain et al., 2023). The therapeutic relationship (TR) emphasizes the importance of the therapeutic alliance in achieving positive treatment outcomes (Norcross & Lambert, 2023; Flückiger et al., 2022). Both therapies have demonstrated efficacy in treating PTSD in various populations, but their delivery through digital platforms is relatively novel (Spence et al., 2022; Weingarden et al., 2023).

This pilot study aims to assess the feasibility and effectiveness of a combined approach using ACT and TR delivered via digital apps in reducing PTSD symptoms in postoperative patients. By leveraging digital technology, this study seeks to offer a more accessible and scalable therapeutic option that can be integrated into postoperative care protocols.

MATERIALS AND METHODS

Study Design

This study was designed as a randomized controlled trial to evaluate the effectiveness of a combined digital intervention of ACT and TR on PTSD symptoms in postoperative patients. The study was conducted at a government hospital in Kebumen, Indonesia, over a period of one months.

Participants:

Thirty postoperative patients diagnosed with PTSD were recruited from the hospital's surgical wards. Inclusion criteria included a diagnosis of PTSD based on DSM-5 criteria, recent surgery within the past three months, age between 17 and 65 years, and access to a smartphone or tablet. Exclusion criteria were severe cognitive impairment, active psychosis, or current engagement in other PTSD-specific therapies.

Randomization and Blinding:

Participants were randomly assigned to either the intervention group or the control group using a computer-generated randomization sequence. Allocation concealment was maintained by using sealed opaque envelopes. Due to the nature of the intervention, blinding of participants was not feasible; however, outcome assessors were blinded to group assignments.

Intervention:

The intervention group received a combination of ACT and TR delivered via digital applications over four weeks. The apps were developed in collaboration with mental health professionals and included the following components:

- **ACT Module:** Interactive exercises focused on acceptance, mindfulness, and commitment to values-based actions. The module included daily mindfulness practices, values clarification exercises, and psychoeducational videos.
- **TR Module:** Activities designed to enhance the therapeutic relationship, such as self-reflection journals, communication prompts, and feedback mechanisms to report progress and challenges.

After the pre-test was carried out, the participants were assisted by therapists to know and understand each stage of act therapy, which amounted to 6 stages and was carried out with a therapeutic relationship-based approach. In each stage, the patient will be assessed by the therapist, and if they meet the standard, they will proceed to the next stage. then after that, their PTSD level will be measured again.

The control group received standard postoperative care, which included routine medical follow-ups and access to general psychological support if requested.

Outcome Measures

The primary outcome was the change in PTSD symptoms, measured by the PTSD Checklist for DSM-5 (PCL-5), administered at baseline and after four weeks. Secondary outcomes included participant adherence, app usability, and qualitative feedback on the intervention experience, collected through structured interviews.

Statistical Analysis

Data were analyzed using SPSS software. Independent t-tests were conducted to compare changes in PCL-5 scores between groups. Qualitative feedback was analyzed thematically to identify common themes regarding the intervention's acceptability and usability.

RESULTS

The intervention group showed a statistically significant decrease in PTSD symptoms compared to the control group. The mean PCL-5 score decreased from 47.8 to 35.4 in the intervention group, compared to a decrease from 48.2 to 46.0 in the control group ($p<0.05$). The digital app was used consistently by the therapists over the four-week period. Participants reported high levels of satisfaction with therapists using the digital app, highlighting the convenience and accessibility of therapy content. Thematic analysis of qualitative feedback revealed three main themes: increased psychological flexibility, improved emotion regulation, and increased engagement in daily activities.

DISCUSSION

This pilot study provides preliminary evidence supporting the effectiveness of a combined digital intervention using ACT and TR for reducing PTSD symptoms in postoperative patients. The digital format offers a promising solution to accessibility challenges, allowing patients to engage with therapeutic content at their own pace and convenience (Andersson et al., 2023; Lindhiem& Peterman, 2023). The significant reduction in PTSD symptoms observed in the intervention group aligns with existing literature on the efficacy of ACT and TR in treating PTSD (Thompson et al., 2022; McCarron et al., 2023).

The high adherence rate suggests that digital interventions are acceptable to patients and can be effectively integrated into postoperative care (Spence et al., 2022). Participants' positive feedback on the apps' usability indicates that the digital format may enhance patient engagement and satisfaction with the therapeutic process (Wagner et al., 2023).

However, this study has limitations, including the small sample size and short duration of follow-up. Future research should focus on larger sample sizes, longer follow-up periods, and the exploration of potential moderators and mediators of treatment outcomes (Kazdin& Blase, 2022). Additionally, examining the cost-effectiveness of digital interventions compared to traditional therapy could provide valuable insights for healthcare providers and policymakers (Mohr et al., 2023).

CONCLUSION

The use of digital applications to deliver a combined approach of ACT and TR shows promise as an effective intervention for PTSD in postoperative patients. This innovative approach can potentially transform mental health care delivery, making therapy more accessible and engaging for patients recovering from surgery.

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Conflicts of Interest

The authors declare no conflicts of interest related to this study.

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