Post-Traumatic Stress Disorder in Youth: How do the Efficacies of Cognitive Behavioral Therapy and Prolonged Exposure Therapy Compare?

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Abstract

Children and adolescents are at a high risk for developing Post-traumatic Stress Disorder (PTSD) after experiencing or being exposed to a trauma. However, little research has been done to compare the efficacies of different psychological therapies in treating youth diagnosed with PTSD. Cognitive-Based Therapy (CBT) and Prolonged Exposure Therapy (PE-A) are two therapies that have proven individually to have promising effects in this context. The study hypothesizes that if the efficacies of CBT and PE-A are compared, CBT will prove to be the most effective in treating PTSD in youth. The study utilizes 120 participants who are randomly assigned into 3 groups: Group 1 (CBT), Group 2 (PE-A) and Group 3 (Waitlisted). The 80 participants of the experimental groups undergo their respective treatment for 6 weeks while biweekly self-report surveys and behavioral observations are completed to produce a combined measure of PTSD symptoms. The anticipated results prove CBT's greater decrease of PTSD symptoms in participants and point towards PE-A's direct exposure tactics being less effective than normal CBT talk-therapy. Overall, while the results indicate a promising level of efficacy with PE-A, CBT ultimately proves to be the most effective of the two therapies in treating a demographic of individuals with PTSD that are too easily excluded from the picture.

Keywords: PTSD, youth, trauma, therapy, CBT, PE-A, treatment, children, adolescents

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Although most people associate Post-Traumatic Stress Disorder (PTSD) with adults, such as a veteran who experienced trauma at war, there still exists another demographic of diagnosed individuals who are often overlooked- youth. In fact, youth who have experienced or have been exposed to trauma are at a significantly high risk of developing PTSD or other behavioral mental issues (Barrera-Valencia et al., 2017). Having PTSD at this age can result in severe personal and health consequences, causing symptoms such as nightmares, unwanted/intrusive memories (flashbacks), anxiety, and depression that can have a monumental impact on one's day to day life (Verlinden & Lindauer, 2015). While treatments for adults with PTSD have been explored, there is little research surrounding the comparative efficacies of different psychological treatments for diagnosed children and adolescents (Gillies et al., 2016). However, of the research that has been done in this area (PTSD in youth), Cognitive Behavioral Therapy (CBT) is commonly referred to as one of the most effective treatments (Meiser-Stedman et al., 2016).

Even though CBT has become the most known treatment for children and teens with PTSD because it is the most frequently examined, Prolonged Exposure Therapy (PE-A) has also been proven to have promising results in this area (Rossouw et al., 2018). Another gap in knowledge is that most studies that examine treatments for PTSD in youth include youth who have gone through both single-event or continued trauma as a well as various trauma-types, such as sexual and physical (Gillies et al., 2016). Therefore, there is no way to determine if certain therapies work "best" for all traumas in general with previous research. Given this information

(and lack of in certain areas), this study will explore whether CBT truly is the most effective therapy for children and adolescents with PTSD. To tackle this topic, the experiment's design aims to answer the "big question" of "How do the efficacies of CBT and PE-A compare in treating children and adolescents with PTSD?

The motivation for asking this question and exploring this specific topic stems from the importance of realizing and recognizing that adults are not the only age group that can and do experience trauma at an alarming rate (Barrera-Valencia et al., 2017). Children who experience trauma are just as "capable" of developing PTSD after being exposed to a trauma (whether once or multiple times) and PTSD in youth remains a large problem all around the world today. Not only does this issue affect the obvious group at hand (children and adolescents), it subsequently affects the parents, family members, and friends of the diagnosed youth (Gillies et al., 2016).

Given this information and motivation, a hypothesis was formed stating, "If the efficacies of CBT and PE-A are directly tested and compared, CBT may still be the most effective psychological treatment for reducing PTSD symptoms in children and adolescents. The rationale behind this hypothesis is based on two major points. Firstly, previous research has (consistently) proven that CBT is an effective treatment for PTSD regardless of any comparative efforts (Meiser-Stedman et al., 2016). Secondly, this study hypothesizes CBT's efficacy over PE-A because of the nature of their therapeutic approaches. While PE-A is extremely similar to CBT, what differentiates them is PE-A's direct exposure tactics (Rossouw et al., 2018). It was considered that not all patients, especially those who have been through recent or ongoing traumas, might benefit from the intense nature of direct exposure tactics that CBT lacks. From

the hypothesis, the Independent Variable was identified as the type of psychological therapy being used (CBT or PE-A) and the Dependent Variable as the level of PTSD symptoms in participants which can be seen visually in Figure 1. The corresponding Operationalized Variables were Group 1 undergoing CBT and Group 2 undergoing PE-A (independent) and the dependent is the scores/interpretations of biweekly behavioral observations and self-report surveys.

Methods

For my methods, I chose to incorporate one control and two experimental groups into the study's design. The study includes 2 experimental groups to compare the two psychological therapies and uses two different measures to gather the data that represents a participant's increase or decrease in PTSD symptoms. These two measures are a self-report survey (completed by the patients/participants) and behavioral observation (completed by the psychologist). Additionally, in creating my methods, I chose not to divide the groups of participants by the type of trauma they experienced or amount of times they experienced it. I made this decision to keep that aspect similar to the previous literature, reviews, and studies I have read to allow the most direct comparisons of my anticipated results. For example, if other studies proved that CBT is most effective in treating youth with PTSD in comparison to EDMR (without accounting for types of trauma), then my study would be equally comparable by examining the efficacies of CBT and PE-A also without accounting for trauma-types. Although I wanted to keep this aspect the same as the studies I had read before, I do acknowledge that this trait within other studies and mine included can be considered a potential limitation (Gillies et al., 2016). Given that the trauma-types are not factored into the study's design, this could account for a lack of

generalizability and therefore weak external validity in this context (Meiser-Stedman et al., 2016).

My experimental study includes 120 participants from ages 7-18 diagnosed with PTSD by the DSM-IV (with no particular trauma experience). These participants include both males and females and are inclusive of all races and ethnicities. Given that there are no real qualifications aside from age and diagnosis, all participants were randomly assigned into the study and their groups. The procedure of this study begins with the division of the 120 participants into their 3 respective groups: Group 1: CBT, Group 2: PE-A, and Group 3: Waitlisted. With this split, participants know whether or not they will receive treatment (and which treatment they will receive if any) over the study's 6 week duration. Over these 6 weeks, the 80 participants in Groups 1 and 2 together will undergo daily, individual talk-therapy (CBT or PE-A) with a professional psychologist. In order to measure each participant's progress (increase or decrease in PTSD symptoms), participants will complete a self-report survey and the professionals will complete behavioral observations twice a week.

Given that my experiment has one Independent Variable with two levels where each subject is independent from the other, I would use a T-test (comparing means) as my statistical test. I would use the data from the behavioral observation and self-report surveys for this statistical test. Two confounds that could also play a role in my methods and design are Regression to the Mean and the Placebo Effect (Rossouw et al., 2018). As the experiment requires, all 80 participants in Groups 1 and 2 will begin treatment without having been treated psychologically before for this diagnosis. Therefore, we can expect their "pretest" mean scores

(level of PTSD symptoms upon first self-report survey and behavioral observation) to be extremely high across the board. Like Regression to the Mean says, the participants scores will get better (symptom scores decrease) over time. While therapy in general can account for this improvement, Regression to the Mean in this experiment could come into play if participants undergoing continuous trauma have their ongoing trauma stop at week 3 of treatment, for example. This would be a "random event" that causes the initially extreme scores to not recur the same at post-test. Next, if many participants in the two experimental groups (1 and 2) simply believe in the efficacies of their treatment, we may see the Placebo Effect impact the data and anticipated results seen (Verlinden & Lindauer, 2015).

In terms of ethics within my study's design, there was one major question that came up; is it morally correct or ethical to have the control group (Group 3) not receive any treatment at all? Upon consideration, I decided that it would not be ethical to have the random assignment of participants into groups result in one third of the chosen youth not receiving treatment at all. Given this decision, I carefully labeled Group 3 as the "Waitlisted" Group as opposed to the "No Treatment" Group to emphasize one important point; Group 3 (Waitlisted) will receive treatment, but only after the 6 weeks of the study are complete. This allows for that third of participants to serve as a control for this study's design, while still eventually benefiting from one of the effective treatments.

Anticipated Results

My hypothesized results prove that CBT is in fact more effective in decreasing symptoms of PTSD in participants than PE-A is. After 6 weeks of consistent treatment amongst both

experimental groups, the two treatments showed to have a significant and positive impact on the participant's PTSD symptoms, yet as Figure 2 shows, CBT was more impactful. Group 3, the Waitlisted Group, is seen to have little to no decrease in PTSD symptoms. In one study comparing PE-A to an alternate therapy, there was a significant difference between the pre and post-test means (of PTSD symptoms) (Rossouw et al., 2018). The mean scores for the alternate treatment were cut in half, while the PE-A group dropped below a fifth of the original mean (Rossouw et al., 2018). With this in mind, I knew my PE-A group had to have a fairly significant impact on my means' scores. However, when comparing CBT to other psychological therapies, the mean scores of PTSD symptoms with CBT were reduced by around 95% (as opposed to around 85% for PE-A) (Gillies et al., 2016). I also chose the values for my Y-axis based on the statistical evidence of the previous self-report data I had seen in literature, where many post-treatment data ended in the 5-40 range (Barrera-Valencia et al., 2017). Acknowledging this quantitative comparison, I decided that my anticipated results would display CBT's higher efficacy.

Discussion

These anticipated results would fill in the previously stated gaps in knowledge because they provide data that proves one psychological treatment for PTSD in youth to be more effective than another. Given that a major gap in research rests in the comparative efficacies of psychological treatments for children and teens diagnosed with PTSD, this experiment sheds light on at least one comparison (two different therapies) that is relevant to this research (Gillies et al., 2016).

Within this study, there still remain potential limitations. To start, the variance of trauma-types (ex. single-event, continuous, physical, or sexual) that the participants have gone through or are going through accounts for a weaker internal validity (Gillies et al., 2016). The result of random assignment of participants (with no consideration of trauma-type) ignores relevant characteristics that could play a role in the study's results. Next, the possibility of participants receiving concurrent pharmacological treatment adds to this weak validity (Gillies et al., 2016). Another potential limitation is that the self-report survey data relies on the integrity and accuracy of participants (Meiser-Stedman et al., 2016). If they have any motive to falsely report symptoms and do so, the results may display inaccurate data. This can be seen as an aspect of low construct validity because it infringes upon the study's ability to measure its intended construct (Meiser-Stedman et al., 2016). On the other hand, the random assignment of participants (which includes both males and females of any background) accounts for high external validity as there is a natural distribution of gender and background amongst the 3 groups (Gillies et al., 2016).

Looking towards the future, one aspect of this study's design that could be further explored is how variation in trauma-types impact the efficacy of certain therapies. One experiment could test the efficacy of CBT on 4 different experimental groups (along with a control) that include (1) single-event physical abuse (2) single-event sexual abuse (3) continued physical abuse (4) continued sexual abuse. This would test the efficacy of one therapy type on several variations of trauma individually to reveal if trauma-type and the efficacy of a treatment are correlated. Another future direction coming from my study's design could be to prohibit all

participants from undergoing pharmacological treatment in tandem with the psychological treatment. Although there may be an argument of ethics, if all participants will be treated in some way over the experiment's duration or after the end, I believe it to be ethical and increase generalizability.

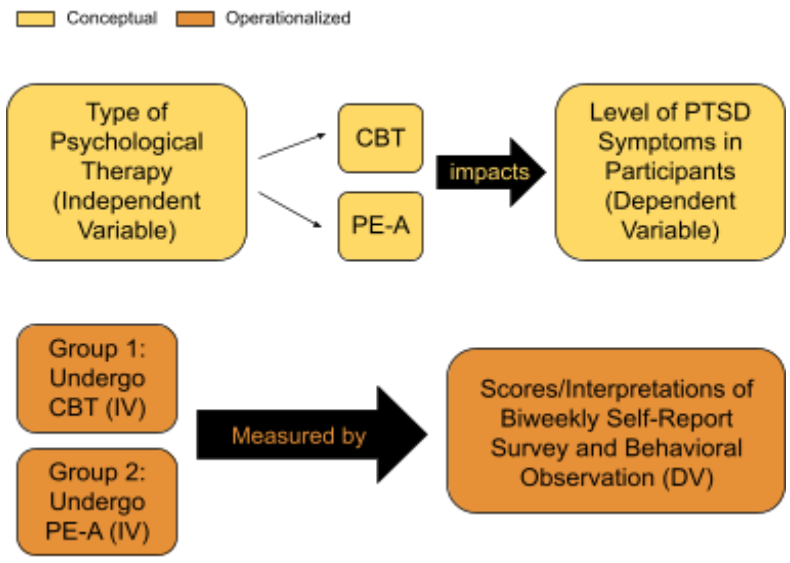

Figure 1. Conceptual representation of hypothesized relationship between conceptual and operationalized variables.

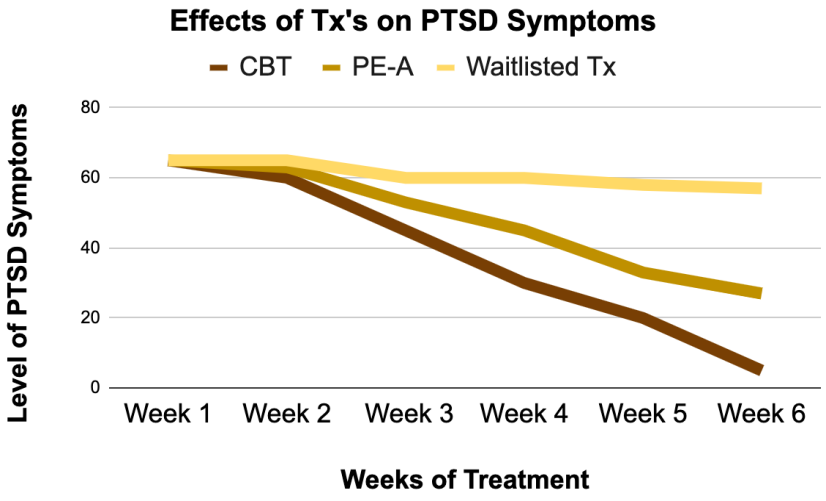

Figure 2. Data averaged from Self-Report Survey and Behavioral Observation of PTSD symptoms in participants throughout 6-week treatment.

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Response to Reviewers

1) Reviewer comment: “You say that we do not know what therapies are best, but then later on say that CBT has greater success. What has the research missed? What therapies are compared to CBT?”

Response for specific comments/revisions:

I have addressed this point by clarifying the initially contradictory description of what therapies are most effective in treating PTSD in children and adolescents. On page 3 (as part of my introduction) I begin by explaining the small amount of research that has been conducted to examine the comparative efficacies of psychological treatments for PTSD in youth. This point is important to make because I follow this statement by stating that of the research that *has* been done, CBT has not only shown to be generally successful, but is the most commonly studied therapy in this context. Therefore, it receives the informal label of “having greater success”. This explanation broke down what originally sounded contradictory into an organized rationale

2) Reviewer comment: “Your hypotheses need to be more specific - CBT is the best compared to what?”

Response for specific comments/revisions:

Originally, my hypothesis simply predicted that if CBT were compared to other psychological therapies, it would show to be the most effective. I did not have a clear direction of what I was comparing CBT to and how the study’s design would be different from the meta-analysis I read that compared several therapies through 14 different studies. After I received this comment, I completely shifted the focus of my study and hypothesis by identifying what I believe to be a “competing” therapy with CBT. By this, I mean that upon researching, I concluded that PE-A was also an effective treatment for PTSD in youth. Therefore, it would be interesting to compare CBT to PE-A specifically. This shift in direction can be seen on page 4, as I explain how and why I came to this hypothesis.

3) Reviewer comment: “The gaps in knowledge may need some reframing- maybe talk about how we don’t know what therapies are best for specific situations.”

Response for specific comments/revisions:

To address this comment, on pages 3 and 4, I bring up the point that the previous studies in this context have ignored variations in trauma-types, such as single-event, continued, sexual, or physical. I explain how this prohibits understanding what therapies work "best" for specific types of trauma, not just PTSD in general.

4) Reviewer comment: "Avoid colloquial language."

Response for general comments/revisions:

This general comment has been addressed all throughout my paper by steering clear of terms that give off a sense of informality and conversationality. I took out phrases such as "not to mention" or "and by the way". I made sure to proofread the essay with the lens of avoiding this informal language to increase the professionalism of the paper.

5) Reviewer comment: "Maybe change the design of your study to focus on comparing each type of trauma in addition to/while comparing the two therapy's efficacies."

Response for comments that cannot be addressed or with which you disagree:

The reviewer suggested that I break down my design into different trauma-types for experimental groups while comparing the efficacies of CBT and PE-A. I chose not to implement this suggestion because I wanted to focus on the general comparative efficacies of CBT and PE-A, rather than how each trauma type relates to efficacy. While I know this could have investigated a gap in knowledge, I wanted to keep the study's design similar to the majority of studies/literature I had read which ignore trauma-types. By keeping mine similar, I felt that I would be able to better relate and compare the anticipated results to past studies.