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The Progressive Changes in Posttraumatic Symptoms and Posttraumatic Growth Associated with Traumatic Incident Reduction

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Walden University
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Abstract

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Dissertation Submitted in Fulfillment

of the Requirements for the Degree of

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Abstract

Many millions of people are suffering from symptoms of posttraumatic stress disorder (PTSD). Just in the United States, 13 million Americans had a PTSD diagnosis as of 2020. Through the theoretical lens of catharsis, analysis of variance was used to examine whether traumatic incident reduction (TIR) is associated with changes in posttraumatic symptoms and posttraumatic growth by comparing pre, mid, and post-TIR PTSD Checklist for DSM-5 (PCL-5) and Posttraumatic Growth Inventory (PTGI) scores. Regression was also used to test whether post-PCL-5 scores accounted for variance in the post-PTGI scores. Ninety-seven TIR cases from the mental health agency between 2017 and 2024 provided at least two assessment points that were included in this time series design. Repeated measures ANOVA of posttraumatic symptoms across the three timepoints indicates a medium effect size for TIR across time ($F(2, 29) = 33.62$, $p < .001$, $\eta^2_p = .537$) with timepoints 1, 2, and 3 all differing significantly from one another (getting progressively lower). Posttraumatic growth showed a small but significant effect ($F(2, 29) = 6.811$, $p = .011$, $\eta^2_p = .143$) with timepoint 3 being significantly higher than timepoint 2. Post-TIR posttraumatic symptoms did not significantly account for variance in post-TIR posttraumatic growth. Implications for positive social change include a higher quality of life for individuals within society. This is accomplished through a TIR product which includes, but is not limited to, lessened stress symptoms and higher posttraumatic growth.

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Dedication

Towards the co-creation of a better world for all of us.

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Thank you very much to my chair Dr. Leilani Gjellstad, committee member Dr. Arcella Daniels, and two other friends and colleagues.

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Chapter 1: Introduction to the Study

Introduction

A deidentified mental health agency used traumatic incident reduction (TIR), a cathartic technique, as a treatment on its clients in an attempt to resolve those clients' unwanted conditions such as posttraumatic symptoms as well as facilitate posttraumatic growth. Posttraumatic growth is positive change gained in the aftermath of a trauma. The opposite of posttraumatic growth is posttraumatic depreciation (Zieba et al., 2019), which is negative change suffered in the aftermath of a trauma. The symptoms of posttraumatic stress disorder (PTSD) in the Diagnostic and Statistical Manual V (DSM-V), generally revolve around posttraumatic depreciation as opposed to posttraumatic growth. The literature has provided some evidence for the effectiveness of TIR in reducing posttraumatic symptoms as defined by earlier versions of the DSM, but there are no current data from the last 15 years, including and especially PTSD symptoms as defined by DSM-5. The results of TIR in facilitating posttraumatic growth are also unknown, since it has never been directly measured in published research.

As of 2019, 1 in 8 people worldwide were living with a mental disorder (World Health Organization [WHO], 2022). That is 970 million people as of 2019. As of 2020, there were approximately 13 million Americans living with PTSD (United States Department of Veterans Affairs, 2023). When people are experiencing and/or suffering from unwanted conditions in life, such as posttraumatic depreciation; they likely have a smaller window of tolerance (Ogden, 2006). A window of tolerance is the optimum emotional zone that a person needs for functioning ideally (Siegel, 1999). Having a

smaller window of tolerance than they otherwise would have, such as being a product of unresolved trauma, can cause people to behave differently in their lives, notably regarding taking risks (Ogden, 2006). This smaller window of tolerance could cause them many possibilities of behavioral changes such as they might stay home instead of go out, they might stay single instead of attempting to date, and/or they might cause harm to themselves when they otherwise would not have when tolerance is lowered. The major sections of Chapter 1 include the Background of this study, the Problem Statement, the Purpose of this study, the Research Questions and Hypotheses, the Theoretical Framework for this study, the Nature of this study, Definitions, Assumptions, Scope and Delimitations, Limitations, the Significance of this study, and a Summary of Chapter 1.

Background

Much of the literature review centers around the variables and theoretical framework of catharsis. This study had three research questions. The independent variable (IV) for the first two is time, in the form of before TIR treatment, during TIR treatment, and after TIR treatment. The IV for the third research question is posttraumatic symptoms [as measured by the PTSD Checklist for DSM-5 (PCL-5)]. For the first two research questions, the two dependent variables (DVs) are posttraumatic stress and posttraumatic growth [as measured by the Post Traumatic Growth Inventory (PTGI)].

The gap in knowledge that I addressed in this study was how TIR is related to posttraumatic stress and posttraumatic growth, as well as how the degree of posttraumatic stress predicts the degree of posttraumatic growth. While TIR's relation to posttraumatic stress has been studied to some degree, this would be the first study to assess

posttraumatic growth in relation to TIR. As is covered in more detail in Chapter 2, posttraumatic growth may be central to many if not all peoples' life narrative and posttraumatic growth would be critical to the further development of peoples' individual life narrative after trauma.

The theoretical framework for TIR is catharsis, (in Greek this word is "κάθαρσις"), which goes back to at least Homer of the ancient Greeks in the 8th century BCE, who used the words "kathairein" and "katharos" which referred to purification rituals, but it is believed that these words derived from the Semitic word "qatar" (Burkert, 1992) which means "fumigate" which in turn means "to purify or free from infection". However, catharsis only referred to physical body processes until the 4th century BCE, specifically in or around 360 BCE, when Plato differentiated two distinctly different types of purifications: that of the body and that of the soul (Plato, 360 BCE). In Platonism, purification of the soul was part of the soul's progressive advancing or ascent to a state of knowing.

Some credit Aristotle, a pupil of Plato, with the first mental/psychological/emotional description of catharsis for the first time in or around 335 BCE, approximately 25 years later, when he applied catharsis in describing the role of tragedy's effect on the audience within the dramatic arts by saying "Tragedy…through pity and fear effecting the proper purgation of these emotions" (Aristotle, Chapter VI, 335 BCE). Although Plato specifically described the relationship of cathartic processes' to one's soul and Aristotle specifically described applied it to the audience's emotions, when determine who should receive credit as to catharsis' first psychological utility, it is

important to note that the original definition of the word psychology by Saint Thomas Aquinas was more along the lines of the study of the soul (Athanasius Udoh, 2024) rather than the current definition of the study of the mind and behavior. Therefore, Plato was the first to use it in a psychological context, rather than Aristotle.

Problem Statement

The urgency of this problem is that millions of Americans, 13 million as of 2020 (United States Department of Veterans Affairs, 2023), are negatively impacted by PTSD and its symptoms and/or byproducts. I wanted to find out how successful (or unsuccessful) TIR is at addressing the relatively high rates of posttraumatic symptoms of people suffering from them. Furthermore, even when people believe they are no longer affected by their past traumata, their window of tolerance (Ogden, 2006) gets smaller. This could indicate a lack of posttraumatic growth or, at a minimum, a slower growth rate than what might be possible, since trauma can be a mechanism for growth, especially if all the lessons of said trauma are extracted out of the experience(s). One intervention with the general aim of resolution rather than coping is TIR.

Although Descilo et al. (2017) investigated posttraumatic symptoms in relation to TIR, the pre, mid, and post repeated measure effects of TIR have not been measured with respect to the PCL-5 along with the PTGI in any peer-reviewed published research found to date. Nor has variance in posttraumatic growth been predicted by posttraumatic stress in any peer-reviewed published research found to date. Measuring to see if TIR facilitates posttraumatic growth needs to be explored since if successful that would lead to a higher quality of life. The previous studies showed that TIR is a suitable treatment

modality to use in South African social work practice settings (Williams & Erlank, 2019), that TIR reduced posttraumatic symptoms when delivered in a clinical setting (Descilo et al., 2017), and that TIR is effective with at-risk youth and unaccompanied minor refugees (Descilo et al., 2010). While important to study, at-risk youth and unaccompanied minor refugees might not be considered generalizable to the human population at large. Thus, TIR should be studied in broader populations across various clinical settings.

The specific research problem that I addressed through this study was that it was not known in current, published research whether TIR is related to changes in posttraumatic symptoms and if so, to what extent those changes predict posttraumatic growth. This study builds upon the research of Descilo et al. (2017) in that the effects of TIR are being measured with the PCL-5 (the updated version of the variable they used which was the posttraumatic stress disorder checklist-civilian (PCL-C) version, and the PTGI which is a new variable). This study also discovered whether Descilo et al.'s prior finding using the PCL-C recurs in the updated PCL-5.

Purpose of the Study

The purpose of this quantitative study was to examine whether or not TIR is associated with changes in posttraumatic symptoms by comparing pre, mid, and post intervention scores. I also examined to what extent changes in posttraumatic symptoms are related to posttraumatic growth by determining to what extent the progressive changes in the post-PCL-5 scores accounts for variance in the post PTGI scores through the use of ordinary least squares regression.

The Independent and Dependent Variables

The IV for the first two research questions is time in the form of before TIR, during TIR treatment, and after TIR treatment. The IV for the third research question is posttraumatic stress (as measured by the PCL-5). The DVs for the first two research questions are posttraumatic stress and posttraumatic growth (as measured by the PTGI). The DV for the third research question is posttraumatic growth.

Research Questions and Hypotheses

Research Question 1 (RQ1): To what extent do posttraumatic symptoms scores differ (as measured by the PCL-5) before (pre-), during (mid), and after (post-) TIR treatment?

Null Hypothesis ($H_0$1): The pre-, mid, and post-PCL-5 scores will not differ.

Alternative Hypothesis ($H_1$1): The pre-, mid, and post-PCL-5 scores will differ.

Research Question 2 (RQ2): To what extent do posttraumatic growth scores differ (as measured by the PTGI) before (pre-), during (mid), and after (post-) TIR treatment?

Null Hypothesis ($H_0$2): The pre-, mid, and post-PTGI scores will not differ.

Alternative Hypothesis ($H_1$2): The pre-, mid, and post-PTGI scores will differ.

Research Question 3 (RQ3): To what extent do post-TIR posttraumatic symptoms (as measured by PCL-5) account for variance in post-TIR posttraumatic growth (as measured by post-PTGI scores)?

Null Hypothesis ($H_0$3): The results of post-PCL-5 scores do not account for variance in post-PTGI scores.

Alternative Hypothesis ($H_1 3$): The results of post-PCL-5 scores do account for variance in post-PTGI scores.

RQ1 and RQ2 were analyzed using one-way repeated measures ANOVAs. RQ3 was analyzed using ordinary least squares regression.

Theoretical Framework

The established theory that best describes the mechanism of action of TIR is the theory of catharsis as applied to psychology and mental phenomena. The theory of catharsis in this sense goes back, at minimum, to the days of Plato and Aristotle in ancient Greece.

The major theoretical propositions of catharsis in the days of ancient Greece revolved around the concepts of purgation and the resulting purification or cleansing which takes place after the purgation (Plato, 360 BC). A purgation in this sense is a release of emotional excesses, and this would be analogous to physical catharses such as urinating, having a bowel movement, or orgasm (Aristotle, 335 BC). Urinating is a release of excess fluid in the bladder and orgasm is a release or discharging of accumulated sexual excitement. According to the theory of catharsis, emotions can similarly be released however not physically because emotions are not physical. Today, the purgation described by the theory of catharsis in its non-physical sense, and which takes place in TIR would be called a discharging or release of unwanted feelings, emotions, sensations, attitudes, and/or pains (AMI Press, 2023). This release takes place at or shortly before what TIR refers to as the session End Point, or EP for short. This study aims to see if what is released corresponds to changes and hopefully decreases in

posttraumatic symptoms as measured in the post-PTGI scores. Catharsis is explained with a greater background and in more detail in chapter 2.

The theory of catharsis relates to the study approach and research questions in that posttraumatic symptoms include disturbing and/or distressful feelings/emotions related to or caused by the traumatic event. In other words, posttraumatic symptoms are a description of or very related to people's emotions, and a purpose of TIR is to release unwanted emotions. This is why measuring these changes with the chosen variable of the PCL-5 is appropriate to answer the first research question.

Posttraumatic symptoms as measured by the PCL-5 refer to negative changes which take place after one or more traumatic experience(s) and these negative changes can be collectively categorized as posttraumatic depreciation. Positive changes that take place at some point after a trauma are collectively categorized as posttraumatic growth. Posttraumatic growth is the opposite of posttraumatic depreciation and is the positive side of a trauma. Posttraumatic growth is something that TIR practitioners hope to facilitate. The PTGI measures posttraumatic growth and is therefore an appropriate variable to use in order to answer the second research question. The theory of catharsis relates to my study in that catharsis is the release of something unwanted, or at minimum the release of something which once released results in relief.

Nature of the Study

To address the research questions in this quantitative study which analyzes archival data, the specific research design included analysis of pre-test, mid-test, and post-test scores on the dependent variables. This kind of design can be classified as quasi-

experimental or non-randomized controlled clinical trial (such as a case-control time series design). There was no randomization and there was no control or waitlist group, therefore it is not a true experimental design. It is a quantitative pre-, mid-, and posttest quasi-experimental time series design. This design was selected based on the availability of data generated by the mental health agency's operations and has value in showing the results of TIR within the parameters of the study.

TIR is an intervention attempting to produce a better state of being for the client. A better state of being can be measured by lessening of unwanted symptoms such as less posttraumatic symptoms as well as more posttraumatic growth. The DV of PCL-5 measures changes in severity of posttraumatic symptoms. A better state of being can also be measured by an increase in positive changes after a trauma which is why changes in posttraumatic growth can be measured by the PTGI.

Data were collected by employees of the mental health agency as part of their standard operations and were quantitatively analyzed with IBM's SPSS software. Ninety-seven clients took part in the study. The analyses for RQ1 and RQ2 was analyzed using one-way repeated measures ANOVAs, and RQ3 was analyzed using ordinary least squares regression.

Definitions

TIR: An Applied Metapsychology viewing technique that is similar in character to certain early psychoanalytical techniques such as Abreaction. It involves tracing back sequences of traumatic incidents to their roots while completing the incomplete activity cycles that have accumulated in the sequences (Gerbode, 2013).

Viewing: An activity in which a person systematically examines their world in such a way as to gain insight and ability by undoing repression. All Applied Metapsychology techniques, including TIR, are viewing techniques. The reason this activity is called viewing is because that is the action that is being done. In other words, the client or "viewer" is viewing the contents of their nonphysical and/or mental environment while the practitioner is directing them via directions or questions (Gerbode, 2013).

Sequence: A group of one or more related or associated traumatic incidents, connected by one or more types of triggers or activators, in which later traumatic incidents contain triggers of earlier traumatic incidents (Gerbode, 2013).

Activity Cycle: The entire history of an activity, from beginning to end. It has a point of starting; a period during which it is persisting, continuing, and changing; and a point of stopping. Activity cycles are brought into being by intentions (Gerbode, 2013).

End Point: The point at which the cycle connected with an activity has been successfully completed. This is the point at which the activity should be ended. It is manifested by a set of phenomena that indicate the successful termination of the activity. These indicators vary from activity to activity (Gerbode, 2013). In the context of viewing sessions, End Points are indicated by some or more of the following: positive increase in affect/mood (this would likely, or at least most noticeably, come after the catharsis/release), extroversion (the client's attention has become outwardly focused), loss of interest in the topic, the issue being addressed now seems smaller or less of a deal/less important (the topic went from appearing more like a mountain to appearing

more like an ant hill), insights/realizations/increased awareness on the topic being addressed with the appearance of positive or Very Positive Indicators (VPIs) such as smiling, laughter, cheerfulness, and/or contentedness.

VPIs: “Indicators that a viewer is most likely to display at an end point, or at other points where one is being successful, such as laughing, having realizations, and appearing bright and extroverted. Very positive indicators accompany any full end point” (Gerbode, 2019, p. 49).

Communication Exercises (CEs): “Exercises intended to improve communication skills, in which the various basic components of communication (confronting, delivering a communication, acknowledging, etc.) are practiced to a point of expertise” (Gerbode, 2019, p. 8).

Rules of Facilitation: “Strict rules a facilitator follows to ensure that facilitation occurs in a safe space” (Gerbode, 2019, p. 40). I would add "and create the optimum session conditions for session End Points to develop" to this definition.

Charge: “Repressed, unfulfilled intention resulting in undesirable conditions, such as stress; uncomfortable or painful feelings; dulled awareness, compulsions, etc. The term is used at times to refer to either that which generates the painful feelings, to the repressed, unfulfilled intention itself, or to the resulting feelings. Charge results in unwanted feelings, resistance, disordered thinking, emotional or psychosomatic pain and/or aberrant behavior” (Gerbode, 2019, p. 7). Charge, as used in this context, is something negative, unwanted, and a liability to carry around (in a nonphysical sense).

Item: “A thing or topic that is possibly or actually charged for the viewer” (Gerbode, 2019, p. 25). Each traumatic incident would be an example of a charged item.

PCL-5: A psychological instrument which measures the severity of posttraumatic stress at a point-in-time which in turn can aid in the diagnosis of PTSD, should a diagnosis be desired (Blevins et al., 2015).

PTGI: A psychological instrument which measures posttraumatic growth at a point-in-time (Tedeschi & Calhoun, 1996).

Assumptions

I was assumed that the practitioners who gave the TIR sessions did it correctly. It is not practical to meaningfully control this as the case supervisor would need to watch and/or listen in on sessions. I also did not know how long each of the practitioners had been practicing TIR when they gave the sessions within this study, but I assumed that they had enough experience to be reasonably competent. If the sessions are reaching End Points with VPIs and increased awareness on the topic it is generally a safe assumption that the session was successful, however this is reported by the practitioner rather than the client on a session summary form. I assumed that what the practitioner/data collector reported on these session summary forms was accurate.

I assumed that all clients consider posttraumatic stress as an unwanted and/or negative condition, but there is also inherent evidence that suggests this: they are pursuing treatment in the first place. If they did not have unwanted symptoms, it was logical to assume that they would not be pursuing treatment. Because I is assumed these

symptoms are unwanted, I assumed that the lessening of severity of these symptoms would be an improvement in condition.

Scope and Delimitations

The population of the study were clients of the mental health agency. The headquarters of this agency are located in a transient area; however, this does not guarantee the clients are from a variety of backgrounds. Most clients of this agency are on Medicaid, which indicates low income and therefore indicates many clients in this study have a demographic of a low economic status.

Limitations

This study was not a randomized controlled clinical trial that has an experimental design and has been traditionally used in determining the efficacy of a modality such as TIR. No biological testing was done, such as measuring serotonin and/or dopamine levels pre-, mid-, or post-treatment. This is a limitation in that the test results are subjective to the clients, rather than objective such as showing an objective biological change such as increased serotonin or dopamine in the body/brain.

I, the researcher doing a secondary analysis, was first a client of TIR, then I became a facilitator in TIR, then I became a trainer of other facilitators in TIR, and then I became a senior trainer in TIR. This means I am certified to not only train facilitators, but I am certified to train other trainers. There could be some form of researcher bias in similar situations due to these facts. However, this study was a secondary analysis of data that I did not collect and that itself limits most if not all ways that any bias could

influence the dataset. Therefore, the limitation of risk of researcher bias was managed by using a secondary analysis approach instead of collecting data that is subject to bias.

A limitation of this study which cannot be controlled for in a practical way is that of self-selection bias. Self-selection bias is a big problem in the social sciences including psychology (Ziliak & McCloskey, 2008). The clients whose data are analyzed in this study chose to and therefore wanted to participate in a TIR treatment. This can make it more likely for the clients to see improvements in themselves for one reason because they may have thought TIR could help them before they even experienced it, which could be why they wanted to participate in the first place. This is at least somewhat similar to the concept of a placebo effect (the person took something with an idea that it could help relieve what they were seeking relief of), therefore making it more likely for them to see or notice an improvement whether or not said improvement is objectively present or not.

Significance

This study was significant in that the results of TIR have not been measured with the dependent variables of this study in any peer-reviewed published research. Measuring TIR outcomes with the dependent variables of this study in a dissertation would support professional practice by making this information available to interested practitioners and further help their decision-making process as to which modality/modalities they want to use to help their clients.

The findings might lead to positive social change as having moderate-to-severe posttraumatic symptoms puts those who are suffering at a significantly higher risk of suicide (Knox, 2008) and higher stress levels in general as they generally get triggered

easier and more frequently, have lower self-efficacy, higher levels of experiencing fear, and a lower quality of life. Therefore, having an intervention that is successful in alleviating posttraumatic symptoms may improve the mental health and quality of life for anyone suffering from these symptoms, including but not limited to combat veterans and those who have experienced domestic violence.

Summary

This chapter was an introduction to the study as well as an orientation to its key components, such as the problem it is addressing, the purpose of it, the research questions, the variables used to attempt to answer those research questions, and the implications of what it all means. Some topics in this chapter are further discussed and developed in chapter 2, a literature review. In chapter 2, the theoretical foundation of catharsis is discussed in more detail, and a literature review on the key variables was done.

Chapter 2: Literature Review

Introduction

The problem that I addressed in this study is that as of 2020, 13 million Americans are being negatively impacted by PTSD and its symptoms and/or byproducts. The purpose of this study was to examine whether or not TIR is related to changes in posttraumatic symptoms and posttraumatic growth.

According to the National Institute of Mental Health (2016), 6.8% of adults have PTSD at some point in their lifetimes with approximately 3.6% having it at any one time, with 5.2% of females and 1.8% of males comprising that overall 3.6%. 5.0% of adolescents have it with 8.0% of females and 2.3% of males comprising that overall percentage. For people over 6 years old, PTSD is defined as a trauma and stressor-related mental disorder where exposure to threatened or actual sexual violence, serious injury, or death occurred is explicitly listed as a diagnostic criterion in the Diagnostic and Statistical Manual 5 (DSM-5), and this exposure caused defined posttraumatic symptoms to develop (American Psychiatric Association, 2013). This exposure must have taken place in one or more of the following ways: Directly experiencing the event, directly witnessing the event as it occurred to others, learning that the event occurred to a close friend or close family member, or experiencing extreme or repeated exposure to aversive (avoidance-causing) details of the event. PTSD symptoms include intrusion symptoms such as intrusive, involuntary, and repeated upsetting memories of the event, repeating upsetting dreams related to the event, flashbacks, prolonged or intense upset at exposure to external or internal cues that resemble or symbolize an aspect of the event. Another

PTSD diagnostic criterion is that there will be noticeable modifications in reactivity and arousal associated with the event which worsened or began after the event include symptoms such as angry outbursts with no or little provocation and irritable behavior, self-destructive or reckless behavior, hypervigilance (an enhanced state of sensory sensitivity with an exaggerated intensity of behaviors with the purpose of detecting threats), becoming startled more easily and/or more often, concentration problems, disturbance in sleep such as restless sleep or staying or falling asleep, depersonalization (recurrent or persistent experiences of feeling detached from or as thou one were an exterior observer of one's body or mental processes), or derealization (recurrent or persistent experiences of unreality of one's environment/surroundings) (American Psychiatric Association, 2013). A person need not have all of these symptoms but some of the ones they do have must have been present over one month in order to be diagnosed with PTSD. The symptoms listed above are not all of the possible symptoms.

Major sections of this chapter include the Literature Search Strategy, Theoretical Foundation, Literature Review Related to Key Variables and/or Concepts, and Summary and Conclusions.

Literature Search Strategy

Library Databases, Search Engines, Key Search Terms, and Combinations of Search Terms Used

To find and identify literature such as peer-reviewed research articles for this study, I conducted online searches using ERIC, PsychArticles, PsychInfo, PsychTESTs, PsycEXTRA, MEDLINE, SOCINDEX, Academic Search Complete, Health Technology

Instruments, Health and Psyc Instruments, Education Research Complete, and Mental Measurements Yearbook. Some of the search terms in the form of keywords or phrases used to search Library Search include *traumatic incident reduction*, *TIR*, *PTSD treatments*, *PTSD treatment outcomes* and *Catharsis*. No limiter in regard to which years were searched, although at times a year range was narrowed after the initial search results populated. In the case of some theoretical background (for example, the theoretical foundation of this study originates in ancient Greece), there were no peer-reviewed journals available, but rather scholars like Plato and Aristotle whose works have been compiled in book form.

Theoretical Foundation

Name and Origin of Cathartic Theory

In some ways TIR is an exposure therapy, and it has similarities with the imaginal portion of prolonged exposure therapy in which a repeated on-purpose retelling of the traumatic memory takes place (Foa, 2011). However, TIR is better explained by the theory of catharsis because many times it does produce an emotional catharsis and TIR practitioners note that it does tend to produce a larger cathartic response in proportion to how traumatic the incident was for those who have higher emotional dispositions. Higher emotional disposition refers to a person who goes higher and lower on the emotional scale than others who do not, and such people are sometimes more sensitive to environmental stimuli, such as the receipt of bad or good news. The meaning of *catharsis* in the context of physical bodily processes, as earlier explained on page 7 (urination, orgasm, bowel movement) is analogous to the emotional catharsis which occurs as a

trauma is discharged using TIR because what occurs is similar but on an emotional level as opposed to a physical level. Something else that has descriptive value is Aristotle's use of catharsis as a metaphor, where he compared the effects of tragedy (or comedy...but tragedy is more suitable for illustrative purposes) on the mind of a spectator viewing dramatic art, such as at the theater, to the effect of catharsis on the physical body (Aristotle, 335 BD). Today Aristotle's application of catharsis would be within the domain of the subject of dramaturgy. The catharsis that is produced by TIR is a release of unwanted emotions associated with the unresolved/undischarged traumatic incident, and this can result in a sense of renewal, restoration, and resurgence (Gerbode, 2013).

Source of this Theory

The earliest known origin of non-physical catharsis is Plato (360 BC). Regarding various aspects of the concepts of purification and pollution in ancient Greek philosophy and culture, there are some scholars who seem to mention catharsis in passing, others who regard catharsis as one of various important principles, and others who regard it as the most important passage for understanding Plato's idea of purification as well as Aristotle's application of catharsis in dramatic art (Podbielski, 2003). Plato said that catharsis results in a separation that rejects what is worse and leaves what is better. This is applicable to TIR because TIR releases unwanted emotions from an experience but leaves the memory (AMI Press, 2023).

For those with a more emotional rather than intellectual disposition, having cathartic experiences is especially important. It is possible for some traumatic incidents to be looked back on as having been a profound moment or a turning point in someone's

life, and therefore regarded as a positive experience that leads to growth after that experience is processed with its resulting catharsis/discharge through the use of TIR. Traumatic experiences can lead to posttraumatic growth (Tedeshi & Calhoun, 1996). Traumata contain some degree of severe resistance. This is analogous to weight acting as resistance in lifting weights: The persisting or pushing through this resistance results in the expansion of muscles, analogously similar to Tedeshi and Calhoun's (1996) concept of posttraumatic growth.

According to Platonism, catharsis is a means of going beyond the physical senses and embracing the pure world of the intelligible (such as the pure world of thought or inner space including mental space). Platonism says that catharsis is part of the soul's progressive ascent to knowledge (Podbielski, 2013) and this in turn aligns with TIR. As an End Point is developing (at this point in a TIR session the unwanted emotions for the client are generally now at a downward trajectory because at this point their emotions have mostly but not fully been processed) the viewer starts experiencing insights about the experience and/or the experience's relationship to their life, or even insights about their life or life in general (AMI Press, 2023). Intuitive knowledge is achieved by the completion of TIR technique, a form of integrative education because it pulls knowledge that is already inside someone to the surface (Gerbode, 2013).

Literature- and Research-based Analysis of Cathartic Theory

Cathartic theory was first applied in modern psychology by Breuer (Breuer & Freud, 1895), or at minimum Breuer was the first in the modern psychology era to use catharsis as a term to describe a therapeutic technique. Breuer developed a cathartic

method that used hypnosis to treat intensive hysteria. Catharsis was also central in Freud's psychoanalysis; however, free association was used instead of hypnosis (Strickland, 2000). Free association is also used in psychodynamic theory, also known as psychodynamics. Psychodynamics is one of four major schools of thought regarding psychological treatment, the other three being biological, cognitive-behavioral, and humanistic (Wedding & Corsini, 2018). The cathartic technique within psychoanalysis was called abreaction, whereby the client relived the traumatic experience in order to purge it of its emotional excesses (Breuer & Freud, 1895).

Psychoanalysis is one of the antecedents of TIR (AMI Press, 2020). Freud said the following about trauma, and specifically the order in which each traumatic incident must undergo a catharsis to resolve its root:

"What left the symptom behind was not always a single experience. On the contrary, the result was usually brought about by the convergence of several traumas, and often by the repetition of a great number of similar ones. Thus, it was necessary to reproduce the whole chain of pathogenic memories in chronological order, or rather in reversed order, the latest ones first and the earliest ones last; and it was quite impossible to jump over the later traumas in order to get back more quickly to the first, which was often the most potent one" (Freud, 1984, p. 37).

Breuer and Freud (1895) applied the theory of catharsis within their seminal five individual studies of hysterics. One of these five studies include Breuer's famous case of Anna O., whose real name was Bertha Pappenheim (Hawkins, 1986). Anna O. was the case where Breuer first learned to use the cathartic psychoanalytical technique which was

later called abreaction. The other four of these five studies were by Freud, including his famous assessment of Emmy von N., whose real name was Fanny Moser (Ellenberger, 1993). To illustrate, here is what Freud said about Emmy von N. in regard to catharsis: "They ('they' being the symptoms of smacking and stuttering) were finally connected with so many traumas, and acquired so much right to reproduce themselves in memory, that without any further cause, following the manner of a senseless tic, they constantly interrupted speech. But the hypnotic analysis could then show how much meaning there was concealed behind this apparent tic, and even if it was not possible to bring both symptoms to full disappearance with one stroke by the Breuer method, this was due to the fact that the catharsis was extended only to the three principal traumas, and not to those of secondary association" (Breuer & Freud, 1895, location 1289 of 4858 of the Kindle version). Breuer and Freud called the technique they used to address traumata a cathartic method which was called "abreagiren" in German. They stated that this word had no exact English equivalent, so they used something they considered to be very close which was "ab-react", which meant "to react away" or "react off" (Breuer & Freud, 1895). This technique came to be called "abreaction" in English.

Cathartic theory was applied in primal therapy (Janov, 1999; Janov, 1970). The first peer-reviewed literature on primal therapy made some large claims. A small claim made is that traumatic events that happen to someone do not vanish just because they are forgotten, which is especially true for children (Janov, 1970). This is consistent with theory in TIR and is illustrated by case studies in the literature that covers cases of dissociation and/or dissociative identity disorder. There are examples of dissociated

individuals recovering the traumatic memory in their 30s or 40s on one or more incidents that they experienced as a child (Hensley, 2011). There are also examples of dissociated people being unaware that their consciousness either split or fragmented when they were a child, typically before age 10 (American Psychiatric Association, 2013), and they become aware that there is one or more people occupying the same body and/or brain as they are. The consciousness that split off might be too afraid to ever come to the surface, due to the trauma they experienced, and therefore the host can remain unaware of them for a long time. Primal therapy explains this by saying childhood traumata cause an elaborate system of "gates" to form in the brain, which cause them to be denied and repressed by the person, and that these painful memories exert a constant stress on one's body (Janov, 1977).

Larger claims of primal therapy include that clients of primal therapy, after eight months of treatment, have a permanent lessening of their vital signs including blood pressure, core body temperature, and pulse, as well as a slowed metabolic rate (Janov, 1977). Other large claims include conditions such as colitis, migraine headaches, asthma, and ulcers being particularly responsive to primal therapy. A 98%–100% (98% - 100%) cure rate was reported by Janov (1970), whereas the only independent study said it was more like 40% (Videgård, 1985). Janov does not consider primal therapy to be a form of catharsis, but other mental health professionals and/or researchers do (Capshew, 1999). The most recent peer-reviewed journal article by Janov (2013) shows no quantitative data.

Nichols and Zax (1977) noted that Gestalt therapy is a cathartic psychotherapy, as did Jackson (1994). TIR is one of the techniques of a larger subject, called Applied Metapsychology (Gerbode, 2013). TIR is Applied Metapsychology's most well-known and well-researched technique, as well as its approach to address traumata. Another technique within Applied Metapsychology that is used for a different purpose than TIR is called Unfinished Business (AMI Press, 2023). The Empty Chair technique in Gestalt Therapy helped lay the foundation for Unfinished Business. Gestalt Therapy is client-centered (Perls et al., 1951), which is another term for person-centered, and Applied Metapsychology considers itself to be person-centered (AMI Press, 2023).

Another cathartic technique is Psychodrama. Psychodrama began around 1920 (Jackson, 1994; Moreno, 1959; Moreno, 1946). Psychodrama had the goals of the gaining of insight and behavioral change, which allegedly resulted from a release from internal conflict, which would be achieved through a cathartic experience that was facilitated through role-playing. In psychodrama role-playing, critical past conflicts with emotional expression were re-enacted such that a cathartic release occurred (Jackson, 1994).

Another cathartic therapy is Reichian Therapy (Jackson, 1994; Reich, 1960; Reich, 1949). Earlier Reichian therapy included character analysis (Reich, 1949), which later lead to efforts to break down the "armor" of the person's character, which theoretically freed up their "orgone" energy and made it available for other purposes (Reich, 1960). This also correlates in Applied Metapsychology, which seeks to strengthen one's ego strength. Orgone energy became freed up through emotional release which also unrestricted both psychological and physical energy (Reich, 1960).

One of Reich's long-term students, Alexander Lowen, gradually developed his own clinical approach in the form of another cathartic technique called Bioenergetic Catharsis or Bioenergetics, which is where a person releases their stored-up emotions and stresses (Lowen, 1975). Work with the body was emphasized, and concerns about bound up energy needing to be freed was addressed. Lowen focused on energy in a broad sense as compared to Reich (Jackson, 1994). Bioenergetics was defined as "the study of the human personality in terms of the energetic processes of the body" (Jackson, 1994). As it is in virtually all cathartic therapies, emotional discharge or release is a theme and focus, as is emotional/energetic expression and chronic tensions becoming released.

It seems a common pattern with the founders of these various cathartic techniques, is that they claim to have found the figurative holy grail of psychotherapies, but it also seemed that none of them have fully delivered on their large promises of what their techniques would lead to. Yet the results seem disappointing only when compared to their original aspirations of their founders, and not so disappointing when compared to other psychotherapy results. A recurring theme in successful cathartic techniques is new beliefs and attitudes about whatever was being worked on. In TIR the practitioner observes their clients having shifts in viewpoints on whatever was being worked on, and these shifts become more positive (Gerbode, 2013).

Rationale for the Choice of Cathartic Theory

The rationale for the choice of cathartic theory in this study is to align with the history of TIR in terms of what most distinguishes it from similar therapies. Some past scholars have claimed TIR is an exposure therapy technique and although a valid

argument could be made, TIR goes further in facilitating a purging or discharge. A cathartic technique is something that enables one to access and then discharge an area where strong and usually unwanted emotions are stored. TIR offers a way to release them though the mechanism of the cathartic technique, which derives its name from some catharsis taking place. Catharsis typically results in insights and increase of awareness. It also results in an integration. Jung said the curative factor in abreaction is the integration of dissociation rather than the emotional release (Jung, 1966). So Jung proposes that dissociation becomes undone whereas Gerbode says repression becomes undone in TIR (Gerbode, 2013). Gerbode also says that an integration takes place (Gerbode, 2013), but does not suggest that it is dissociation that becomes integrated. Dissociation can mean anything from mild detachment from one's immediate surroundings to severe detachment including to the point of a consciousness appearing to be split or fragmented into distinctly different personality states such as in cases of Dissociative Identity Disorder (American Psychiatric Association, 2013). Abreaction was the name of the cathartic technique of psychoanalysis but the words abreaction and catharsis were interchangeable at times during the 20th century (Jackson, 1994). In TIR specifically, increased awareness virtually always occurs as a product of a successful session, however a catharsis in the form of an emotional release, although it often does, does not occur 100% of the time.

How And Why This Theory Relates to This Study

The cathartic theory relates to the present study because the catharsis that is produced at End Points could be said to cause any lessening of posttraumatic symptoms thereafter. That lessening would be addressed by the research questions:

RQ1: To what extent do the pre-, mid-, and post- posttraumatic scores differ (as measured by the PCL-5) before, during, and after TIR treatment?

In this first research question, if TIR is working and producing its desired result, there should be a decrease in severity of posttraumatic stress symptoms. This relates to existing theory in that it could be concluded the catharsis that was experienced in TIR sessions may have caused that lessening, or at least there is a relationship between experiencing catharsis in TIR sessions and a lessening or elimination of these symptoms. It would be the same concept for the second research question but only in the opposite direction:

RQ2: To what extent do the pre-, mid-, and post-posttraumatic growth scores differ (as measured by the PTGI) before, during, and after TIR treatment?

The direction would be the opposite in regard to this question because this one is measuring an increase in positive outcomes, whereas the first research question is measuring a decrease in negative outcomes.

Answers to the first research question tested if a catharsis was produced by TIR treatment in the form of less posttraumatic symptoms. The DV measured how it changed from pre to post treatment. The answer to the second research question tested if TIR facilitated posttraumatic growth.

Literature on TIR

The research problem that I addressed in this study is that it was not known in recent published research whether TIR is successful in lessening posttraumatic symptoms in ways that facilitate posttraumatic growth. In a recent peer-reviewed study having TIR

as its focus, Williams and Erlank (2019) took a qualitative approach and concluded that TIR is a suitable technique for South African social workers in private practice to treat clients with. In the only recent quantitative study with TIR as the independent variable, Descilo et al. (2017) used the Posttraumatic Stress Disorder Checklist – Civilian Version (PCL-C), CAS, CES-D, and the general expectancy of success scale (GESS) as their scales to measure the dependent variables. Descilo et al. (2017) used descriptive statistics to describe the demographic makeup of their sample, and they used a series of repeated measures analysis of covariance (ANCOVA) models as their main data analysis tools. There were 247 participants with an average age of 37 years, 87.8% of whom were women, were from several different countries of origin and were ethnically and racially diverse. 69% of participants had experienced domestic violence. Participants received an average of four hours of TIR. The repeated measures ANCOVA models indicated significant change over time in the four outcome variables of the Clinical Anxiety Scale, the Center for Epidemiological Studies Depression Scale, the PCL-4 Civilian version, and the General Expectancy of Success Scale.

In past quantitative research of TIR as an independent variable, Bisbey (1995) did a treatment outcome study on crime victims with PTSD and had 57 participants, none of which had a diagnosis of substance abuse, as that was an exclusion criterion. 82.2% of participants were victims of violent crime. That study compared TIR to the direct therapeutic exposure (DTE) modality and also had a control group. One participant in the TIR group was on anti-depressant medication. The scales which measured the dependent variables were the penn inventory (Hammerberg, 1982), impact of events scale

(Horowitz, Wilner, & Alvarez, 1979) for PTSD, symptom checklist (Peveler & Fairburn, 1990), job descriptive index (JDI), dyadic adjustment scale for relationship satisfaction, the therapy gain scale, and the crime-related PTSD scale. This study moved TIR insights forward by showing that more than 50% of all the treatment subjects no longer had PTSD. Another way to say this is that they no longer met the clinical criteria for a PTSD diagnosis.

Figley and Carbonell (1995) did the active ingredient project, which they said was a systematic clinical demonstration of the most efficient treatments of PTSD, and TIR was one of four modalities which were presented. This took place at Florida State University in Tallahassee in 1995. The dependent variable was the subjective units of distress scale (SUDs), assessed at pretest and post-test four to six months later. The average pretreatment SUDs score across all four treatment groups was between an eight and a nine. The thought field therapy (TFT) group had 14 participants, 63-minute mean treatment time, and 3.60 mean posttreatment follow-up SUD. The visual/kinesthetic disassociation (V/K D) group had 11 participants, 113-minute mean treatment time, and 3.30 mean posttreatment follow-up SUD. The eye movement desensitization and reprocessing (EMDR) group had six participants, 172-minute mean treatment time, and 2.64 mean posttreatment follow-up SUD. The TIR group had nine participants, 254-minute mean treatment time, and 5.67 mean posttreatment follow-up SUD. This study moved TIR insights forward by showing how it compared to those other modalities (TFT, V/K D, and EMDR) within the parameters of this study.

Coughlin (1995) measured the efficacy of TIR in treating anxiety symptomatology. This study had six facilitators who doubled as data collectors and all of them were in private practice. The two dependent variables were the state-trait anxiety inventory (STAI) (Spielberger, 1982) and the symptom checklist which was intended to elicit the symptoms of panic as defined by the diagnostic and statistical manual IV (APA, 2000), to then measure their severity by having the participant rate each symptom. The symptom checklist was specifically designed by Coughlin for that study. Neither of the instruments that were used required interpretation from any data collector. Coughlin found that there was a significantly significant and substantial reduction in state anxiety for the entire sample. The seven participant panic group had an average of 12.1 panic attacks the previous month. They averaged 10.3 hours of TIR treatment over what is assumed to be the following month (the way the researcher compares the time periods implies this) and the average amount of panic attacks went from 12.1 the previous month down to 1.1 during the treatment month. This study moved TIR insights forward by showing TIR's results on anxiety and anxiety symptoms including number of panic attacks within the parameters of this study.

Valentine (1998), who held that TIR is primarily based on cathartic theory, completed an experimental outcome study with TIR as the independent variable. The dependent variables used were the PTSD symptom scale (PSS), beck depression inventory (BDI), CAS, and GESS. Those instruments were administered in a pretest, posttest, and three-month follow-up format. This study contained a control group. The main quantitative data analysis tool was ANCOVA with the pretest as the covariate.

Analysis disclosed that TIR showed significant differences at the .05 level on all four dependent variables (PSS, BDI, CAS, and GESS) at both posttest and three-month follow-up. This study moved TIR insights forward by showing that the experimental group showed a statistically significant decrease in PTSD symptoms, depression symptoms, and anxiety symptoms at both the posttest and follow-up times, while those in the control group stayed approximately the same. Descilo et al. (2010) did two open trials in 2010, using TIR as the independent variable. In one of these trials they used child report of posttraumatic symptoms (CROPS), the depression self-rating scale (DSRS), the self-concept scale (SC), and the subjective units of distress scale (SUDS) as the dependent variables. They used one-way analyses of variance (ANOVAs) as their data analysis tool to compare pretreatment and posttreatment differences in the dependent variables. In the other trial they used the posttraumatic stress disorder checklist (PCL), civilian version, the CES-D, and the short depression happiness scale (SDHS) as their dependent variables. They used 2 x 2 mixed design ANOVAs as their data analysis tool to examine pretreatment and posttreatment differences in the dependent variables. This study moved TIR insights forward by showing its results on variables which had not been measured by TIR before, namely the CROPs, DSRS, and SC on a population of urban at-risk youth; and the PCL-civilian, CES-D, and SDHS on a population of unaccompanied minor refugees.

For the urban at-risk youth population, the main effect of the CROPS scores was statistically significant [$F(1, 32) = 21.20$, $p < .01$, $\eta 2 = .40$] and a strong decrease in pretest CROPS to posttest CROPS scores, therefore there was a strong decrease in their

levels of posttraumatic stress. The main effect of the CROPS scores for individuals who had a pretest score within the clinical range of 19 or higher was statistically significant [$F(1, 17) = 21.37$, $p < .01$, $\eta 2 = .58$]. The main effect of the DSRS scores was statistically significant [$F(1, 32) = 10.90$, $p < .01$, $\eta 2 = .25$] and a strong decrease in pretest DSRS to posttest DSRS scores, therefore there was a strong decrease in their levels of depression. The main effect of SC scores was statistically significant [$F(1, 32) = 12.39$, $p < .01$, $\eta 2 = .28$ and a strong increase in pretest to posttest SC scores. This means their levels of self-concept had a strong increase which roughly means their opinions of themselves improved. For the unaccompanied minor refugees population, the results of the PCL-civilian were statistically significant [$F(1, 22) = 205.77$, $p < .001$, $\eta 2 = .90$] and there was a strong lessening from pretreatment to posttreatment PCL scores. The main effect from gender and pretest-posttest CES-D scores were statistically significant [$F(1, 26) = 33.61$, $p < .001$, $\eta 2 = .56$]. There was a statistically significant difference between female and male CES-D pretest scores, but not posttest. The main effect between gender and pretest-posttest SDHS scores were statistically significant [$F(1, 30) = 23.83$, $p < .001$, $\eta 2 = .44$], as were female SDHS posttest scores compared to the pretest scores [$F(1, 30) = 35.44$, $p < .05$, $\eta 2 = .54$]. Female pretreatment SDHS scores were much higher than their male counterparts [$F(1, 30) = 10.06$, $p < .01$, $\eta 2 = .25$], and males did not show a statistically significant improvement from SDHS pretest to posttest scores [$F(1, 30) = .30$, $p = .588$, $\eta 2 = .01$].

Literature on Independent and Dependent Variables

This study is a secondary data analysis making use of a community mental health agency's records of the PCL-5 and PTGI administered to clients at intake, progress checkpoints, and final sessions. The agency's choice of measures followed the precedent of Descilo, as they used the PCL-civilian version as a variable in their research, which was the earlier version of PCL-5. The following section summarizes the literature on posttraumatic symptoms, the PCL-5, posttraumatic growth, and the PTGI.

Literature Review Related to Posttraumatic Stress

Posttraumatic stress refers to stress symptoms caused by having experienced and/or witnessed one or more traumatic incidents. A trauma is a relationship between an experience and the experiencer of the experience (Gerbode, 2013), and therefore experiences are not necessarily universal as to which are traumatic or not traumatic to any particular person, however certain experiences such as traffic collisions, warfare, or sexual assaults have been traumatic to many people and have caused PTSD symptoms to develop and/or become apparent. The diagnostic criteria of posttraumatic stress disorder (PTSD) for any human over six years of age gives examples as to how posttraumatic stress manifests and/or is experienced within its definition of PTSD (APA, 2013). PTSD first became an official disorder in the diagnostic and statistical manual III (DSM-III) (American Psychiatric Association [APA], 1980). Exposure to specific types of traumata (plural of trauma) is a precursor to PTSD (APA, 2013). After exposure, signs of PTSD include intrusive symptoms, aversive (something that causes avoidance to things/situations/behaviors due to an unpleasant/punishing/painful stimulus) symptoms,

negatively altered mood/negatively altered cognition, and altered reactivity/arousal. The definition of "cognition" is "the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses" (Lexico, 2020).

PTSD is defined in the diagnostic and statistical manual 5 (DSM-5) as "A. Exposure to actual or threatened death, serious injury, or sexual violence" (APA, 2013, p. 308). The four ways in which this exposure can happen include "1. Directly experiencing the traumatic event(s), 2. Witnessing, in person, the event(s) as it occurred to others, 3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental" (APA, 2013, p. 308), and "4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s)" (APA, 2013, p. 308) such as "first responders collecting human remains" (APA, 2013, p. 308) or "police officers repeatedly exposed to details of child abuse" (APA, 2013, p. 308). "Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related" (APA, 2013, p. 308).

Intrusion symptoms include "Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s)" (APA, 2013, p. 308), "Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s) (APA, 2013, p. 308), Dissociative (causing separation from some association such as usual or common reality) reactions such as flashbacks "in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of

present surroundings.)" (APA, 2013, p. 308), "Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s) (APA, 2013, p. 308), and "Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s)" (APA, 2013, p. 308).

Aversive symptoms are defined as symptoms where "Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred" (APA, 2013, p. 308) are present. Aversive symptoms are evidenced by "Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s)" (APA, 2013, p. 308) and/or "Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s) (APA, 2013, p. 308).

"Negative alternations in cognitions and mood associated with the traumatic event (s), beginning or worsening after the traumatic event(s) occurred" (APA, 2013, p. 308). Negative alterations in cognitions and mood are evidenced by at least two of an "inability to remember an important aspect of the traumatic event(s)" (APA, 2013, p. 308), "persistent and exaggerated negative beliefs or expectations about oneself, others, or the world" (APA, 2013, p. 309), "persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others" (APA, 2013, p. 309), "persistent negative emotional state" (APA, 2013, p. 309), "feelings of detachment or estrangement from others" (APA, 2013, p. 309), and

"persistent inability to experience positive emotions (APA, 2013), p. 309. There must also be at least two of six listed "marked alterations in arousal and reactivity associated with the traumatic event(s)" (APA, 2013, p. 309). The duration of symptoms must be more than one month, the symptoms cause clinically significant distress or impairment, and the symptoms are not attributable to the physiological effects of a substance or other medical condition (APA, 2013).

It is important to emphasize that all of the above posttraumatic stress symptoms only "count" towards meeting the criteria for PTSD if they are present for more than one month, otherwise they are more or less considered a normal response to a traumatic or highly distressing and/or upsetting experience that occurred. Taken collectively as a whole, all of these symptoms can be put under the category of a "stress response". A stress response is an organism's response to a stressor. Symptoms of posttraumatic stress are the aftereffects of an overwhelmed nervous system (PsychCentral, 2022). The presence of posttraumatic symptoms indicate that the nervous system is aroused. Stress response aftereffects occur because the experience was not fully processed in real time, and it was not fully processed in real time because the experience was too overwhelming and/or stressful to fully experience it and process it in real time. In moments of extreme stress, the organism may even have an attenuation of conscious awareness and not remember what happened or not remember at least some of what happened. Basically, the data which cannot be recalled was suppressed and part of what TIR does is recover that data (AMI Press, 2023), thus completing the processing of that experience.

Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) (Dependent Variable)

The first version of the Posttraumatic Stress Disorder Checklist (PCL) came out in 1987 (Keane et al, 1987). Since then, multiple updated versions have been released, including the PCL for DSM-IV which has three versions: PCL-M (military), PCL-C (civilian), and PCL-S (specific); and the most recent version that is one of the dependent variables of this study is the PCL-5 (Weathers et al., 2013). There are no PCL-M or PCL-S versions of the PCL-5, although there are three formats: with a Criterion A component, without a Criterion A component, and one with an extended Criterion A component which also incorporates the Life Events Checklist for DSM-5. Three studies that indicate sufficient validity for the PCL are *Validating the primary care posttraumatic stress disorder screen and the posttraumatic stress disorder checklist with soldiers returning from combat* (Bliese et al., 2008), *Validation of the PTSD checklist in an HMO sample of women* (Walker et al., 2002), and *Posttraumatic stress disorder symptoms in cancer: Psychometric analysis of the Spanish posttraumatic stress disorder checklist-civilian version*. Three studies which indicate sufficient reliability for the PCL are *The psychometric utility of two self-report measures of PTSD among women substance users* (2007), *Psychometric properties of the PTSD checklist* (Blanchard et al., 1996), and *Effects of Traumatic Incident Reduction on posttraumatic symptoms in a community-based agency* (Descilo et al., 2017). In the Descilo et al. (2017) sample, the English version of the PCL had good reliability (alpha = .92 to .93) and so did the Spanish version (alpha = .88 to .94). Both of these alpha calculations were for pre-, mid-, and posttests. The Spanish PCL has a similar factor structure and has been determined to be equivalent to the English version (Miles et al., 2008; Orlando & Marshall, 2002). Both

Descilo et al. publications (Descilo et al., 2017; Descilo et al., 2010), which were three studies in total since the 2010 publication was two studies and were summarized earlier, used the PCL to document outcomes from treatments.

Posttraumatic Growth (Dependent Variable)

Posttraumatic growth "refers to positive psychological change experienced as a result of the struggle with highly challenging life circumstances" (Tedeshi & Calhoun, 2004, p. 1; Calhoun & Tedeshi, 1999, 2001). Posttraumatic growth results from very meaningful and positive psychological shifts in thinking (Tedeshi & Calhoun, 2004) and one's paradigm or life schema (a schema is a paradigm or worldview in regard to something…the plural form of schema is schemata). This is relevant to TIR because these cognitive schemata restructuring start taking place to greater or lesser degrees as End Points begin to develop in TIR sessions, and progressively as an End Point for a charged item progressively develops after each subsequent session. Based on *The TIR Workshop Manual* (2020), where students are trained to ask clients their distress rating of each charged item (including each unresolved trauma that came up in the interview), it could be inferred that TIR sessions are intended to facilitate posttraumatic growth. This happens concurrently, seemingly automatically, as incidents are discharging via the TIR technique/procedure/process. The opposite of posttraumatic growth is posttraumatic depreciation. Posttraumatic growth is positive change that sometimes, whether sooner or later, results from having experienced a trauma, and posttraumatic depreciation is negative change that results after having experienced a trauma.

Although the term posttraumatic growth is relatively recent, the idea that

something that caused great suffering can later produce something very good has been around since ancient times (Tedeschi & Calhoun, 2004). Virtually all or all human beings have a life narrative, and posttraumatic growth helps to develop one's life narrative (Tedeschi & Calhoun, 2004). The most notable work of Campbell (1949) is consistent at its core with Tedeschi and Calhoun's ideas about posttraumatic growth. Campbell was a professor of literature as well as a writer, and therefore Campbell's work arguably falls more within the field of literature than it does within the field of psychology, however it is relevant to the cultural context of posttraumatic growth and some of Campbell's biggest influences were psychologists: Abraham Maslow, Stanislav Grof, Sigmund Freud, and Carl Jung. Campbell's most well-known work was that of comparative mythology entitled *The Hero With a Thousand Faces* (Campbell, 1949). Campbell proposes that there exists a central pattern between heroes across many cultures and myths, and that this central pattern can be referred to as "The Hero's Journey" (Campbell, 1990). The archetypal hero has both an inner, as well as an outer journey. In TIR terms, the inner journey of the "hero" could be said to include the session work which produces increased awareness and often catharsis. In a nutshell, the hero's journey is one from trauma/traumata (the hero experiences one or more tragedies) to the overcoming of said trauma/traumata. In modern cultural and clinical terms, this is referred to as posttraumatic growth. The "hero" transforms from a state of brokenness into one of triumph.

Posttraumatic Growth Inventory (PTGI)

The PTGI is an instrument that measures positive outcomes from traumatic events (Tedeschi & Calhoun, 1996). Extensive study had gone into studying negative outcomes

from traumatic events (Tedeschi & Calhoun, 1996), but Tedeschi and Calhoun noticed evidence in the literature evidence that experiencers of even extremely traumatic events have observed at least some positive change resulting from such challenging circumstances. This served as the basis for this research and Tedeschi & Calhoun continued to research what they termed as "posttraumatic growth" for many years following. The first version of the PTGI came out in 1996. Three broad areas of perceived positive changes were identified: changes in one's philosophy, changes in interpersonal relationships, and changes in one's perception of self (Tedeschi & Calhoun, 1996). The method used in developing the scale of the PTGI was the creation and/or identification of benefits that are reflective of what had been mentioned in the literature the researchers studied regarding what they later coined as posttraumatic growth. They came up with 34 items to measure positive changes in the three areas mentioned above. Information about the PTGI as a variable in this study is gone over in Chapter 3.

Summary and Conclusions

Catharsis in a psychological context goes back at least as far as the ancient Greek civilization. Cathartic therapies were in use from the late 19th century with Freud & Breuer through the end of World War II. They continued after the war with various modalities as was detailed earlier in this chapter. Major themes of catharsis include emotional discharge or release, insights, and in the case of most developers of cathartic modalities, some kind of integration taking place, such as the integration of dissociation or the integration of the completed activity cycle after TIR treatment on an incident, which was previously considered an incomplete activity cycle (Gerbode, 2013).

It was known in the 1990s through 2010 what results TIR had on anxiety symptoms, depression symptoms, posttraumatic symptoms, and other measures; however, a lot has changed since those times, including clinical criteria of PTSD. At the time when the first study on TIR was done, the latest version of the DSM was the DSM-III-TR. Since then, the DSM-IV came out in 1994, DSM-IV-TR came out in 2000, DSM-V came out in 2013, and DSM-V-TR came out in 2022. Only one quantitative study has been published (Descilo et al., 2017) since DSM-V has come out and it was based on clinical files from 2008-2009, which was several years before DSM-V came out. The results of TIR in treating the symptoms of PTSD as defined by the DSM-5 is not yet known in published research on TIR. Furthermore, the results of TIR through the lens of posttraumatic growth had never been measured in any research on TIR, so this study was be the first one to do so.

While TIR's relationship to posttraumatic stress has been studied to some degree using older diagnostic criteria of PTSD such as based on DSM-IV or DSM-IV-TR criteria, this study fills a gap in the literature by reporting the results of TIR in treating the symptoms of PTSD as defined by the DSM-5 for the first time, by reporting the results of TIR directly through the lens of posttraumatic growth for the first time, and by analyzing if the degree of posttraumatic stress has predictive value of the degree of posttraumatic growth for the first time. Therefore, it directly addressed how TIR is related to posttraumatic stress and posttraumatic growth for the first time and in the same study. Another gap it helps fill is that most studies focus on PTSD and not posttraumatic symptoms on their own (without a PTSD diagnosis being necessary).

In summary, measuring the results of TIR with the PCL-5 measured its results on PTSD symptoms as defined by the DSM-5 for the first time, measuring the results of TIR with the PTGI directly measured TIR's progressive changes in posttraumatic growth for the first time, and this study analyzed if the degree of posttraumatic stress predicts the degree of posttraumatic growth for the first time. Furthermore, other quantitative studies on TIR are no longer current since there are none within the last five years and there is only one within the last 10 years (Descilo et al., 2017) but that study used a dataset from between 2008 and 2009.

Chapter 2 was mostly a literature review on the key variables and subject matter of this study. Chapter 3 details the research method which was used, the research design including the rationale as to why that design was used, aspects of the research methodology such as the study's population, if any sampling and/or sampling procedures were used, information regarding the TIR modality, information regarding the archival data, the instrumentation and operationalization of the constructs used, the data analysis plan, threats to validity, and ethical procedures.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study was to examine the extent to which the TIR intervention is a successful treatment model for addressing PTSD symptoms and facilitating posttraumatic growth. I archivally examined this by comparing pre, mid, and post TIR intervention scores on posttraumatic stress and posttraumatic growth of clients of a deidentified community mental health agency in Florida.

The major sections of this chapter include research design and rationale, methodology (including the study's population, sampling and sampling procedures, information regarding the treatment intervention, information regarding the archival data, instrumentation and operationalization of constructs, and information regarding the operationalization of each variable), data analysis plan, threats to validity, ethical procedures, and a summary.

Research Design and Rationale

This quantitative research was a one-group limited time series design (Campbell & Stanley, 1963; Reichardt, 2019) that adds one additional repeated measure at mid-intervention to the basic one-group pretest-posttest design. Measurement at mid-intervention was also done, though with some inconsistency within the sample. The independent variable was time (before, during, and after TIR as administered by a specific mental health agency). The dependent, outcome, repeated measures (pre, mid, post) variables were composite scores on PTSD symptoms and posttraumatic growth.

This design connected with the first research question [To what extent do the pre-, mid-, and post- posttraumatic symptoms scores differ (as measured by the PCL-5) before, during, and after treatment?), by quantifying a compositable value for posttraumatic symptom scores through the use of a one-way repeated measures ANOVA. This design connects with the second research question (To what extent do the pre-, mid-, and post- posttraumatic growth scores differ (as measured by the PTGI) before, during, and after treatment?), by quantifying a compositable value for posttraumatic growth scores through the use of a one-way repeated measures ANOVA. This design connects with the third research question (To what extent do the progressive changes of post-PCL-5 scores account for variance in post-PTGI scores?), by analyzing the posttraumatic scores into a value which helps explain how accountable they are for variance in post posttraumatic growth scores, assuming they account for any variance in those scores. It does this through the use of an ordinary least squares regression.

According to the senior director of intake and clinical operations in February 2022, the sample was not randomized, nor was there a control or waitlist group. According to the senior director of intake and clinical operations in November 2021, there was no recruitment, but rather all clients came in as normal referrals for treatment or were pre-existing clients. In other words, any new referrals came in the same way that any other referral for treatment would come in at this mental health agency. According to the senior director of intake and clinical operations in February 2022, the mental health agency was remunerated for the sessions, with some clients using their insurance, the majority being Medicaid-funded and a handful of commercial insurance-funded, and

others were covered by grants. According to the senior director of intake and clinical operations in February 2022, one grant that provided funding for some was due to a school shooting.

With respect to time and resource constraints, the primary aspect is the mental health agency's time series intervention, and the secondary aspect is my part, due to this study being a secondary data analysis using archival data. The primary aspect has inherent time constraints in that it is longitudinal. The primary aspect has resource constraints in regards to not having enough practitioners trained to take clients requesting TIR (limited personnel to implement the TIR intervention), resource constraints in regards to their practitioners not reliably doing the pre-test, mid-test, and post-test with all clients, personnel resource constraints with regards to collecting data and entering it into the database, and administrative resource constraints with regards to supervisors not reminding the providing practitioners of TIR when screenings were due. The secondary aspect had time constraints in regard to properly executing a Data Use Agreement with the agency.

Limited time series designs are common in studies assessing psychological treatment interventions (Jebb et al., 2015). Limited time series designs can produce preliminary estimate of effect of interventions such as TIR which future studies can then build upon with more rigorous research designs. According to the senior director of intake and clinical operations in 2021, the deidentified mental health agency feels that it is unethical to do a randomized clinical trial because doing so would withhold treatment from someone who is suffering. Future researchers of TIR could build upon this current

study with a randomized clinical trial in a situation without a potential ethical conflict, even if a subjective one.

Some reasons why TIR was the choice of intervention was because it has promise in improving trauma and mood issues and has been studied less frequently than interventions such as eye movement desensitization and reprocessing (EMDR) or trauma focused cognitive behavioral therapy (TF-CBT).

Methodology

Population

The population was composed of clients and referrals of the mental health agency who are experiencing unwanted anxiety, depression, and/or posttraumatic symptoms. The population was composed of adults as well as children. According to the deidentified mental health agency's literature from 2021, they annually serve over 20,000 children, adolescents, and adults. In calendar year 2021, the mental health agency served a total of 26,254 people. Of these 26,254 people, 17,279 of them had an anxiety (2,636), depression (4,719), or stressor and/or trauma-related disorder (9,924) as a primary diagnosis. Of those 9,924, 3,751 of them had PTSD (F43.10-F43.12) as their primary diagnosis.

According to the National Institute of Mental Health (2016), 6.8% of adults have Post Traumatic Stress Disorder (PTSD) at some point in their lifetimes with approximately 3.6% having it at any one time, with approximately 5.2% of females and 1.8% of males. Five percent of adolescents have it with 8.0% of females and 2.3% of males comprising that overall percentage.

Sampling and Sampling Procedures

There were no sampling procedures, all clients were pre-existing or came in as normal referrals for treatment. The intention in regard to the inclusion side of the sampling frame was to use as many clients as possible who met the criteria of having unwanted posttraumatic symptoms and were interested in receiving TIR sessions. That strategy would be justified as it is unethical to deny people treatment who could benefit from and want to receive that treatment. The sample was drawn by accepting anyone who met the criteria, was eligible to receive the TIR intervention, and had the wherewithal to pay for the services, such as through commercial insurance, Medicaid, or whose circumstances allowed them to be covered by a grant. The majority of the mental health agency's clients are on Medicaid, and there are income restrictions for people to be eligible for Medicaid. In regard to being eligible to receive the TIR intervention, there are certain candidates that are contraindicated, namely individuals with relatively severe personality disorders such as borderline personality disorder or individuals who are on antipsychotic drugs, also known as neuroleptics (AMI Press, 2020). People with bipolar disorder are not contraindicated; however, they could be if they are taking neuroleptics.

Data Collection

The same practitioners who administered the sessions also collected the data at pre, mid, and post intervention. The format the data were collected was oral response to data collector's reading of each item and the data collector would then write down the response. The archival data were provided to me in an Excel spreadsheet that was initially transferred to IBM SPSS Version 28 for analysis.

Power Analysis of Sample Size

There were 97 clients with at least pre-test and post-test measures entered into the mental health agency's database. When archival data is used for secondary analysis, the sample size is already set. Power analysis, then, is not needed to calculate the sample size required to detect an expected effect size.

TIR Intervention

TIR, as indicated by its name, was originally intended to resolve psychological and/or emotional traumatic experiences, however it has been shown to also alleviate symptoms of anxiety and depression (Descilo et al., 2017; Descilo et al., 2010). The TIR technique is covered in the TIR workshop (AMI Press, 2020), and according to the senior director for intake and clinical operations in November 2021, was administered by the mental health agency's employee practitioners to their pre-existing clients or new referrals. The TIR technique is just one of many applied metapsychology interventions (Gerbode, 2013), but it is the most well-known technique as well as the one that specifically addresses traumata.

Regardless of their level of professional education or licensure, meaning regardless if the practitioner is a PhD level psychologist, masters-level social worker, masters-level clinical counselor or otherwise, practitioners of TIR are called facilitators and the work is called facilitation (AMI Press, 2020). As detailed in chapter 1, the patient or client or person receiving the TIR session from the facilitator is called a viewer, and the action that the viewer does during a TIR session is called viewing.

The TIR technique enables the unwanted parts of a traumatic incident, such as unwanted feelings, emotions, sensations, attitudes, and pains, to become fully processed and discharged at the charged item's End Point. While being anchored in the present, the TIR facilitator utilizes the Communication Exercises and the Rules of Facilitation to deliver the TIR technique to the Viewer. is straightforward and simple. There are seven standard instructions or steps to the TIR technique however some other questions can also be asked depending on what comes up in the session. The standard instructions that the facilitator uses in a TIR session could be written on the back of a business card (AMI Press, 2020). It takes a greater or lesser amount of practice and experience for a facilitator to become competent at administering the technique. Certain facets of expert communication such as listening without interrupting, appropriately acknowledging without invalidating or validating, and acknowledging in a way where the viewer knows their communication was received are necessary for successful facilitation (AMI Press, 2020). TIR also incorporates the client-centered ideas of Rogers (2012), however AMP's uses the terminology "person-centered".

TIR's intention is to resolve trauma and part of the phenomena that occurs at the procedural End Point of TIR are insights and realizations which many times cause a shift in the perception of the experience from the viewpoint of the experiencer (AMI Press, 2020). TIR basically allows the mind to complete the processing of a traumatic incident, thus converting it into normal memory, as opposed to charged and/or occluded memory. One product of the completion of a traumatic incident is that the person's mind stops dealing with the event as if it were still unfinished (Trauma Resolution Center, n.d.).

The operational definition of TIR is the intervention that was administered to this study's clients in order to measure its effects in the form of changes in levels of posttraumatic symptoms and posttraumatic growth.

The Use of Archival Data

Demographic information was collected by the agency in the form of age, gender identification, race, funding source (grant or insurance), and primary trauma. From the funding source information, namely if the funding source was Medicaid, other information such as certain economic information can be extrapolated regarding those clients' income levels, since there are income limitations to qualify for Medicaid. All PCL-5 and PTGI scores were collected by the agency.

Instrumentation and Operationalization of Constructs

PTSD Checklist for DSM-5 (PCL-5)

Blevins et al. (2015) developed the PCL-5, however this instrument was updated from the previous one in order to meet the needs associated with the changes in diagnostic criteria from the DSM-4 to the DSM-5. An earlier version was developed in 1996 and was based on the DSM-4 diagnostic criteria (Blanchard et al., 1996).

The purpose of the PCL-5 is to measure severity of posttraumatic symptoms. The administrative procedure to collect this measurement is that the TIR practitioner asked the client his or her rating on each of the items, and then sum those scores for an overall score. The PCL-5 has 20 items on it and has a Likert-type scale. For each item the respondent rates it on a scale of zero to four with zero being "not at all" and four being "extremely". The higher the overall score, the higher the severity of posttraumatic

symptoms. An overall score of 35 or more is the clinical cutoff score. This means if a client gets an overall score of 34, that this instrument indicates that client does not meet the diagnostic criteria of PTSD, however the purpose of the study is not to diagnose, but rather to measure change in severity of symptoms. The main relevance of diagnosis would be in those cases, if any were to occur, where the client met the diagnostic criteria of PTSD before the study began, whereas that client no longer meets the diagnostic criteria of PTSD after having completed the TIR treatment plan.

Furthermore, "Implications for use of the PCL-5 in a variety of assessment contexts are discussed" (Blevins et al., 2015, p. 489). One reason that this instrument is appropriate as a dependent variable to the current study is because the authors stated that "Overall, results indicate that the PCL-5 is a psychometrically sound measure of PTSD symptoms" (Blevins et al., 2015, p. 489). The reliability score of the PCL-5 in the form of Cronbach's alpha is 0.90. It is considered satisfactory to be at 0.70 and above (Nunnally, 1978). The PCL-5 has a convergent validity score of rs = .74 to .85 and discriminant validity score of rs = .31 to .60 (Blevins et al., 2015).

Post Traumatic Growth Index (PTGI)

Tedeschi and Calhoun (1996) developed the PTGI. The PTGI measures the degree of posttraumatic growth. This instrument is appropriate as a dependent variable to the current study because it assesses positive outcomes reported by persons who have experience traumatic events and was claimed as valid for that purpose.

which has occurred. The administrative procedure to collect this measurement is that the TIR practitioner asked the client his or her rating on each of the items, and then

sum those scores for an overall score. The PTGI has 21 items on it and has a Likert-type scale. For each item the respondent rates it on a scale of zero to five with zero being "I did not experience this change as a result of my negative event" and five being "I experienced this change to a very great degree as a result of my negative event". The higher the overall score, the more posttraumatic growth that is indicated, and the higher the positive and desired change which has taken place.

Regarding overall internal consistency and test-retest scale reliability of the 21 items, the internal consistency is alpha = .90 and "all items contribute relatively equally to the consistency of the scale" (Tedeschi & Calhoun, 1996, p. 461). The test-retest scale reliability "was acceptable at r = .71" (Tedeschi & Calhoun, 1996, p. 461). Regarding concurrent and discriminant validity, a correlation between the perception of benefits and social desirability was examined using the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) since the benefits described by posttraumatic growth have the appearance of being quite desirable (Tedeschi & Calhoun, 1996). The relationship between the PTGI and optimism was examined using the Life Orientation Test (Scheier & Carver, 1985). The eight items scored, most relevant to optimism, had a test-retest reliability over four weeks of r = .79 and an internal consistency of alpha = .76 (Tedeschi & Calhoun, 1996). Key issues of construct validity were also examined, and the overall conclusion from those examinations are that the scores on the PTGI are not plainly a function of a positivity bias (Tedeshi & Calhoun, 1996).

This study is measuring changes in the dependent variables caused by TIR, the independent variable in this study, but the independent variable is not being

"manipulated" in the sense that its level is not being systematically changed where different groups of clients would experience different levels of it, nor are the same group of clients experiencing different levels of it at different times in order to manipulate it; therefore it is not considered that the independent variable is being manipulated, but rather it is being applied as a treatment.

Data Analysis Plan

IBM SPSS Statistics software version 28 was be used for analyses. RQ1 & RQ2 were analyzed using one-way repeated measures ANOVAs. RQ3 was analyzed using ordinary least squares regression.

RQ1: To what extent do the pre-, mid-, and post-posttraumatic symptoms scores differ (as measured by the PCL-5) before, during, and after TIR treatment?

Null Hypothesis ($H_0$1): The pre-, mid, and post-PCL-5 scores will not differ.

Alternative Hypothesis ($H_1$1): The pre-, mid, and post-PCL-5 scores will differ.

RQ2: To what extent do the pre-, mid-, and post-posttraumatic growth scores differ (as measured by the PTGI) before, during, and after TIR treatment?

Null Hypothesis ($H_0$2): The pre-, mid, and post-PTGI scores will not differ.

Alternative Hypothesis ($H_1$2): The pre-, mid, and post-PTGI scores will differ.

RQ3: To what extent do the progressive changes of post-TIR posttraumatic symptoms (as measured by the PCL-5) account for variance in post-TIR posttraumatic growth (as measured by post-PTGI scores)?

Null Hypothesis ($H_0$3): The progressive changes of post-PCL-5 do not account for variance in post-PTGI scores.

Alternative Hypothesis ($H_1$3): The progressive changes of post-PCL-5 does account for variance in post-PTGI scores.

Threats to Validity

A test or study is valid if it measures what it claims and aims to measure. Described in this section are threats to internal validity, external validity, construct validity, and statistical conclusion validity.

Internal Validity

Internal validity is the degree to which a piece of evidence, within the context of a specific study, supports claims made within that study. At a basic level, internal validity is the degree to which the researcher can confidently put forth that no other variable but the one being studied caused the entire effect (Saleem, 2019). Because my secondary analysis is correlational, cause and effect claims cannot be made. For example, regarding psychological trauma, one alternative explanation for a decrease in posttraumatic symptoms is simply the passing of time. This could be shown by a waitlist or control group; however, the mental health agency did not utilize a waitlist or control group.

Although not necessarily considered threats, aspects of this study design that keep internal validity from being higher are that random sampling was not used, there was no random assignment, and there was not a control group. Instrumentation is not a threat to internal validity since all instruments are reliable and valid and the same instruments were used for each measurement instance. History cannot be controlled for, especially since the clients are not in an inpatient setting, meaning the clients have lives outside of the study and live in the real world, which is a non-laboratory setting where outside

events cannot be controlled against in a practical and meaningful manner. Maturation could be a threat to internal validity if the passing of time could reasonably explain changes in test scores. Statistical regression is a threat because regression to the mean upon retesting cannot be disentangled from the treatment results. Mortality is a threat to the extent that clients with higher end moderate or severe issues did not complete all three time period measurements. Selection-maturation interaction is inapplicable as a threat to internal validity in this study because there is no comparison group. The fact that blinding protocols were not used is also inapplicable since the researcher had no control over administration of the testing or any meaningful control over any other aspect of data collection.

External Validity

External validity is the degree to which conclusions obtained within that study can generalize and justify conclusions about other contexts that are outside of that study. This is determined by trying to apply the conclusions within the study to outside contexts (Mitchell & Jolley, 2020). Outside contexts include things such as people, situations, times, and stimuli (Aronson et al., 2015). External validity is also an important part of any study, because having a basis to generalize conclusions obtained in a study is a goal in research the great majority of the time. Statistically analyzing external validity involves devising statistical methods that will have valid generalizations regarding whether generalizing across different populations is capable of being accomplished (Pearl & Bareinboim, 2014). For my secondary analysis, results were only be generalizable to TIR interventions that serve clients similar to the partnering mental health agency.

Concerning threats to external validity, multiple-treatment interference was not controlled for. Testing reactivity could potentially be a threat if the measurement of clients' posttraumatic symptoms are affected by taking those tests multiple times. Specificity of variables is not a likely threat because the variable scores are based on established instruments.

Interaction effects of selection and experimental variables and the reactive effects of experimental arrangements are not applicable because the data were not collected under experimental conditions.

Construct and Statistical Conclusion Validity

The variables of interest in this secondary analysis were all measured using standard and reliable instruments. However, to the extent that pre-tests affect subsequent test scores, and to the extent that regression to the mean occurred on retesting, construct validity is threatened.

Statistical conclusion validity relates to sufficient power and appropriate statistical analysis. Given the expected archival sample size, statistical power was calculated for minimally detectable effect sizes. The sample size is sufficient to detect statistically significantly small to medium effect sizes as detailed in a previous section of this chapter. The one-way repeated measures ANOVA is the appropriate statistical procedure to answer RQ1 and RQ2, and ordinary least squares regression is appropriate to answer RQ3.

Ethical Procedures

Informed consent forms, in the form of the deidentified mental health agency's standard treatment form from 2015, were given to clients for their review before they decided to accept treatment or not. There are no ethical concerns related to recruitment materials and processes since the clients were already pre-existing clients or referrals and their treatment plans would have been the same even if they were not clients in this study. Client anonymity was protected by the mental health agency in their archival data as there were no names in the spreadsheet dataset, but rather only client numbers. There were also no specific dates of birth, only descriptive information such as age (in years), gender, and ethnicity. Therefore, the mental health agency used identifiers for each client that would not reveal their identity to anyone who would not have access to the identifiers, and I do not have access to those identifiers. According to the senior director of intake and clinical operations in May 2024, the data are part of the clients' charts in an electronic health record system. According to the senior director of intake and clinical operations in May 2024, Florida law is that records are to be maintained for seven years but the data are not paper files and will be held longer due to being in an electronic health record system yet still be treated in accordance with Florida law. I do not know who all has access to the data at the mental health agency, however according to the senior director of intake and clinical operations in May 2024, their electronic health record system meets all data security and Healthcare Insurance Portability and Accountability Act (HIPAA) requirements.

Summary

This quantitative study is a secondary data analysis of archival data with a one-group limited time series design that adds one additional repeated measure at mid-intervention to the basic one-group pretest-posttest design. There was no randomization and there was no control or waitlist group, therefore it is not an experimental design but rather a quantitative pre-, mid-, and posttest quasi-experimental time series design. The clients were also pre-existing clients of or referrals to the mental health agency. Chapter 4 covers data collection as relevant to secondary data analysis, treatment fidelity, and results. The dataset was analyzed using IBM's SPSS Version 28.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to examine whether or not TIR was related to changes in posttraumatic symptoms and posttraumatic growth by comparing pre, mid, and post intervention scores. I also examined how posttraumatic symptoms were related to posttraumatic growth by determining to what extent the post-PCL-5 scores account for variance in the post PTGI scores through the use of ordinary least squares regression.

RQ1: To what extent do posttraumatic symptoms scores differ (as measured by the PCL-5) before (pre-), during (mid), and after (post-) TIR treatment?

Null Hypothesis ($H_0$1): The pre-, mid, and post-PCL-5 scores will not differ.

Alternative Hypothesis ($H_1$1): The pre-, mid, and post-PCL-5 scores will differ.

RQ2: To what extent do posttraumatic growth scores differ (as measured by the PTGI) before (pre-), during (mid), and after (post-) TIR treatment?

Null Hypothesis ($H_0$2): The pre-, mid, and post-PTGI scores will not differ.

Alternative Hypothesis ($H_1$2): The pre-, mid, and post-PTGI scores will differ.

RQ3: To what extent do post-TIR posttraumatic symptoms (as measured by PCL-5) account for variance in post-TIR posttraumatic growth (as measured by post-PTGI scores)?

Null Hypothesis ($H_0$3): The results of post-PCL-5 does not account for variance in post-PTGI scores.

Alternative Hypothesis ($H_1$3): The results of post-PCL-5 does account for variance in post-PTGI scores.

The organization and major sections of Chapter 4 include Data Access (appropriate to a secondary analysis), Treatment and/or Intervention Fidelity, Results, and a Summary of Chapter 4 including transitional material to Chapter 5.

Data Collection

The dataset was obtained from an agency that delivers TIR intervention among other types of interventions. The agency generated the data between 2017 and 2023.

Baseline Demographic and Descriptive Characteristics of the Sample

There were 97 clients for whom sufficient data (baseline and final assessments) were available. This study defines a child as physically-aged nine years or under, an adolescent as aged 10 through 17, and an adult as aged 18+. Fifty-five percent (53) of clients who participated in this study were adults, 42% (41) were adolescents, 2% (two) were children (one was age seven and one was age eight), and 1% (one) had no age reported. Seventy percent, or 68 of these 97 clients were reported as being female, with the other 30% (29) reported as being male. Regarding ethnicity, the sample was comprised of 25% (24) White Hispanic, 23% (22) African American, 23% (22) Caucasian, 16% (15) Hispanic, 4% (four) Asian, 4% (four) Multiracial, 2% (two) Black, 2% (two) Haitian, and 1% (one) Other White client(s). Regarding primary type of trauma that was treated, 25% (24) were school shooting, 21% (20) were sexual abuse, 13% (13) were physical abuse or domestic violence, 7% (seven) were grief, 4% (four) were emotional abuse, 4% (four) were relationships, 3% (three) were medical or

hospitalization, 3% (three) were brother(s) fighting, 2% (two) were COVID, 2% (two) were miscarriages, and 16% (15) were various other trauma(s).

The PTSD Checklist for DSM-5 (PCL-5) scores can go as high as 80. The higher the score the more severe the posttraumatic stress. Clinical cutoff scores help make it easier for a researcher to place any client's score on a particular instrument in context (Steffens & Andrykowski, 2015). The PCL-5 does not diagnose PTSD by itself, however a cutoff score of between 31 and 33 is "indicative of probable PTSD" (United States Department of Veterans Affairs, n.d.). This further indicates that scores above 33 are also indicative-of-probable-PTSD. One reason this terminology of indicative-of-probable-PTSD is used is because the PCL-5 generally measures the severity of PTSD symptoms irrespective of time, whereas a PTSD diagnosis requires that the symptoms be present at least 30 days after the traumatic experience occurred. Seventy-two percent (70) were at or over the cutoff score of 31 at pre-test, 61% (19) were at or over the cutoff score at mid-test, and 29% (28) were at or over the cutoff score at post-test. The mean of the 97 clients for the baseline (pre-test) PCL-5 score is 44.13 (SD = 18.35). For the 31 of the 97 clients who took a PCL-5 in the middle of their treatment plan, the mean of their mid-test PCL-5 score is 36.17 (SD = 15.81). The mean of the 97 clients for the post-test PCL-5 score is 21.49 (SD = 16.64). Interpreting group means suggests that after the intervention the sample reported 51% fewer posttraumatic symptoms than they reported before the intervention.

The Posttraumatic Growth Inventory (PTGI) scores can go as high as 105. The higher the total score, the higher the implication that the client has gone through a

positive transformation (posttraumatic growth) as a result of their crisis. The mean of the 97 clients for the baseline PTGI score is 52.04 (SD = 21.80). For the 31 of the 97 clients who took a PTGI in the middle of their treatment plan, the mean of their mid-test PTGI score is 51.70 (SD = 21.27). The mean of the 97 clients for the post-test PTGI score is 63.53 (SD = 25.70).

How Representative the Sample is of the Population of Interest

All clients of the agency who had at least pre-test and post-test scores during this timeframe were included, with the exception of one who did not finish their TIR treatment. The population is composed of clients and referrals of the mental health agency who are experiencing unwanted anxiety, depression, and/or posttraumatic symptoms. To evaluate how representative this sample is in regard to ethnicity breakdowns reported in other large-scales studies of trauma, the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) wave 2 sample will be used as a comparison. The 98.4% of the NESARC wave 2 sample reporting race and ethnicity was composed of 58.2% White, 19.0% Black, 2.8% Asian and 18.4% Hispanic (Roberts et al., 2010). The 95% of the sample in this current study reporting race and ethnicity is composed of 49% White (“Caucasian”, “White Hispanic”, and “Other White” combined), 25% Black (“African American” and “Black” combined), 4% Asian, and 17% Hispanic (“Hispanic” and “Haitian” combined). That seems generally similar to the NESARC 2 wave sample, in which 85% of respondents reported trauma exposure.

Treatment and/or Intervention Fidelity

To monitor fidelity, the clinicians providing the TIR sessions followed a Basic TIR fidelity checklist that was used by the mental health agency. Treatment was generally administered as planned and no challenges were reported within the archival data, with one notable exception: One client did not finish their TIR treatment, but rather transitioned to Cognitive Processing Therapy (CPT) for a reason not listed within the data.

Results

Descriptive Statistics That Characterize the Sample

Clients' ages ranged from seven to 62, with the mean age being 26.26 years old. Pre-test PCL-5 scores ranged from 7 to 73, mid-test PCL-5 scores ranged from 7 to 66, and post-test PCL-5 scores ranged from 0 to 65. Pre-test PTGI scores ranged from 9 to 92, mid-test PTGI scores ranged from 5 to 93, and post-test PTGI scores ranged from 6 to 105. Regression statistical assumptions were met without concerns regarding skewness or variance discrepancies.

Statistical Analysis Findings Organized by Research Questions and Hypotheses

RQ1: To what extent do posttraumatic symptoms scores differ (as measured by the PCL-5) before (pre-), during (mid), and after (post-) TIR treatment?

A one-way ANOVA was conducted to evaluate group mean differences of posttraumatic stress levels, as measured by the scores on the PCL-5. The independent variable was time, with measurements at 3 Timepoints (Timepoint 1 = pre-test, Timepoint 2 = mid-test, and Timepoint 3 = post-test). The dependent variable was the

score on the PCL-5. The Null Hypothesis ($H_0$1) stated there is not a group mean difference among timepoints. The Alternative Hypothesis ($H_1$1) stated there is a group mean difference among timepoints. The assumptions of sphericity, normality, independence, and equal variances were met. The posttraumatic symptoms scores went from means of 44.13 (SD = 18.35) pre-test, to 36.17 (SD = 15.81) mid-test, to 21.49 post-test. From the repeated measures ANOVA comparing PCL-5 scores across the three timepoints, the F-test revealed significant results, $F(2, 29) = 33.62$, $p < .001$, indicating there is a significant group mean difference among timepoints. Thus, the Null Hypothesis ($H_0$1) was rejected.

The assumption of sphericity was met. The effect size of Partial Eta Squared is .537 (this is a medium effect size). Post hoc tests with Bonferroni correction, identified that Timepoint 1 differed significantly from Timepoint 2 $t(29) = 5.508$, $p < .001$. Timepoint 2 differed significantly from Timepoint 3 $t(29) = 3.673$, $p < .001$. Timepoint 1 differed significantly from Timepoint 3 $t(96) = 12.466$, $p < .001$.

RQ2: To what extent do posttraumatic growth scores differ (as measured by the PTGI) before (pre-), during (mid), and after (post-) TIR treatment?

A one-way ANOVA was conducted to evaluate group mean differences of posttraumatic growth levels, as measured by the scores on the PTGI. The independent variable was time, with measurements at 3 Timepoints (Timepoint 1 = pre-test, Timepoint 2 = mid-test, and Timepoint 3 = post-test). The dependent variable was the score on the PTGI. The Null Hypothesis ($H_0$2) stated there is not a group mean difference between Timepoint 1 and Timepoint 3. The Alternative Hypothesis ($H_1$2) stated there is a

group mean difference between Timepoint 1 and Timepoint 3. The assumptions of normality, independence, equal variances, and sphericity were met (Mauchly's W is .744 and Greenhouse-Geisser is .796). A Greenhouse-Geiser score of more than .75 is required to meet the assumption of spherecity (Greenhouse & Geisser,1959). The posttraumatic growth scores went from means of 51.73 pre-test, to 52.45 mid-test, to 63.11 post-test. From the repeated measures ANOVA comparing PTGI scores across the three timepoints, and the F-test results were significant, $F(2, 29) = 6.811$, $p = .011$, indicating there is a significant group mean difference between Timepoint 1 and Timepoint 3. The Null Hypothesis ($H_0 2$) is rejected.

The effect size of Partial Eta Squared = .143. Post hoc tests with Bonferroni correction, identified that that Timepoint 1 did not differ significantly from Timepoint 2. Timepoint 2 differed significantly from Timepoint 3 [$t(29) = 3.725$, $p < .001$]. Timepoint 1 did not differ significantly from Timepoint 3.

RQ3: To what extent do post-TIR posttraumatic symptoms (as measured by PCL-5) account for variance in post-TIR posttraumatic growth (as measured by post-PTGI scores)?

Null Hypothesis ($H_0 3$): The results of post-PCL-5 does not account for variance in post-PTGI scores.

Alternative Hypothesis ($H_1 3$): The results of post-PCL-5 does account for variance in post-PTGI scores.

An ordinary least squares regression was run to predict Timepoint 3 posttraumatic growth from Timepoint 3 posttraumatic symptoms. The results for hypothesis 3 were not significant. The Null Hypothesis ($H_0$3) is accepted.

The regression model of Timepoint 3 posttraumatic symptoms as a predictor of Timepoint 3 posttraumatic growth did not significantly explain variance in the dependent variable of posttraumatic growth (p = .379). However, for future research in a future research question in a future research study, a symptom change score might be a more useful indicator since posttraumatic symptom reduction could predict posttraumatic growth.

Summary

In summary, archival data were obtained from a deidentified mental health agency. Ninety-seven of their clients sufficiently finished a TIR treatment plan and had at least pre-test and post-test PCL-5 and PTGI scores which were then statistically analyzed.

Regarding RQ1, the average PCL-5 score difference from pre-test to post-test was 22.80, had a standard deviation of 18.15, and standard error mean of 1.83. The PCL-5 pre-test scores going down by an average of 22.80 points (from an average of 44.29 down to an average of 21.49) indicates less posttraumatic stress symptoms after TIR treatment.

Regarding RQ2, the average PTGI score difference from pre-test to post-test was -11.378, had a standard deviation of 26.40, and standard error mean of 2.67. On average, the PTGI pre-test scores went up 11.38 points (from an average of 51.73 up to an average of 63.11). Thus, this indicates more posttraumatic growth (the higher the score the more posttraumatic growth is indicated) after participating in TIR treatment. Regarding RQ3,

the results were not significant. Chapter 5 will be a discussion of conclusions drawn and recommendations made from the results of this study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative study was to examine whether TIR was related to changes in posttraumatic symptoms by comparing pre, mid, and post intervention PCL-5 scores. Also, it was to examine to what extent, if any, changes in posttraumatic symptoms were related to posttraumatic growth by determining to what extent post-PCL-5 scores account for variance in the post PTGI scores using ordinary least squares regression.

The first two research questions in this quantitative study, which included the use of archival data, were addressed by the specific research design that included analysis of pre-test, mid-test, and post-test scores on the dependent variables of the PCL-5 and PTGI. This kind of design can be classified as one-group limited time series design (Campbell & Stanley, 1963; Reichardt, 2019) that with some cases adding one additional repeated measure at mid-intervention to the basic one-group pretest-posttest design.

TIR is an intervention attempting to enable a better state of being and higher quality of life for the client. A better state of being can be measured by a lessening of unwanted posttraumatic symptoms. The dependent variable of PCL-5 measures posttraumatic symptoms across time. A better state of being and higher quality of life can also be measured by an increase in positive changes after a trauma, which is why changes in posttraumatic growth were measured by the PTGI.

Data were obtained from a mental health agency and were quantitatively analyzed with IBM's SPSS software. Ninety-seven clients took part in the study. The analyses for

RQ1 and RQ2 were done post hoc and used one-way repeated measures ANOVAs and paired samples t-tests, and RQ3 was analyzed using ordinary least squares regression.

Regarding RQ1, the ANOVA revealed significant results indicating there was a significant group mean difference between Timepoints 1, 2, and 3 of the PCL-5 scores post hoc. Regarding RQ2, the ANOVA results were significant, indicating there is a significant group mean difference between Timepoint 2 and Timepoint 3 of the PTGI scores. Regarding RQ3, the results were not significant. The regression model of Timepoint 3 posttraumatic symptoms as a predictor of Timepoint 3 posttraumatic growth did not significantly explain variance in the dependent variable of posttraumatic growth.

Interpretation and Discussion of the Findings

Descilo et al. (2017) used the earlier version of the PCL-5, which is called the PTSD Checklist – Civilian version (PCL-C). Both the PCL-5 and PCL-C use the same scoring system and so comparing the results is meaningful. The population in the 2017 study had a pre-test PCL-C mean score of 55.76 (n = 245, SD = 16.33), mid-test PCL-C mean score of 37.83 (n = 129, SD = 15.02), and post-test mean score of 27.34 (n = 92, SD = 11.97). The population in this current study has a pre-test PCL-5 mean score of 44.13 (SD = 18.35), mid-test PCL-5 mean score of 36.17 (SD = 15.81), and post-test mean score of 21.49 (SD = 16.64). The 2017 study PCL-C mean score went from 55.76 at pre-test to 27.34 at post-test, which is a 51% decrease from pre-test to post-test. This current study's PCL-5 mean score went from 44.13 at pre-test to 21.49 at post-test, which is also a 51% decrease from pre-test to post-test. This means clients' severity of posttraumatic stress symptoms went down markedly. As stated earlier, any score starting

around 31 and above on the PCL-5 is “indicative of probable PTSD”, so it is clear the mean score of 44.13 pre-TIR-treatment was considerably higher than 31, and the mean score of 21.49 post-TIR-treatment is considerably lower than 31. The findings in this current study mirror the findings in the 2017 study in regard to PCL scores from pre-test to post-test. The 2017 study did not use the PTGI and did not report effect sizes. This current study extends knowledge about TIR’s possible role in symptom reduction by reporting and analyzing PTGI scores and calculating and reporting a medium effect size of .537 for TIR’s relation to posttraumatic symptom reduction and a small effect size of .143 for TIR’s relation to posttraumatic growth. Furthermore, the mean PTGI pre-TIR-treatment test scores went up from a mean of 51.73 up to a post-TIR-treatment mean of 63.11. That is a difference of 11.38 points and us, this indicates an experience of more posttraumatic growth after participating in TIR treatment.

Limitations of the Study

This study was not a randomized controlled clinical trial that has an experimental design and the internal validity to allow causal inferences about the efficacy of a modality such as TIR. Also, no biological testing was done such as measuring serotonin and/or dopamine levels pre-, mid-, or post-treatment. This is a limitation in that the test results are subjective to the clients, rather than objective such as showing an objective biological change such as increased serotonin or dopamine in the body/brain.

I, the researcher doing a secondary analysis, was first a client of TIR, then I became a facilitator in TIR, then I became a trainer of other facilitators in TIR, and then I became a senior trainer in TIR. This means I am certified to not only train facilitators, but

I am certified to train other trainers. There could be some form of researcher bias in similar situations due to these facts. However, this study was a secondary analysis of data that I did not collect and that itself limits most if not all ways that any bias could influence the dataset. Therefore, the limitation of risk of researcher bias was managed by using a secondary analysis approach instead of collecting data that is subject to bias.

A limitation of this study that cannot be controlled for in a practical way is that of self-selection bias. Self-selection bias is a big problem in the social sciences including psychology (Ziliak & McCloskey, 2008). The clients whose data are analyzed in this study chose to participate in a TIR treatment. This can make it more likely for the clients to see improvements in themselves because they may have expected that TIR could help them before they even experienced it, which could be why they wanted to participate in the first place. This is at least somewhat similar to the concept of a placebo effect (the person took something with an idea that it could help relieve what they were seeking relief of), therefore making it more likely for them to see or notice an improvement, whether or not said improvement is objectively present or not.

It might be argued that the age difference in the sample, with the clients' age ranging from 7 to 62 years old, is a limitation. In a sample, age differences have the potential to generally limit the ability to compare results in studies, as they may confuse the outcomes to some degree and therefore obscure accurate or more accurate trends to some degree (Strietholt et al., 2013). However, this is distinctively important in educational measures where schooling and associated age can significantly affect performance assessments (Strietholt et al., 2013). This limitation has a safeguard to some

degree within TIR, since the TIR technique for children and adults are virtually the same with any difference between them being negligible differences in wording, and the action that the client does on their end during TIR treatments is the same regardless of age.

Another limitation of this study was archival data use. I did not collect any of the dataset. Thus, it is virtually impossible for me to be certain exactly when the mid-test scores were collected for each client. I was told verbally that the general rule was after six sessions of TIR, but I have no way of verifying if that is what happened or if that is what happened consistently. Being that only 31 of the 97 clients took mid-test measurements, I believe it's more unlikely than likely that mid-test scores were taken at a consistent point-in-time within TIR treatment. Regardless of where the mid-test measurements were taken within treatment, what was taken still shows a general direction, and posttest scores are more important since it is more clear that those were taken at the end of treatment. Lastly, it is not practical to know how many sessions a client is going to need to finish their treatment. A general estimate for initial unburdening is 12 sessions, however there can be significant variation with that. A measure of how many sessions each client had during their treatment is not included within the dataset.

Recommendations

Since this study's RQ1 findings put a medium effect size on TIR into the literature, future researchers can use this effect size as a factor in their sample size calculation. This reported effect size might make it possible to do TIR studies with smaller sample sizes that would otherwise have needed to be larger. This could help make future research studies more practical to do since less resources are needed than

would have otherwise been required. In other words, since larger effect size generally indicates that a stronger impact or relationship exists, this can lead to smaller sample sizes being needed to reach statistical significance in future studies. This is due to a larger effect being easier to detect, thus reducing the number of participants required for reliable results (Grace-Martin, 2022).

Relevant to the results for hypothesis 3 (the Timepoint 3 posttraumatic symptoms did not significantly explain variance in the dependent variable of posttraumatic growth), future researchers should consider that a symptom change score might be a more useful indicator since posttraumatic symptom score alone does not take baseline into account. However, if baseline were reflected in an overall posttraumatic symptom reduction score, perhaps that could predict posttraumatic growth. In other words, RQ3 as currently structured did not produce significant results, however, evaluating a slightly different research question that centers around symptom change score might yield results that are more interpretable if statistically significant.

Qualitative research studies were done on TIR in the 1990s, but there have been none that have used formal qualitative techniques to uncover client insights in an organized, systematic way that is appropriate for a qualitative research study since then. It is recommended that a current qualitative research study on TIR be done, and that research may want to be mindful to do it in a way where the data could be used for a mixed-methods research study.

Implications

Positive Social Change

Effect size measures the strength of the relationship between variables. This can be helpful in determining the impact social change impact of interventions. Comprehending effect sizes can help researchers assess how meaningful the changes, and this in turn can help direct future improvements and actions (Madsen et al., 2016). In this study, TIR's relation to posttraumatic symptom reduction had a medium effect size of .537. For comparison purposes, Bradley et al. (2005) reported the following effect sizes for posttraumatic symptom reduction: Exposure therapy had a 1.57 mean effect size with a sample size of 13, cognitive behavior therapy (CBT) had a 1.65 mean effect size with a sample size of 5, and eye movement desensitization and reprocessing (EMDR) had a mean effect size of 1.43 with a sample size of 10. Those are all large effect sizes. This study showed a smaller effect size for TIR but had a much larger sample size of 97. The results of this study, including the establishment of a medium effect size for TIR's relationship to reduced posttraumatic symptoms that on average went from over a PCL-5 score of 44, well above the indicative-of-PTSD clinical score that begins at 31, to under a score of 22. This shows promise for TIR in decreasing posttraumatic stress with similar efficacy of modalities with a more established research base, such as exposure therapy, CBT, and EMDR. Specifically, TIR's medium effect size within this study indicates the strength of relationship between TIR treatment and a lessening of unwanted posttraumatic stress symptoms. As discussed in other parts of this study, less posttraumatic stress is associated with a higher window of tolerance. This means a person

is more likely to have a larger comfort zone than they would otherwise and have more freedom to do activities that they feel comfortable with. This further indicates that there are certain behaviors a person may have been avoiding, such as due to past unresolved trauma, that they are now no longer avoiding.

Recommendations

It is recommended that mental health professionals who treat PTSD or posttraumatic stress consider adding TIR as a treatment option for posttraumatic stress. Future research should attempt to comprehend if there are other reasons why exposure therapy, CBT, and EMDR had larger effect sizes, other than the other studies' much smaller sample sizes and stricter inclusion criterion of a PTSD diagnosis (which was not an inclusion criterion for this study). If other valid reasons are discovered, future research should consider refining the research design of future TIR studies, and if practical should consider mirroring those designs such that the results can more accurately compare TIR with exposure therapy, CBT, and EMDR.

Conclusion

In the DSM-5, PTSD is classified as a Trauma and/or Stressor-related Disorder. It could be argued that at the base or root of PTSD is stored, not-fully-processed, and therefore unresolved stress. The stress became stored as a product of the impact or reception of what was contained within the traumatic experience(s). A traumatic experience means that there was a severe amount of stress present during the incident. It is an experience that the person was highly resistant towards experiencing and an effort was made during the incident by the receiver to not experience it (Gerbode, 2013).

Lessening stress, including the accumulation of past posttraumatic stress that a person is still carrying around with them, might go a long way towards their experiencing a higher quality of life. Stress, including posttraumatic stress, can affect people at the individual, family, organizational, and societal level. Less stress for the individual can contribute to less family stress, less organizational stress, and less societal stress. Less stress correlates to better health, at minimum for physically active adults (Stults-Kolehmainen, Tuit, & Sinha, 2014), and better health might be pervasive into other areas of life.

For those suffering from posttraumatic stress and also meet the clinical criteria for a PTSD diagnosis, PTSD continues to be an ongoing diagnosis of concern. The impact of PTSD is unwanted and unpleasant for the experiencer of those symptoms. Those symptoms burden a person and hinder their life and goals. Due to PTSD's negative impact on people, more interventions should be examined, at least until one is identified that truly works in alleviating those experiences. TIR appears to be promising in lessening the severity of PTSD symptoms. In this study, the average client had a PCL-5 score that was above the "indicative of probable PTSD" at pre-test to significantly below that cutoff score at post-test. As more examination into PTSD and TIR continue, it may lead to less stressed individuals and the improvement of conditions surrounding those individuals.

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