THESIS

OCCUPATIONAL THERAPISTS' PERSPECTIVES AND ROLE WITH ILLNESS-INDUCED TRAUMA FROM MEDICAL CONDITIONS

Submitted by

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ABSTRACT

OCCUPATIONAL THERAPISTS' PERSPECTIVES AND ROLE WITH ILLNESS-INDUCED TRAUMA FROM MEDICAL CONDITION

Illness-induced trauma might cause a disruption in an individual's occupational performance. This study examined occupational therapy practitioner's perspectives and role in addressing illness-induced trauma in practice. In this explanatory sequential mixed methods design, twenty-four occupational therapists completed an online survey and ten occupational therapists participated in a semi-structured 1:1 interview. Survey questions asked about their knowledge of illness-induced trauma. Interview questions asked therapists about how they incorporate illness-induced trauma knowledge and trauma-informed care into their practice. Quantitative results showed that the majority of occupational therapists did not receive formal trauma-informed care training, 96% agreed that psychological trauma has a significant impact on rehabilitation outcomes, and 8% agreed that current guidelines for trauma-informed care adequately consider the needs of clients with illness-induced trauma. Qualitative results indicated three major themes: occupational therapy approaches, illness-induced trauma's effect on rehabilitation, and barriers to providing trauma-informed care. Findings suggest that occupational therapy practitioners have a unique perspective on addressing illness-induced trauma and their ability to practice trauma-informed care could support a client's ability to process and heal after a traumatic medical event.

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CHAPTER 1: INTRODUCTION, LITERATURE REVIEW, and METHODS

Introduction

Illness-induced trauma is a type of trauma that results from stress related aspects of medical conditions and life-threatening illness (Jackson et. al, 2016). It is estimated that 25% of patients with stroke, spinal injury, and amputation develop clinically significant symptoms of post-traumatic stress disorder (PTSD) due to their injury (Edmonson et al., 2013; Kunz et al., 2021; Kearns et al., 2019). The mental and physical health outcomes of PTSD can likely have significant effects on performance in occupations and quality of life. Occupational therapists (OTs) can potentially use their expertise in occupational performance and participation with daily activities to address PTSD symptoms while being trauma-informed. Not much research has been conducted on illness-induced trauma and OTs role in trauma-informed care with illness-induced trauma.

Literature Review

This literature review will cover the following aspects of trauma: the influence of the nervous system and vagal nerve on stress response, PTSD, and illness-induced trauma. Trauma-informed care will be reviewed. Finally, the impact of trauma on occupation and occupational therapy's role in trauma-informed care will be highlighted.

Definition of Trauma

Trauma can be defined as either a single event or multiple events/experiences that can cause adverse effects on overall functioning and physical, mental, and emotional well-being (SAMHSA, 2018). Events can include, but are not limited to, natural disasters, abuse, sexual assault, exposure to violence, terrorism, and vehicle accidents (Fette et al., 2019). Medical events

or onset of disability/illness/injury are not commonly thought of as a trauma; however, perhaps could be.

Nervous System and Vagal Nerve

Trauma can stimulate the autonomic nervous system (ANS), which is made up of the sympathetic (SNS) and parasympathetic (PNS) systems. The neurons stimulate sympathetic outflow systems and parallel sympathetic processing, including the fight-or-flight response (Jansen et al., 1995). The SNS activates the cardiovascular and adrenal catecholamines during extreme emotional or physical states, such as during a traumatic event, creating the "flight or fight" response. The SNS response is controlled by a set of brain neurons that include a dual input into sympathetic neurons that regulate cardiac and adrenal functions in the hypothalamus and brainstem (McCorry, 2007). The purpose of the PNS includes conserving energy, maintaining physiologic integrity of organs, and activating the "rest and digest" response (Tindle & Tadi, 2021). Activation of the PNS results in reduction of the stress response that could be caused by experiencing a traumatic event.

The polyvagal theory proposes the origins of brain structures can regulate survival and social defensive behaviors, which can be activated during traumatic events. The polyvagal theory emphasizes that the autonomic nervous system (ANS) provides the neurophysiological substrates of emotional experiences. The vagal nerve is related to different adaptive behaviors and is a primary aspect of the ANS which regulates striated muscles in the head and visceral organs such as the heart, larynx, and, and pharynx. The three phylogenetic stages include the safe state, mobilized state, and immobilized state. The safe stage consists of the PNS activation of calming and relaxed emotional states. The mobilized state occurs when the ANS detects danger, and the SNS is activated with the "fight-or flight" response. The immobilized state activates when

danger is too great with pain numbing endorphins releasing. The three phylogenetic stages of the vertebrate ANS correspond to three subsystems which can be linked to communication, mobilization, and immobilization (Porges, 1997). The vagal nerve passes through the diaphragm and regulates internal organ functions. Deep breath work stimulates the vagal nerve, stimulating the PNS and activating the "rest digest" response (Porges, 2021). The ventral vagal nerve state is the response to the parasympathetic nervous system (PNS) that is activated in homeostasis and safety. Strong activity can slow down heart rate and counteract extreme sympathetic arousal. Maintaining dominance in this state can allow ability to cope with stressful environments. The dorsal vagal nerve state is the response to danger or life threat (Baldwin, 2013).

Defense States Associated with the Nervous System

The five defenses to stress and trauma include freeze-alert, flight, fight, freeze, and collapse and are coordinated by the SNS (Baldwin, 2013). The freeze-alert defense happens when a threat surpasses one's ability to cope. The parasympathetic control is relinquished, while the sympathetic activity increases. Active defensive, including flight and fight, are mediated through the SNS and can be autonomically interchangeable involving blood flow to facilitate movements to threats. Dorsal vagal activity activates the freeze-fright defense state and is accompanied by fear, heart contractions, and increased blood flow. With extreme threats, the sympathetic activity can tip the balance to dorsal vagal dominance, which can cause a sharp decrease of the heart rate, resulting in a state of collapse, sometimes known as 'freeze' (Baldwin, 2013). No known research has been conducted to indicate a specific defense mechanism associated with illness-induced trauma.

Definition of Post-Traumatic Stress Disorder

PTSD is a type of anxiety disorder due to an exposure to a traumatic event. Symptoms are characterized from three categories of symptoms including avoidance, re-experiencing, and hyper-arousal. Symptoms are persistent for a month or longer and can cause impaired functioning, distress, poor physical health, quality, and mortality (Wade et al., 2013).

According to the American Psychiatric Association (2013), the DSM-5 TR defines the criteria for a PTSD diagnosis as the following:

> The essential feature of posttraumatic stress disorder (PTSD) is the development of characteristic symptoms following exposure to one or more traumatic events. The clinical presentation of PTSD varies. In some individuals, fear-based reexperiencing, emotional, and behavioral symptoms may predominate. In others, anhedonic or dysphoric mood states and negative cognitions may be most prominent. In some other individuals, arousal and reactive-externalizing symptoms are prominent, while in yet others, dissociative symptoms predominate. Finally, some individuals exhibit combinations of these symptom patterns. (Diagnostic and statistical manual of mental disorders, 2022)

PTSD trauma can be classified as type I or type II. PTSD Type I is associated with a discrete and recent event, such as a car accident, witness of a shooting, or a natural disaster. With illness-induced trauma, this could include a stroke or spinal cord injury. Type II trauma, also called complex psychological trauma, consists of repetitive and/or prolonged exposure to the stressor that involves harm and often happens at developmentally vulnerable periods in a person's life (Snedden, 2012). Common examples type II trauma include childhood abuse, domestic abuse, and combat. Considering illness-induced trauma, an example may be more related to chronic disease such a diabetes and chronic obstructive pulmonary disease.

There are a variety of risk factors for PTSD for adults who are exposed to trauma. Risk factors are variables that could increase the likelihood of developing PTSD. Risk factors include trauma severity, exposure to previous trauma, childhood adversity, lack of social support, and

additional life stress (Brewin et al., 2000). Experiencing trauma from a medical event might exacerbate past trauma. Factors such as lack of social support and additional life stress might be more exposed while in a medical and vulnerable state. These additional factors along with the trauma of experiencing a medical event and injury could lead to potentially developing PTSD symptoms.

Definition of Illness-Induced Trauma

Illness-induced trauma (IIT) is an event that could be a cause of PTSD that results from stressors of medical conditions and/or life-threatening illness. IIT can include hospitalization, procedures that are painful, fear of death, feelings of helplessness, challenges with communicating experiences and disturbances with delirium, and patients' experience with reduced autonomy (Jackson et al., 2016). It is estimated that 25% of patients with stroke, spinal injury, and amputation develop PTSD or clinically significant symptoms (Edmonson et al., 2013). Other conditions have not been studied in relation to IIT. Individuals who experience stressors from medical conditions and life-threatening illness might be at high risk of PTSD due to a variety of factors. For example, medical procedures can be invasive and disturbing. Hospitals and intensive care units (ICUs) can cause overwhelming experiences such as stress from pain, fear of dying, loss of control, and difficulties communicating. Medications that patients consume during hospitalization can cause side effects on cognitive and emotional functioning and can lead to experiences of anxiety, delirium, hallucinations, and panic (Wade et al., 2013).

Illness-Induced Trauma Symptoms

PTSD due to IIT, versus other onsets, can vary in symptoms. IIT symptoms have been shown to present higher rates of co-morbidities and acute life-threatening conditions. However,

IIT has also been shown that symptoms can involve fewer alterations in cognition and mood, hyperarousal symptoms, and re-experiences of the traumatic event (El-Gabalawy et al., 2018). Experiencing both chronic and acute conditions have been associated with increased likelihood of developing illness-induced PTSD. Symptoms could be a result from the illness itself or factors due to the illness, such as ICU or hospitalization stays, coping with a new diagnosis, and/or receiving treatment (El-Gabalawy et al., 2018).

Patients in the ICU and who experience PTSD symptoms characterize their symptoms through thoughts and stress. One in five ICU patients have clinically significant depression and anxiety symptoms six months after their ICU stay (Elliot et al., 2016). Development of PTSD symptoms after 6 months post discharge have been associated with decreased sleep quality, frightening experiences, anxiety, depression, and high pain intensity at the ICU (Elliot et al., 2016). Common expression of PTSD symptoms with IIT include avoidance of medical settings and procedures, hypervigilant preoccupation of physical symptoms, excessive thoughts of delusional memories from the hospitalization, confusion on real versus delusional memories, claustrophobia from being held down in the ICU, and reactivity related to hospital noises (Jackson et al., 2016).

Individuals who experience IIT might experience a unique constellation of PTSD symptoms. Depression maybe a symptom associated with IIT and PTSD. The depression-related IIT might consist of more somatic symptoms versus cognitive symptoms. Somatic symptoms are described as an intense focus on physical symptoms, which can consist of pain or fatigue with individuals experiencing IIT (Jackson et al., 2016). With IIT, reexperiences of trauma are more centered around future threats possible recurrence of the medical condition and functional decline. Additionally, there can be an experience of disruptions to one's assumed belief system

such as what one's future would include. With events commonly associated with PTSD, reexperience and fear of recurrence are associated with the past threats (Jackson et al., 2016).

Avoidance has been shown to be one of the most common and debilitating symptoms of IIT and is highly associated with functional impairment. For example, individuals with PTSD from ICU stays can experience a maladaptive cycle of avoidance. Stress and anxiety from medical symptoms can lead to avoidance of treatments and dissociation. Avoidance can cause symptoms to worsen, and if not treated, may require emergency room visits or another ICU hospitalization (Jackson et al., 2016). This ongoing cycle can be retraumatizing for trauma survivors and can lead to other medical and psychological difficulties.

Post-Traumatic Stress Disorder vs Illness-Induced Trauma

Although the definition of trauma does not explicitly include IIT, recent evidence suggests that individuals who experience a life-threatening illness/injury/disability can develop PTSD, which may worsen the disease symptoms and increase the risk for mortality (El-Gabalawy et al., 2018). In the past, the DSM-IV discussed the possibility of IIT being considered an index trauma. An index trauma is defined as the incident that serves as the initial primary focus of treatment. For individuals who have experienced multiple traumas, the index trauma is the worst single incident (Priebe et al., 2018). Events considered an index of trauma in the DSM-5 TR are defined as the context of death, threatened death, actual or threatened serious injury, or sexual violence (American Psychiatric Association, 2013). The definition of index trauma has been founded on the history of the development of PTSD through survivors of war and combat, which fails to incorporate more contemporary literature (Jackson et al., 2016).

The most recent DSM-5 TR does into more detail about life-threatening illness or debilitating outcomes, stating that these events are not necessarily considered a traumatic event.

However, medical events that could qualify are life-threatening medical emergencies, or treatments that lead to pain and helplessness ((Diagnostic and statistical manual of mental disorders, 2022)). Although the additional to the DSM provides more insight on the qualifications of a medical event to be considered an index trauma, the ability to identify a medical event as a trauma remains unclear and open-ended.

Although IIT falls in the DSM-5 framework with the context and threat of death and injury, The DSM-5 does not clearly state that IIT is an example of a traumatic event. The lack in clarity regarding IIT in the DSM-5 can cause discrepancy between how IIT is related to PTSD and how IIT should be managed.

Trauma-Informed Care

Trauma-informed care (TIC) is a foundation for practitioners to provide a safe environment for individuals who have experienced trauma. Primary elements of TIC, which describes aspects and goals of a TIC setting, have been defined by the Substance Abuse and Mental Health Services Administration (SAMHSA) as: 1) realizing the widespread impact of trauma exposure, 2) identifying how trauma may impact patients, families, and staff in this system, 3) responding by applying this knowledge into practice and institutional policies, and 4) preventing re-traumatization (SAMHSA, 2015). SAMHSA also includes six core trauma-informed principles which describes characteristics to incorporate into healthcare settings. The six-core trauma-informed principles including: 1) safety, 2) trustworthiness and transparency, 3) peer support and mutual self-help, 4) collaboration and mutuality, 5) empowerment, voice, and choice, and 6) cultural, historical and gender issues (Fette, et al., 2019).

Bassuk and colleagues established guidelines for healthcare practitioners to provide TIC based on the six trauma-informed principles. The guidelines include: establish and disseminate a

person-centered standard of care, collaborative healing relationship between the provider and client, establish the six TIC principles as a foundation to practice, respect all forms of diversity, understand the effects of trauma, mental health, and substance abuse conditions, promote belief that recovery is possible, ensure person-centered care is individualized, and form an interdisciplinary team (Bassuk et al., 2017).

Alternatives to Trauma-Informed Care

New approaches to address trauma to have emerged in recent literature as alternatives to trauma-informed care. Limitations of trauma-informed care are that the term itself doesn't encompass the entire person and that TIC focused on the negative impacts of trauma and harm. Healing centered care (HCE) is an approach that intended to focus on how trauma and healing are experienced collectively. Healing centered engagement is an extension on our reactions to trauma and invites a holistic approach to enable well-being (Ginwright, 2018). HCE incorporates a client-centered approach to heal from trauma with consideration of the entire person and their experiences. Solution-focused brief therapy (SFBT) is a strength-based and patient-centered intervention that centers around patients' resources and future versus problems and histories of trauma. SFBT incorporates past successes and what patients can do in the future to resolve their problems. SFBT has shown significant health-related psychosocial outcomes and nearly significant for health-related behavior outcomes (Zhang et al., 2017). Although there is a significant amount of more research within the healthcare field on TIC, approaches that focus on strength-based and holistic practice could be important when working with clients who are experiencing illness-induced trauma.

Impact of Trauma on Occupations

PTSD has been shown to have significant effects on performance in occupations and quality of life. Zatzick and colleagues found that 40.3% of individuals with PTSD had more than one activity of daily living (ADLs) impairment and 29.9% with instrumental activities of daily living (IADLS) (Zatzick et al., 2008). Occupations are everyday purposeful activities that people do to occupy their time (World Federation of Occupational Therapists, 2022). Loss of participation in these occupations can cause negative effects on an individual's occupational identity, ability to function, and create a meaningful life. Trauma and illness can disturb the process of participation in meaningful occupations and can cause maladaptive responses to occupational challenges. Losing occupations or activities due to PTSD plays a detrimental role on one's participation and engagement in productive occupations (Lopez, 2011). Little to nothing is known about the impact of trauma on occupational performance and participation with IIT.

Occupational Therapy and Trauma-Informed Care

Currently, there is a growing body of research supporting OTs use of TIC principles in their practice. Practice guidelines advocate for increase in TIC in multiple occupational therapy settings, including primary medical care (Fette et al., 2019). Occupational therapy is defined in the Occupational Therapy Practice Framework (OTPF) as "the therapeutic use of everyday life occupations with persons, groups, or populations (i.e., the client) or the purpose of enhancing or enabling participation" (OTPF, 2020). OTs' intervention sessions focus on well-being, improving function, and health to support individuals with various needs (Fette et al., 2019). Research has prefaced the expertise of occupational therapy (OT) in understanding the impacts of trauma on everyday life and daily activities. For individuals who experience trauma, trauma symptoms can cause more difficulty with engaging in everyday activities (Snedden, 2012).

The Ecology of Human Performance (EHP) Model has been incorporated in OT literature for trauma-informed care. The EHP model prefaces that the interaction between an individual and their environment can affect occupational performance and is understood through a person's cultural, social, physical, and temporal contexts (Dunn et al., 1994). A trauma-informed approach can incorporate the EHP model to increase occupational performance through promoting environments to be sensitive to trauma and encouraging services to empower the person to pursue their wellness and occupational performance goals (Hagen et al., 2022). OTs can incorporate these environmental adaptions and educate on supportive services when working with client's who are experiencing illness-induced trauma during their intervention settings.

The person, environment, occupation (PEO) model is a commonly used OT practice model. The PEO model is an ecological model that analyzes occupational performance through the relationship between a person, their environment, and occupation (Turpin, 2016). The PEO model has been used to demonstrate the relationship between OT and TIC (Rosenbloom & Williams, 2010). Person factors can include cognitive, affective, physical, and spirituality factors. Trauma can impact a person through symptoms of impaired concentration, dissociation, fear, grief, loss of trust, sleep disturbances, hyper-arousal, and loss of hope. The occupation construct includes self-care, leisure, and productivity; trauma can cause a negative impact through disruption and alienation of occupations (ADLs, leisure, school, work, social participation) and other life roles. The Environment construct includes cultural, social, institutional, and physical factors. Trauma can affect the environment through attitudes, lack of supports, deterrents to seek justice, and inability to access services. Deterrents to seek justice can consist of policies/laws within government and hospitals (Rosenbloom & Williams, 2010).

Discrepancies in Occupational Therapy, Illness-Induced Trauma, and Trauma-Informed Care

Occupational therapists (OTs) have the opportunity to play an important role with TIC and treating patients who experience IIT. However, there are discrepancies between TIC theory and how it is incorporated into practice. In a survey conducted by Holman et al. (2022), a majority of occupational therapy participants (54%) stated they identified TIC as applicable and important in their practice, but 44% either disagreed or strongly disagreed when asked if TIC was adequately implemented into practice. Based on the data, there is a dissatisfaction with implementation of TIC in OT, despite many practitioners indicating TIC to be important and applicable to everyday practice. The dissatisfaction could indicate a lack of education, recognition, and implementation of TIC concepts. In a survey collected by Bruce et al. (2018), rehabilitation therapist reported that time constraints, need of training, confusing information and evidence on trauma-informed practices, and fear of re-traumatizing patients were all factors that caused barriers in providing TIC. More knowledge about OTs perception on TIC can help inform the gap in training and education within current practice. With TIC knowledge, OTs can support the best practice for patients with IIT and incorporating the holistic foundations of OT (Holman et al., 2022).

There is strong evidence to support early psychological intervention for patients and caregivers during an ICU stay, but hospital guidelines do not advocate for an early psychological debriefing for treatment or prevention of PTSD for individuals exposed to trauma (Jackson et al., 2016). There is a discrepancy between the research in providing supports for mental health versus PTSD treatment and prevention. OTs practice indicates that symptom and condition management, including mental health needs, are within the profession's frame of practice

(OTPF, 2020). The OTPF provides an opportunity for OTs to incorporate TIC and mental health intervention during their sessions.

Research Gap: Illness-Induced Trauma and Occupational Therapy Intervention

No known research has specifically focused on occupational therapy professional's role in recognizing, mitigating, and integrating knowledge of IIT into practice. OTs who work with clients who experience IIT have the potential to play an important role with providing a positive support system to heal from trauma. To address this gap in knowledge, the purpose of this study is to better understand occupational therapists' perspective on illness-induced trauma and their role in addressing IIT in treatment.

Research Question

What is the perspective of occupational therapists on illness-induced trauma and their role in addressing it in treatment?

Methods

Study Design

An explanatory sequential mix-methods design with a qualitative descriptive approach was utilized through an online survey and semi-structured interviews (Creswell & Plano Clark, 2018; Colorafi & Evans, 2016). The purpose of a mixed methods was to measure the validity of the quantitative findings, generate qualitative samples, and explain findings from the qualitative data. The explanatory sequential design was used to collect the quantitative data and incorporate the findings to inform the qualitative data. Quantitative and qualitative data were linked through additional literature. Integration occurred through merging the data from combining the survey and interview together for analysis and comparison in the discussion section in chapter 2 (Fetters et al., 2013). The purpose of this study was to better understand occupational therapists'

perspective on illness-induced trauma and their role in addressing illness-induced trauma in treatment.

Trustworthiness

The research team consisted of two professors in the OT department, one professor in the social work school, two graduate OT students completing their Master of Science in OT, and one graduate OT student completing her Masters of OT. The research team recognized their backgrounds and perspectives during the data analysis and research process. To address bias, we used self-reflection, triangulation, peer review, and member checking.

Researcher's Lens

The broader intentions for this study were to (1), learn about the knowledge OTs and the healthcare system have about TIC and IIT (2), gain more insight on the potential effects IIT has on rehabilitation outcomes (3), explore what OTs are currently doing to incorporate TIC into their practice.

Two authors on this study (CB and AM) have completed course material on stress and trauma. The lead author CB has a bachelor's degree in psychology with courses focusing on trauma-informed care, stress management, and PTSD. CB and AM are completing their education as an occupational therapy student with programs that focus on holistic client-centered approach to incorporate in future practice. Additionally, CB has experienced trauma and was diagnosed with PTSD prior to the study.

To combat bias, CB and AM monitored throughout the research on how personal experiences and bias influence findings. CB and AM wrote notes in a journal to reflect on our reactions and emotions throughout the research process.

Recruitment and Participants

Participants were recruited through internet advertisements, email, and snowballing techniques, targeting occupational therapists. Once participants completed the survey, they were invited to complete the 1:1 interview. Interview participants were recruited using purposive sampling, responses in the survey, and snowballing techniques. All interview participants had experience in adult practice settings, as interview questions targeted more on the adult population. Participants met the following inclusion criteria: OTs who have graduated from a professional program and at least six months of experience working with clients with sudden onset disability or injury, including but not limited to stroke, spinal cord injury, brain injury, burns, amputations, ICU stay or other traumatic injury. Exclusion criteria included OTs with less than 6 months professional experience. All participants provided consent at the beginning of the survey and before the interviews. The study was approved by the institutional review board (IRB). Data from the survey and interview was not linked.

Data Collection and Management

Quantitative Data Collection

The 'Illness-Induced Trauma' online survey was active online between August 2022-December 2022. Twenty-four OTs participated in the survey. The survey was completed through Qualtrics and was developed for this study. The survey took approximately 10-15 minutes to complete. The survey was designed to gather information on the participant's sociodemographics, knowledge, and perspectives on psychological trauma, included the definition of "illness-induced trauma." The survey was used to collect information about the participant's knowledge and perspectives on illness-induced trauma. Surveys in previous research studies have evaluated healthcare professional's views on TIC. However, there is

limited research with a survey collection on specially illness-induced trauma with adult populations. A Likert scale was used for the survey response choices, with answers ranging from strongly disagree, disagree, neutral, agree, and strongly agree. Eighteen questions were developed based on a literature review and gaps in the research on how OTs consider illness-induced trauma in their practice. Sociodemographic data included eleven questions about: age, gender, race, location, type of rehabilitation practitioner, highest degree of education in the rehabilitation field, years of experience, current practice setting, past practice settings, age groups treated in current practice, and diagnosis primarily treated. The survey was pilot tested on two individuals to ensure coherency, who were two occupational therapy students, before distributing to potential participants, and adjustments were made based on individual feedback.

Sample questions in the survey included: "I am knowledgeable about the physiological, emotional, and behavioral effects of psychological trauma"; "I feel that the physiological, emotional, and behavioral effects of psychological trauma can have a significant impact on rehabilitation outcomes"; "I practice trauma-informed therapy or rehabilitation"; "I consider the effects of illness-induced trauma when working with clients"; "The current guidelines for trauma-informed care adequately consider and represent the needs of clients with illness-induced trauma". See supplemental file 1 for complete list of survey questions.

The last survey question asked participants to complete an optional interview**.** Participants were contacted via email or a telephone call if they answer, 'yes' to the last question of the survey which read: "May we contact you for a follow-up interview or other research, to learn more about how you implement IIT in practice?" Researchers reached out to survey participants who include their contact information at the end of the survey to complete an interview.

Qualitative Data Collection

Qualitative interviews were 1:1, took approximately 45-minutes, and included ten semi-structured questions with probes. A total of ten OTs participated in the interviews. A semi-structured interview format was used to ask additional questions beyond the structured questions about specific interest and knowledge OTs had regarding their practice setting, personal and professional perceptions of IIT, and ways they incorporated TIC into their own practice. Questions were developed to address OTs perceptions related to the following: experiences with treating clients with illness-induced trauma, the affects illness-induced trauma have on the rehabilitation process, and intervention strategies utilized when working with clients experiencing illness-induced trauma. All interviews were conducted via video on a secure platform and were audio-recorded. Probing questions were used following questions that required further clarification or insight. Data collection ended after when code saturation was reached. Code saturation is determined by no additional issues on the topic are identified and causes the code book to stabilize. Code saturation was reached at nine interviews (Hennink et al., 2017). With participants in different practice settings, ten interviews were required to collect data from multiple participants in each setting.

Examples of interview questions included: “Tell me about how you generally incorporate trauma-informed care with your clients”; “Tell me about any experience treating clients whose post-traumatic stress resulted from a serious medical event or illness”; “Tell me about how you are able to recognize that clients are experiencing illness-induced trauma”; “How does illness-induced trauma affect these clients’ rehabilitation process”; “Tell me about how your intervention strategies and approach change when treating clients with illness-induced trauma”. See supplemental file 2 for a complete list of interview questions.

Interviews were audio-recorded over secure application. The interviews were transcribed verbatim and checked for accuracy by playing aloud the recording again while the researcher reads through the transcription.

Data Analysis

Quantitative Data Analysis

The survey data was exported from Qualtrics to Dedoose software. Descriptive statistics were used to describe the sample including means, standard deviation, frequencies, and proportions. Descriptive statistics will be used to explore data from questions related to demographics and OT's perceptions of TIC, PTSD, and IIT and how trauma is or is not considered during treatment sessions.

Qualitative Data Analysis

Qualitative thematic analysis was incorporated (Braun & Clarke, 2006), and interviews were de-identified, transcribed and put in dedoose software to help with data analysis (Dedoose Version *9.0.17,* 2021)**.** Member checking occurred through following up with participants to confirm data findings. The authors used holistic inductive coding with each section being read and labeled with invivo codes. For the first 3 interviews, both authors read and generated codes to develop a code book which include the following: a short summary, codes, quotes, themes, and a highlighted overview (Saldana, 2016). The three interviews chosen with different practice settings and approaches to treatment to get more variety out of the codes. Once the code book was developed, the authors applied the code book to all 10 interviews. The second author coded separately, and both authors compared codes as emerged. If there were any disagreements with the codes, the authors reviewed the transcript and discussed until there was a consensus. If there is not a consensus, the thesis advisor made the final decision. Interviews were double-coded and

analyzed separately to focus on the individual participant. Throughout the coding process, the authors examined the relationships of codes and developed categories and themes. Themes and subthemes were generated between individual interviews and all collective interviews. An additional author, who is not involved with the study participants, peer-reviewed the codes and themes. Codes were compared and adapted as needed, and emerging themes were reviewed throughout the data analysis on a weekly basis.

Integration of Mixed Methods

After completion of the quantitative and qualitative data analysis, the statistics, categories, subthemes, and themes were compared and contracted with current research to establish integrated findings. The integrated findings were described in the discussion section and were connected to additional research and implementations.

Anticipated Results

It was anticipated that OTs used a variety of ways to incorporate TIC into their practice. We expected that OTs used past personal and professional experiences to be trauma-informed and have a range of formal education on TIC. Finally, we predicted that OTs believed there needs to be more awareness and integration of TIC and illness-induced trauma.

CHAPTER 2: MANUSCRIPT

Introduction

Illness-induced trauma (IIT) is a deeply distressing experience occurring with medical conditions and/or life-threatening illness (El-Gabalawy et al., 2018) and often precipitated by: hospitalization, painful medical procedures, fear of death, feelings of helplessness, communication challenges, delirium, or reduced autonomy (Jackson et al., 2016). Potential stressors form a hospitalization Symptoms of IIT can include re-experiencing the event, avoidance, negative changes in mood, and hyperarousal (El-Gabalawy et al., 2018). Medications administered during hospitalization can cause cognitive and emotional side effects, including anxiety, delirium, hallucinations, and panic (Wade et al., 2013). During hospitalization, potential stressors can include pain, fear of dying, loss of control, and difficulties communicating with healthcare practitioners and family.

IIT is correlated with higher rates of co-morbidities and acute life-threatening conditions. Notably, both chronic and acute conditions are associated with increased likelihood of developing IIT. It remains unclear whether the effects of IIT result from the illness itself or factors related to the illness, such as intensive care unit stay/hospitalization, coping with a new diagnosis, and/or receiving treatment (El-Gabalawy et al., 2018).

Individuals who experience IIT might be at high risk of developing post-traumatic stress disorder (PTSD). The DSM-5 defines trauma–and thus, the diagnostic criteria for PTSD– in terms of actual or threatened death, serious injury, or sexual violence (American Psychiatric Association, 2013). It is estimated that 25% of patients with stroke, spinal injury, and amputation develop PTSD or clinically significant trauma-related symptoms such as re-experiencing the

event, avoidance, negative changes in mood, and hyperarousal (Edmonson et al., 2013; Kearns et al., 2019; Kunz et al., 2021).

PTSD trauma can be classified as type I or type II. PTSD Type I is associated with a discrete and recent event, such as a car accident, witness of a shooting, or a natural disaster. With illness-induced trauma, this could include a stroke or spinal cord injury. Type II trauma, also called complex psychological trauma, consists of repetitive and/or prolonged exposure to the stressor that involves harm and often happens at developmentally vulnerable periods in a person's life (Snedden, 2012). Common examples type II trauma include childhood abuse, domestic abuse, and combat. Considering illness-induced trauma, an example may be more related to chronic disease such a diabetes and chronic obstructive pulmonary disease.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5 TR) states that a life threatening illness or debilitating medical condition is not necessarily considered a traumatic event; in order to qualify as a traumatic event, medical incidents must involve sudden, catastrophic events (Jackson et al., 2016). The updated DSM-5 TR acknowledges threat of death and injury as trauma and that a life-threatening illness or medical event could potentially be considered a traumatic event (Diagnostic and statistical manual of mental disorders, 2022). However, the requirement for a precipitating event in PTSD development to be "sudden and catastrophic" is at odds with growing evidence that PTSD and post-traumatic stress symptoms (PTSS) after illness/injury do not solely develop after life-threatening illnesses or injuries.

PTSD has been shown to have significant effects on performance in occupations and quality of life. Zatzick and colleagues found that 40.3% of individuals with PTSD had more than one activity of daily living impairment (Zatzick et al., 2008). Trauma and illness can disturb the process of participation in meaningful occupations and can cause maladaptive responses to

occupational challenges (Lopez, 2011). Symptoms associated with IIT, such as increased depression, anxiety, and somatic symptoms (Jackson et al., 2016) might result in poorer outcomes with occupational performance.

Trauma-informed care (TIC) is an approach that addresses trauma and is a useful framework for healthcare practitioners, including occupational therapy practitioners (OTPs), to provide a safe environment for individuals with trauma, including patients with IIT (Trauma-Informed Care Implementation Resource Center, 2022). The six-core principles of TIC include: 1) safety, 2) trustworthiness and transparency, 3) peer support and mutual self-help, 4) collaboration and mutuality, 5) empowerment, voice, and choice, and 6) cultural, historical and gender issues (Fette et al., 2019). A survey of 103 occupational therapists, occupational therapy assistants, and occupational therapy students found that 54% of occupational therapy participants identified TIC as applicable and important for their practice, and 44% either disagreed or strongly disagreed when asked whether TIC was adequately implemented into practice (Holman et al., 2022). Barriers to providing TIC include: time constraints, training needs, confusing information and evidence on trauma-informed practices, and fear of re-traumatizing patients (Bruce et al., 2018). To the best of our knowledge, no research has focused on occupational therapy practitioners' role in identifying and managing IIT in practice. To address this gap in knowledge, the purpose of this study is to better understand occupational therapists' perspectives on IIT and to describe their role in identifying and managing IIT during therapeutic encounters.

Methods

Study Design

An explanatory sequential mixed methods design was used to collect quantitative data about knowledge and perspective OTPs had on IIT and then utilized qualitative data to explain

the quantitative results. The quantitative and qualitative phases both followed a descriptive study design (Colorafi & Evans, 2016; Creswell & Plano Clark, 2018). During the quantitative phase, twenty-four occupational therapists participated in an online survey to collect information about the participants' knowledge and perspectives on illness-induced trauma. The qualitative phase was conducted to explain the quantitative results. During the qualitative phase, 10 occupational therapists participated in a 1:1 semi-structured interview to explore their role when working with clients with illness-induced trauma. Collecting both quantitative and qualitative data was used to converge the two forms of data to bring greater insight into the research questions than would be obtained by either type of data separately (Creswell & Plano Clark, 2018). Quantitative and qualitative data were integrated throughout the discussion section. The study was approved by the Colorado State University Institutional Review Board.

Participants

We purposively sampled occupational therapy practitioners (OTPs) for the online survey by recruiting through internet postings to occupational therapy specific websites, email to OTPs known to the study team, and using snowballing techniques. Once participants completed the survey, they were invited to complete the 1:1 interview. Not all the interview participants completed the survey as they the study team for the interview. Interview participants were recruited from the survey as well as through additional purposive sampling efforts to identify occupational therapy practitioners. Participants that completed the interview process were also asked for additional individuals who might be interested in this study (i.e., snowball sampling). Additionally, we reached out to OTPs who had special interests in trauma, completed a thesis, worked at hospitals around the university, and fieldwork educators associated with the university. Twenty-four OTPs participated in the online survey, and ten OTs participated in the

interview. Participants were included if they met the following inclusion criteria: licensed occupational therapist and six months of clinical experience working with clients that had sudden onset of disability or injury, including but not limited to stroke, spinal cord injury, brain injury, burns, amputations, intensive care unit stay or other traumatic injury. Exclusion criteria: less than 6 months clinical experience or not licensed. All participants provided consent at the beginning of the survey and before the interviews. Data from the surveys and interviews were not linked.

Data Collection

Quantitative Data:

The survey for the study was completed with Qualtrics and took approximately 10-15 minutes to complete. The survey included 11 questions about the participants demographic information, provided the participants with a definition of "illness-induced trauma". Eighteen questions were based on 3 content areas: participants knowledge of illness-induced trauma, their perspectives on psychological trauma's impact on rehabilitation, and incorporation of trauma-informed care in therapeutic encounters. These 18 questions were based off research and peer discussion to better understand the three content areas. Refer to Table 1 for survey demographic data and Supplemental File for survey questions. The survey was pilot tested with two individuals, who were occupational therapy students, and adjustments were made based on feedback prior to distribution.

Qualitative Data:

Two authors (CB & AM) conducted ten 1:1 semi-structured interviews on video recordings through Microsoft office TEAMs. A semi-structured interview guide was generated to ask ten questions addressing OTPs perceptions related to their: experiences when treating clients with illness-induced trauma, the impact IIT has on the rehabilitation process, and intervention

strategies utilized when working with clients experiencing IIT (Supplemental file 2). Additional questions were asked about the OTP's practice setting, personal and professional perceptions of IIT, and ways they incorporate TIC into their practice. Probing questions were used following questions that required further clarification or insight. Interviews times ranged from 35-55 minutes, were conducted virtually on a secure platform, and were audio-recorded. Data collection ended after when code saturation was reached. Code saturation was determined when no additional issues on the topic are identified and causing the code book to stabilize (Hennink et al., 2017). With participants in different practice settings, ten interviews were required to collect data from multiple participants in each setting.

Data Analyses

Quantitative Data Analysis:

The survey data was exported from Qualtrics to Dedoose software for analysis (Dedoose Version *9.0.17,* 2021). Descriptive statistics (i.e., means, standard deviation, frequencies, and proportions) were used to examine data from the survey including demographics, OT's perceptions of TIC, PTSD, and IIT, and whether therapists considered trauma in treatment sessions.

Qualitative Data Analysis:

Ten interviews were transcribed verbatim, de-identified, reviewed for accuracy, and transcripts were uploaded to Dedoose for analysis. Qualitative thematic analysis was used to guide the analytic process, where we familiarized ourselves with our data, generated initial codes, searched for themes and reviewed the themes with a thematic map, and defined the themes (Braun & Clarke, 2006). The two analysts (CB & CH) selected three transcripts to generate initial codes. These three transcripts were chosen because the interviewees were from

different practice settings and described a variety of approaches for treatment related to IIT. These three transcripts were utilized to develop a preliminary codebook. Each transcript was read three times and pre-coding identified text that was related to the research question. The analysts used a holistic, inductive coding approach, where the codes and themes were linked to the data (Braun & Clarke, 2006). The codes, categories, and themes were identified with the lens of occupational therapy language. Each section of text being read and labeled with in-vivo codes, where the codes were derived from the data (Saldana, 2016). Codes and categories directly related to the Occupational Therapy Practice Framework (OTPF). A constant comparative approach was used analyze the six TIC principles to better understand how OTPs incorporate TIC in their practice and occupational therapy principles that potentially overlap. The codes in the code book were developed through the in-vivo codes and the six TIC principles. The codes were generated from three transcripts were included in the preliminary code book which included major codes and sub codes with definitions and examples from the transcripts (Saldana, 2016). The two analysts met to review each code and confirm agreement about the codes and coded text. Codes from the codebook was used to deductively code the remaining 7 transcripts, while remaining open to generating new codes inductively. When new codes were generated, the two analysts met to review the codes, definitions, and coded text. If there were any disagreements with the codes, the authors reviewed the transcript and discussed until there was a consensus. If there was not a consensus, an additional author (AS) not included in the data analyses made the final decision. Each transcript was coded by each analyst. Throughout the coding process, the authors examined the relationships of codes and code co-occurrences. Code co-occurrences were used when a paragraph could be coded into two different ideas (*Hanze Library Guides: ATLAS.ti 8 (English): Analysis Tool: Code Co-Occurrence Table*, n.d.). For

example, phrases could be coded to traumatic response and trajectory of healing. Analysts discussed and reelected on how the codes and code co-occurrences related to one another and our research question. Then the analysts reflected and generated main ideas from the categories and the relationship to the research question to develop subthemes and themes. Subthemes and themes are presented in the results, along with support quotes.

Integration of Mixed Methods

We integrated the qualitative and quantitative strands in the discussion section to highlight how the qualitative results help explain our quantitative findings.

Positionality Statement

The authors on this study have completed course material on trauma-informed care, stress management, and PTSD. Additionally, the authors incorporating occupational therapist framework language effected how we coded. To combat bias, the authors monitored throughout the research on how personal experiences and bias influence findings. Strategies used to combat bias included: reflection journaling, triangulation, peer review, and member checking.

Trustworthiness

To support our findings, member checking occurred through following up with participants to confirm data findings. An additional author, who is not involved with the study participants (JW), peer-reviewed the codes and themes to reduce researcher bias and provide feedback for code and theme revision.

Results

Quantitative Results

Twenty-four OTs completed the online survey. In general, most survey participants (n= 22, 92%) were female, all were white and living in the United States (Table 1).

Survey questions were divided into 3 content areas: knowledge, perspectives, and incorporation to practice. Participants were practicing occupational therapy in a variety of settings, most commonly in inpatient acute inpatient rehabilitation (n=6, 25%), outpatient (n=6, 25%), and ICU/acute care (n=6, 25%).

Non-demographic questions were presented in a 5-point Likert scale of either frequency (Never, Rarely, Sometime, Often, Always) or agreement (Strongly disagree, Disagree, Neutral, Agree, Strongly Agree). When asked if participants received formal training on best practice methods for treating patients with psychological trauma, 67% of participants (n= 16) reported they did not, 25% (n= 6) did receive training, and 8% (n= 2) were not sure. Survey results indicated that 96% of OTs (n= 23) agreed or strongly agreed that effects of psychological trauma can have a significant impact on rehabilitation outcomes. Additionally, 92% of participants (n=22) either were neutral, disagreed, or strongly disagreed when asked if the current guidelines for TIC adequately considered and represented the needs of clients with IIT. All OTs agreed or strongly agreed when asked if they were interested in learning more about IIT and how to provide TIC.

Qualitative Results

Ten OTs completed the semi-structured interview. In general, all participants were female, white, and living in the United States (Table 3). Three themes reflecting OT's perspectives and role for addressing IIT were generated from the data, including "Illness-induced Trauma's Impact on Rehabilitation", "Variety of Occupational Therapy Approaches for Illness-induced trauma", and "Barriers to Providing Trauma-Informed Care for Clients with Illness-Induced trauma". Two subthemes were generated from the ""Variety of Occupational Therapy Approaches for Illness-induced trauma" theme, including: "Alignment of Occupational Therapy

Approaches and Trauma-Informed Care Principles" and "Approaches are Dependent of Therapist Factors" (Figure 1).

Illness-induced Trauma's Impact on Rehabilitation

Therapist indicated that the trauma response associated with the event that caused the illness/disability/medical event can have negative consequences on the client's rehabilitation and healing progress. Based on the frequent in the interviews, most participants (n=9, 90%) stated that they expect all their clients are experiencing trauma from their medical event. There was a 48-code co-occurrence between trajectory of healing and trauma response, indicating that a single code in the transcript elicited the parts of the trajectory of healing could be traumatic. OTs described symptoms caused by trauma that they noticed during sessions stating that "the first thing that we see is probably, or the most common thing that we see, is anxiety and that they don't want to work with therapy because they're afraid now that they're going to get even more hurt" (Linda).

Throughout the rehabilitation progress, many participants attempted to balance addressing trauma and reaching therapy goals. Macie discussed working with a client who was struggling with her mental health because of her inability to handle the fear associated with her stroke diagnosis, limited carryover when she transitioned home, and limited family support:

> Having to kind of say, look, I need you (patient) to stop, we need to get something accomplished in therapy today, we need to focus on this. We really tried to use consistency with her, giving her time where she could be heard and validated by us, but also helping her give her something to focus on so that she can get her mind off the same topics. She's one of my most recent examples, and she was one where her anxiety and then the trauma she's experiencing after the stroke really were some of her biggest

barriers for recovery, because that was where her brain wanted to focus the whole time. (Macie)

Participants mention how almost all their patients experience some sort of trauma due to their hospitalization or medical event stating “we don't have a lot of patients that are formally diagnosed with PTSD. However, I would say majority of them have symptoms or experiences from their injury that are impacting their ability to complete rehab” (Miranda).

Variety of Occupational Therapy Approaches for Illness-induced Trauma

When OTPs recognized that their client’s might be experiencing IIT in their sessions, they changed their approach to address their clients’ needs and potential trauma response. Participants reported using a variety of approaches while working with clients experiencing IIT (Table 4). In occupational therapy practice, building rapport can establish trust and therapeutic relationships to best support client’s ability to perform their meaningful occupations (Schell & Gillen, 2018). The approach of ‘building rapport’ was generated into three sections: communication, supportive environment, and client centered. Mindfulness strategies are used in occupational therapy practice to support clients in managing stress, pain, and anxiety in order to target outcomes in quality-of-life, health, and wellness (Hardison & Roll, 2016). Mindfulness was generated into two sections: client-executed and therapist-executed. Approaches that every participant reported using were building rapport through communication, building rapport through supportive environment, and building rapport through client-centeredness.

Communication consisted of participants discussing the following: speaking openly, shifting tone, asking questions, and recognizing potential. Participants described how they used communication strategies with their clients, for example:

> I will tell them everything that I know, and why I'm doing the things that I'm doing, to give them a sense of understanding…I try to put them in the driver's seat as much as possible, here's what you can do. I want you to focus on this so that they have something that they can do to give them some sense of control over this otherwise, kind of helpless state that they're going to be put in. (Lilly)

In this interaction, the OTP was able to establish transparency, trust, and safety with her client because she explained what she was doing and why she was doing it. Additionally, Lilly providing opportunities for her client to lead her own session was giving the client agency and autonomy that they might not have felt like they had.

The idea of a supportive environment includes making space, trust, safety, and being present. Participants emphasized the importance of providing a supportive environment stating, to "create a safe space where we're very used to making sure patients are safe and then just extending that out. It's not just physical safety, that's a mentally do they feel safe emotionally, do they feel safe?" (Miranda).

Client-centered was discussed by client's leading sessions, meeting clients where they are at, collaboration, client's goals, and addressing the whole person. Participants explained how they considered the entire person:

> I think just mostly trying to treat the whole person and pay attention to what is really important to them? And what are the resources that we have available to give them are? How can we help them find that and it's very normal to feel this way [experiencing trauma and depression symptoms]. (Sam)

A variety of mindfulness strategies that client's executed were used by every therapist. Mindfulness strategies focus on the ability to brings one's attention and awareness in the present-

moment (Mindful Communications & Such PBC, 2023). Client-executed mindfulness strategies are activities that the client's themselves are initiating and activity participating in such as, meditation, journaling, deep breathing, and relaxation/calming techniques. A participant discussed how they use client-executed mindfulness strategies in their treatment sessions:

> It's different with spinal cord injury patients, because when I think of mindfulness, a lot of times, the typical ways in yoga, feel your feet on the ground and feel, all these things that are grounding, which looks very different with spinal cord injury, because sensation is so different. So that's I just tried to reframe, and say, what in your body feels like it's in control right now. And drawing your attention to that. (Candice)

An additional approach that most OTs (90%, n= 9) used was education/training. Some approaches within education/training participants included the following topics: medical condition/diagnosis, recovery process, training on calming strategies and technology, benefits of rehabilitation, support groups, and recovery windows. Approaches also discussed by some participants included: mindfulness: therapist-executed, passive mindfulness strategies the OTP uses on their clients such as aroma therapy and Masgutova Neurosensorimotor Reflex Integration (MNRI), motivational interviewing, and specialty equipment (virtual reality and electrical muscle stimulation).

Alignment of Occupational Therapy Approaches and Trauma-informed Care Principles

As participants reported approaches used within their practice, many of their rationales and ideas incorporated both OTPF and TIC principles. Specifically, the OT skill of building rapport and the six TIC principles had 148 code co-occurrences. All ten participants either reported using or shared stories about their client interactions that aligned with the TIC principles

of collaboration, safety, and trustworthiness in their practice. Participants referred to client-centered and whole person approaches when addressing trauma:

> I think you have to address the whole person and what is either keeping them from progressing based on their injury or illness or the traumas that they've been through and what is helping them to have hope and work through it and be able to achieve their highest level of function. (Sam)

Grading therapeutic activities are strategies OTPs use to provide the "just right challenge" to build skills with still being manageable to perform. When OTPs noticed a trauma response, they adjusted the activity so that their clients still felt supported to processes their emotions while still targeting their therapy goals.

> So over time, I'm going to slowly start to incorporate those things that might trigger some PTSD, in a gentle, protected way. Once I've gained trust, I'll start to add some of those things in knowing that those skills of losing your balance or being in an atmosphere where there's a lot of noise, are necessary to being successful out in the community. (Lydia)

Approaches are Dependent on Therapist Factors

Although all participants provided TIC with patient's experiencing IIT, approaches selected for the client are dependent on therapist factors such as personal and professional experiences, interests, their client's themselves, and practice setting. Some participants discussed how their personal experiences with trauma impacted how they treated their clients:

> I personally like having an interest in illness-induced trauma now because of my stroke. We still don't really know the cause, but I had this really bad headache in March, and the thought is that the stroke was kind of coming from that. There's a couple of steps in

between, but as a result, a headache is never going to be the same for me. If I have a headache at work, or if I have a headache during a patient session, or when I had headaches during my patient's day, they're never going to be the same. But it really does stick with you. It lives in your body in that way. (Rachel)

With Rachel's personal experience with IIT, she knows first-hand the psychological and rehabilitation impacts IIT can have on an individual. Her experience has given her a new perspective on IIT and the ability to connect and relate to her clients about their trauma responses they are experiencing throughout the rehabilitation process.

Other participants completed special certifications/training and discussed how they incorporate training into treatment sessions:

> Then when I got him (participant's client) on the mat, I started doing some of the MNRI (Masgutova Neurosensorimotor Reflex Integration, meaning incorporating deep pressure, massage, and mindfulness strategies to promote effective movements and deep breathing to activate the vagal nerve (Berg et al., 2022)) stuff, and it can calm down his system enough. And he let me do a little extra…it's getting more on a sensory integration to a certain level, but this gets much deeper than sensory integration. I've always been interested in sensory integration, but now I'm like, oh, this makes more sense to me. (Marilyn)

Marilyn can use MNRI on her clients as a preparatory task to potentially reduce symptoms of trauma during the rest of their session. Marilyn's special interest and additional training in MNRI provides an additional approach she can use in her everyday practice.

Participants who worked in specific practice settings witnessed their clients with IIT in different stages of processing their trauma. Acute OTs focused on the initial reactions to a medical event and preventative measures to reduce traumatic symptoms early on in their healing:

> We had her (participant's client) look at her limb, and touch her limb, and start to move her limb a little bit just to kind of get a sense of what her body looks like in this moment because that's something that's also can be pretty traumatic. She hadn't looked at it yet. She had come into our hospital about maybe 30 hours or so before we saw her. In the 30 hours since it happened, she hadn't looked at it yet, or touched it yet. Which makes sense, like a grieving process, that she's still very much in denial until you look at it. (Lilly)

Inpatient OTs described their approach towards addressing how their clients with IIT were processing their diagnosis with new changes:

> And when we see patients on the inpatient side, it's the only thing you know, the biggest thing that they're experiencing is that change of like, I've never put pants on for the first time, without being able to move my legs, or my hands, everything is new. (Candice)

Outpatient OTs addressed the potential re-traumatization that may occur with clients when they initially return home after their medical event:

> There have been many occasions where when somebody comes for their very first day with us for eval day, they may have a break down moment where they're in tears, or they're so frustrated, because despite, even our own inpatient or other community facilities, setting people up for as much success as they can when they get home, it's not a hospital environment. There's not 24-hour nursing care, there is not the fully accessible bathroom. Maybe your equipment didn't arrive on time, all these different things, where suddenly they're having to face the reality that they aren't the same person who had

previously been in that environment. And trying to figure out a way to make that work until they're back to see us. (Macie)

Barriers to Providing Trauma-Informed Care for Clients with Illness-Induced Trauma

Participants stated a variety of barriers to providing TIC and support for their clients who experience IIT. Barriers mentioned include hospital and medical model discrepancies, therapist emotional burn out, lack of formal TIC education, and common language for IIT. Participants expressed the need for common education and language for IIT:

> Having, a shared language around it (IIT) would be one of the first or biggest barriers. As practitioners, we don't have the use of the same language for it, and how to recognize it and how to treat it. We're just talking in circles. We have to name something, and for it to become part of our practice. I will say at the rehabilitation center, we don't talk about illness-induced trauma, that's not a phrase that you hear. I think we talk about it. But it's not part of like a checklist or anything like, do we see this presenting in a patient? (Rachel)

Additionally, participants discussed how their practice settings and burn out could lead to potential barriers.

> At my hospital, our productivity expectations have gone up quite a bit, where in a 10-hour day, I'm meant to see 10 patients and be face to face with patients more than half of my time. I'm encouraged to document in the room, which I don't like to do, because I feel like that is a break of the rapport that we're having. If I'm over here typing on the computer, rather than sitting next to you as I'm asking questions, that's a difference in how I'm presenting myself and a difference in the way that I'm attempting to connect with you and give space to you and your feelings, that's a barrier…They (other practitioners) might be emotionally healthier than I am

because they're not exposing themselves to the patient's trauma in the same way that I am. You have to be introspective to figure out how much time do I have? Is this the best way to serve all of my patients? Am I keeping myself protected as well, in this moment, as I'm serving my patients because if I'm overwhelmed by their trauma, and I can't do my job anymore, then that's preventing me from serving patients in the future. (Lilly)

Lilly indicated that increased productivity standards in hospital settings affects her ability to make more meaningful connections with her clients, making it more difficult to establish safety and trustworthiness. While providing TIC, Lilly was challenged with balancing her intrinsic drive to support her clients through trauma and the burn out associated with taking on her client's trauma.

Discussion

Currently, to the best of our knowledge**,** no other study has examined OT's perspectives on IIT and they address IIT in treatment. Our findings highlight the variety of approaches OT's use when interacting with client's who experience symptoms of IIT, the impact of IIT on rehabilitation outcomes, and barriers within the healthcare system that limit OT's ability to practice TIC. Figure 2 demonstrates the mixed findings based on current research, the quantitative results, and the qualitative results.

From the surveys and interviews, a majority of OTs did not receive formal training about or the six TIC principles. However, the ten interviewees organically described using TIC principles in treatment sessions. The inclusion of TIC principles might be due to general OT skills, such as building rapport, client-centered approach, advocacy, and identifying personal and environmental factors (Schell & Gillen, 2018). OT foundational skills and knowledge may lead OT's to naturally incorporate TIC principles into practice. However, as majority of survey

participants did not report considering impacts of IIT or use of trauma-informed care and TIC principle, there may be a lack in education regarding TIC and IIT.

A majority of the survey participants disagreed when asked if current guidelines for TIC adequately consider and represent the needs of client's with IIT. The DSM-5's lack of clarity in defining which medical events and illness qualify as trauma might cause difficulty in identifying IIT as an event that could develop into PTSD. Being able to recognize trauma symptoms and providing early interventions such as TIC in an individual's recovery decreases post-traumatic symptoms and PTSD severity (Kerbage et al., 2019; Oosterbaan et al., 2022).

OTs who work with clients with IIT have the potential to play an integral role in supporting patients' healing from trauma. With Holman and colleagues (2022) research results finding lack of knowledge and practice with TIC, they call for increased education and advocacy to ameliorate the gap of incorporation of TIC in current practice and to support best practice and holistic foundation of occupational therapy (Holman et al., 2022). Most survey participants, as well as all interview participants, agreed that trauma can have significant impacts on rehabilitation progress and participants were interested in learning more about IIT. Increasing the awareness of IIT with a universal approach which could include shared language, education, and training could provide opportunities for OTPs to understand the alignment between the OTPF, ethics of care, and TIC. OTPs could incorporate knowledge on IIT into practice and could provide the support for clients to heal from IIT (Menschner & Maul, 2016). The National Council for Behavioral Health (2017) established the "Trauma-Informed Primary Care: Fostering Resilience and Recovery" initiative which is pilot program intended to support primary care settings to best provide TIC (National Council for Behavioral Health, 2017). OT specific approaches described in TABLE 4 provide insight on ways to incorporate TIC principles into OT

practice based on the client's specific needs and strengths. OTs indicate these ideas can be integrated into practice with additional training and are important to use with all clients.

From the ten interview participants, three OTs mentioned addressing cultural, historical, and gender issues, which was the least used principle incorporated into practice. This could be potentially due to the westernized society's strong value of individualism. Recent research has emphasized on the importance of considering the social and cultural factors of the client and cultural humility (Gerlach et al., 2018). Cultural humility focuses on the learning-orientated approach when working with people with diverse backgrounds and consists of being self-aware, self-reflection, and supportive interaction (Agner, 2020). With the emphasis on addressing diversity emerging in recent literature, OTs might not be educated on the importance of considering how different backgrounds impact occupational performance and their ability to process trauma.

In meeting with new clients, it is important for OTPs to assess their health and social background to understand their exposure to interpersonal and institutional trauma. Details about past interpersonal violence, abuse or silencing by healthcare systems, or being a member of a community that has experienced unethical medical treatment are essential in understanding the potential for medical mistrust. Through gathering education about the impact of historical medical trauma and health discriminatory practices OTs can develop a healing-centered approach (Ragavan et al., 2023) and participate in preparatory empathy. Exploration of the unethical delivery of medical treatment could include learning about those who were enslaved, indigenous peoples, and those from historically marginalized communities. Some examples include the sterilization of Black and Indigenous women (Shreffler et al., 2015) and the erasure of human rights of sexual and gender minorities (Spurlin, 2018) in health care systems.

Limitations to this study include the small sample size with the quantitative data. Research with a larger sample size will increase the validity of the study. Interview participants volunteered to be a part of the study, indicating that the participants might have had a stronger interest in TIC and IIT than the typical OT population. Future research could focus more on how specific OT practice settings address IIT. Interviews revealed approaches may differ by setting or time since injury. Learning more about IIT and TIC in specific settings may provide better insight in addressing trauma based on where a client is at with processing the traumatic event. This study introduced approaches that OTPs have used in their practice, and further case studies and longitudinal studies could further evaluate the impact of IIT on clients and more specifically on how OTPs use approaches in practice. Learning about the different approaches that potentially reduce traumatic symptoms could provide OTs more knowledge and guidance on how to incorporate TIC into their own practice.

Conclusion

This mixed methods study explored occupational therapy's role and perspective with addressing IIT in treatment. Findings suggest that OTs use a variety of approaches to address IIT, trauma could negatively affect rehabilitation progress, and healthcare barriers could limit TIC with clients. OTs have a unique perspective with addressing trauma and its relation to rehabilitation progress. OT's ability to approach IIT with TIC could significantly impact the client's perceived support system and ability to process and heal after a traumatic medical event.

CHAPTER 3: IMPLICATIONS FOR OCCUPATIONAL THERAPY PRACTICE

Individuals who experience illness-induced trauma (IIT) often experience symptoms such as disassociation, emotional under engagement, and increased autonomic reactivity that impact participation in meaningful occupations (Fette et al., 2019). Illness-induced trauma has been recently introduced in literature, but there are limited studies addressing illness-induced trauma within healthcare practice (El-Gabalawy et al., 2018; Jackson et al., 2016). Trauma-informed care (TIC) has robust evidence in psychology and social work research. However, emerging research has shown that occupational therapists (OTs) have the opportunity to incorporate TIC into their practice with client's who are experiencing symptoms associated with trauma (Fette et al., 2019; Snedden, 2012). Although evidence has demonstrated that addressing trauma is within the OT scope of practice, limited research has evaluated OTs perspectives and roles while working with clients specifically with IIT.

Our study intended to learn OTs viewpoints on IIT, and to better understand what OTs are doing when they are working with clients who are experiencing symptoms associated with IIT. Our findings indicated that there are a variety of approaches OT use while addressing IIT in treatment, and approaches are dependent on different factors, such as: therapist interest, practice setting, personal factors, and healthcare facility standards. Future studies should evaluate the effectiveness of the approaches in reducing trauma symptoms. Additionally, throughout the qualitative interviews, all of the OTs stated the importance of incorporating TIC practice with all clients, as going through the medical process could be traumatic for anyone. Although there were many barriers indicated that caused limitations with TIC, our findings further support the need of TIC education and training in OT practice. Understanding the foundations of TIC and treatment

approaches that support TIC can provide more opportunities for clients to process and heal from their trauma in healthy, supportive ways.

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APPENDIX A: Tables, Figures, Supplemental Files

Table 1: Survey Participant Demographic Information

	N=24
Therapist's Age	20-39: 46% (n=11) 40-60: 42% (n=10) 61+: 13% (n=3)
Gender (female)	Female 92% (n=22) Male 8% (n=2)
Time working as OT (years)	0-15: 58% (n=14) 16-30: 29% (n=7) 31+: 13% (n=3)
Location	West: 82% (n=18) Midwest: 14% (n=3) South: 9% (n=2) East: 5% (n=1)
Current Practice setting (More than one may be selected)	Inpatient acute rehab: 25% (n=6) Outpatient: 25% (n=6) Mobile outpatient/home health: 8% (n=2) ICU/Acute care: 25% (n=6) Education/schools: 21% (n=5) Community: 17% (n=4) Skilled Nursing facility: 0% (n=0) Other (research, mental health, private practice kids/adults trauma): 13% (n=3)
Age groups treated in current practice setting (More than one may be selected)	Pediatric (0-17): 29% (n=7) Young Adult (18-26): 50% (n=12) Adult (27-64): 83% (n=20) Geriatric (65+): 79% (n=19)
Previous Practice Settings (More than one may be selected) *Missing response from 1 participant	Inpatient acute rehab: 63% (n=15) Outpatient: 50% (n=12) Mobile outpatient/home health: 25% (n=6) ICU/Acute care: 42% (n=10) Education/schools: 21% (n=5) Community: 21% (n=5) Skilled Nursing facility: 42% (n=10) Other: 8% (n=2)
Highest level of education in rehabilitation field	Bachelor's: 17% (n=4) Master's: 67% (n=16) Clinical doctorate (OTD): 13% (n=3) PhD: 4% (n=1)

Table 2: Survey Results

Content Area (Survey Item Nos.)	**Strongly Disagree or Disagree**	**Neutral**	**Strongly Agree or Agree (%)**
	Never or Rarely	**Sometimes**	**Often or Always**
Knowledge			
Q15 My workplace provided training with specific and useful methods to treat patients with psychological trauma, or trauma-informed care. (n=15, 9 participants did not provide training))	25% (n=6)	13% (n=3)	25% (n=6)
Q16 Recognizing, screening for, and integrating the treatment of psychological trauma is within my scope of practice.	0% (n=0)	21% (n=5)	79% (n=19)
Q18 I am knowledgeable about the physiological, emotional, and behavioral effects of psychological trauma.	13% (n=3)	21% (n=5)	67% (n=16)
Q25 I have/had clients who I believe experienced psychological trauma as a result of a medical event (injury, accident, etc.)	13% (n=3)	46% (n=11)	42% (n=10)
Q26 I work with clients who experience illness-induced trauma. (Asked after giving definition on IIT)	13% (n=3)	29% (n=7)	58% (n=14)
Perspectives			
Q19 I feel that the physiological, emotional, and behavioral effects of psychological trauma can have a significant impact on rehabilitation outcomes.	4% (n=1)	0% (n=0)	96% (n=23)
Q20 Psychological trauma has been a barrier to my patients' success in rehabilitation.	13% (n=3)	54% (n=13)	33% (n=8)
Q29 The current guidelines for trauma-informed care adequately consider and represent the needs of clients with illness-induced trauma.	38% (n=9)	54% (n=13)	8% (n=2)
Q30 I am interested in learning more about illness-induced trauma and how to provide trauma-informed care	0% (n=0)	0% (n=0)	100% (n=24)
Incorporation to Practice			
Q17 I feel confident in identifying signs of post-traumatic stress disorder or psychological trauma in my patients.	29% (n=7)	21% (n=5)	50% (n=12)
Q21 I practice trauma-informed therapy or rehabilitation.	33% (n=8)	29% (n=7)	38% (n=9)
Q22 I help patients cope with psychological trauma during rehabilitation.	25% (n=6)	25% (n=6)	50% (n=12)

Q24 I use mindfulness techniques and/or yoga during my intervention sessions with my clients.	33% (n=8)	42% (n=10)	25% (n=6)
Q27 I consider the effects of illness-induced trauma when working with clients.	21% (n=5)	38% (n=9)	42% (n=10)

Table 3: Interview Participant Demographics and TIC Principles

Demographics							TIC Principle					
Name	**Age**	**Gender**	**Experience in field**	**Practice setting worked at time of interview**	**Other setting worked**	**TIC Trained**	**Collaboration and mutuality**	**Cultural, historical, and gender issues**	**Empowerment, voice, choice**	**Peer support and mutuality**	**Safety**	**Trustworthiness and transparency**
Rachel	30-39	Female	6-10 years	Inpatient	Outpatient	No	X		X		X	X
Candice	20-29	Female	0-5 years	Inpatient	Outpatient	No	X	X	X	X	X	X
Lilly	40-49	Female	6-10 years	Level 1 Trauma Acute Care	N/A	Yes	X		X	X	X	X
Linda	50-59	Female	31+ years	Level 2 Trauma Acute Care	Inpatient, Outpatient	No	X	X	X	X	X	X
Marilyn	40-49	Female	11-15 years	Inpatient	Adult day program, SNF	Yes	X		X	X	X	X
Macie	30-39	Female	6-10 years	Transition Outpatient	Outpatient, SNF	Yes	X		X	X	X	X
Miranda	30-39	Female	11-15 years	Telehealth Outpatient	Inpatient and Outpatient	Yes	X	X	X	X	X	X
Sarah	50-59	Female	26-30	Acute Care	N/A	No	X		X		X	X

Sam	50-59	Female	31+ years	Outpatient	Inpatient, Acute, Adult day program	No	X		X		X	X
Lydia	30-39	Female	6-10 years	Outpatient	Inpatient	No	X				X	X

Table 4: Interview Participant Approaches (n=10)

		Approaches							
		Building Rapport: Communication	**Building Rapport: Supportive Environment**	**Building Rapport: Client-Centered**	**Education / Training**	**Mindfulness: Client-executed (yoga, meditation, journaling)**	**Mindfulness: Therapist-executed (Sensory, aroma therapy, MMRI)**	**Motivational Interviewing**	**Specialty Equipment**
Name	Rachel	X	X	X	X	X			
	Candice	X	X	X	X	X	X	X	
	Lilly	X	X	X	X	X		X	X
	Linda	X	X	X	X	X			X
	Marilyn	X	X	X	X	X	X		
	Macie	X	X	X	X	X			X
	Miranda	X	X	X	X	X		X	
	Sarah	X	X	X	X	X	X		
	Sam	X	X	X	X	X			
	Lydia	X	X	X		X		X	
	Total (N=10) (%)	10 (100%)	10 (100%)	10 (100%)	9 (90%)	10 (100%)	3 (30%)	4 (40%)	3 (30%)

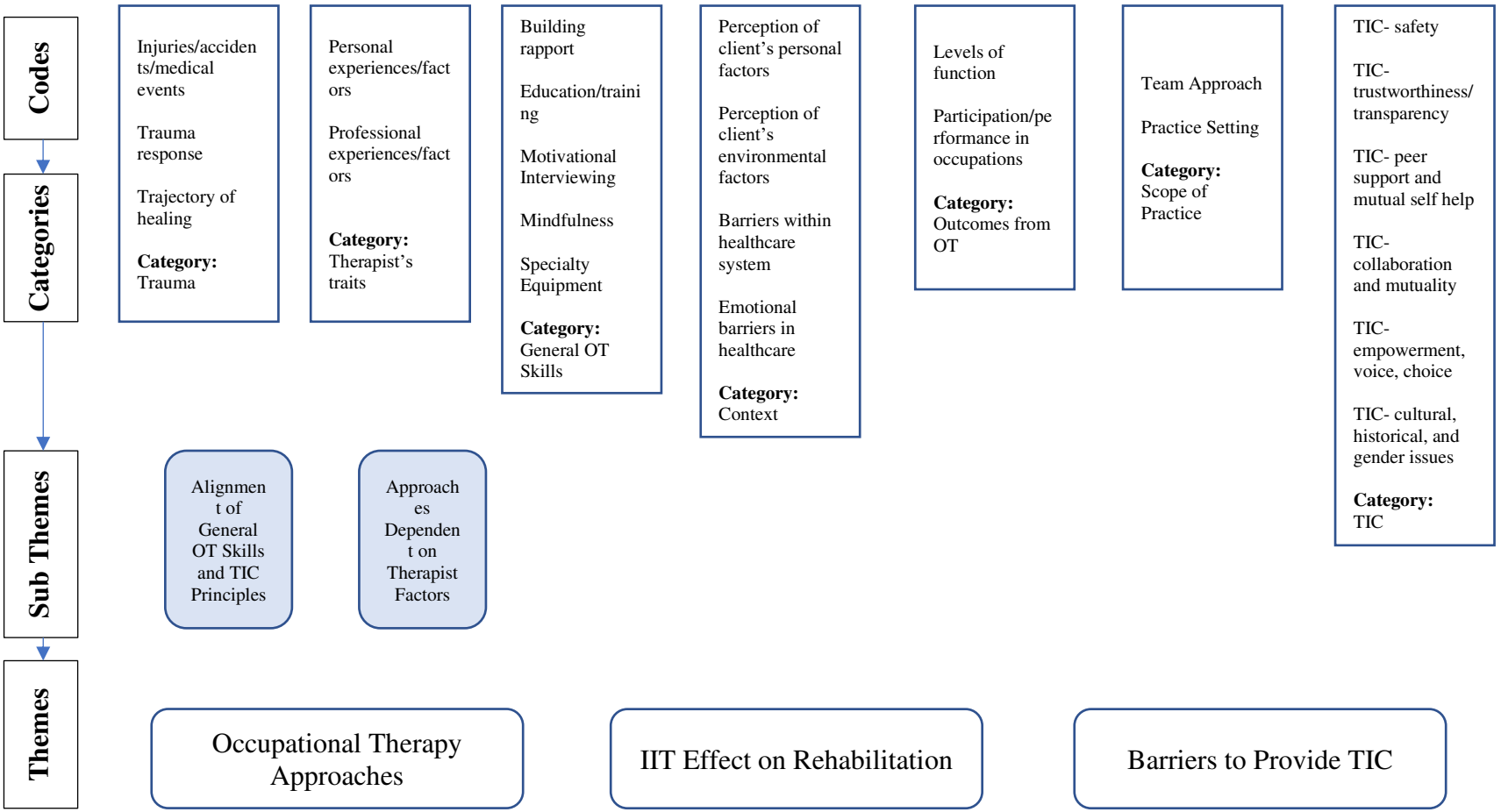

Figure 1. Examples of Themes, Subthemes, Categories, and Codes

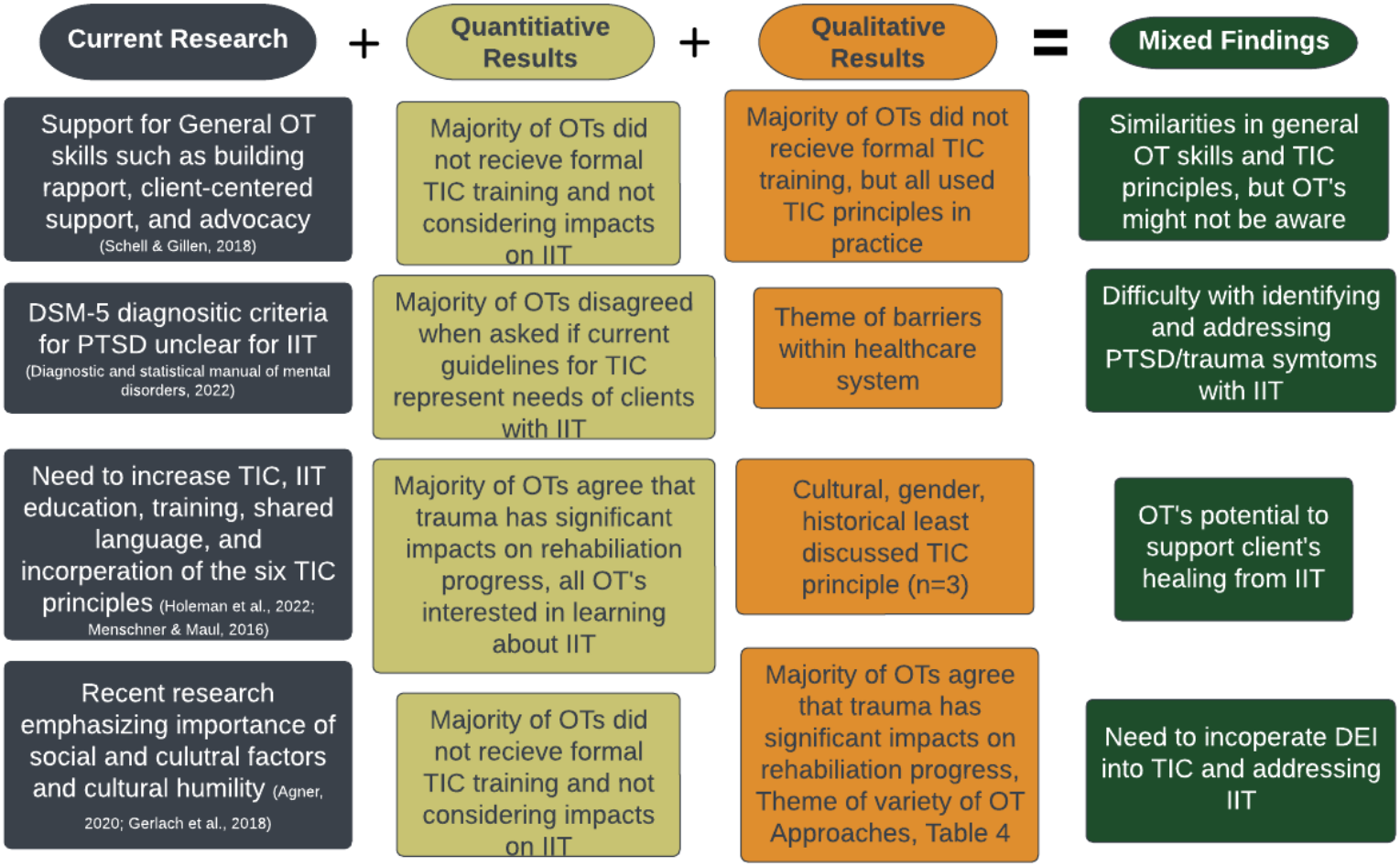

Figure 2. Mixed Findings Overview

Supplemental File 1: Survey Questions

Inclusion criteria:

- Up to 500 people will complete the survey.
- Up to 50 people will be interviewed.
- Graduate of a professional program.
- At least 6 months experience.
- Currently treats or has treated clients with traumatic injury or sudden-onset disability or impairment, including but not limited to stroke, traumatic brain injury, spinal cord injury, amputation, burns, ICU stay, or other traumatic injury or disease.

Exclusion criteria:

- Less than 6 months experience.

Demographic Questions

- Age
    - 20-29
    - 30-39
    - 40-49
    - 50-59
    - 60-69
    - 70-79
- Gender
    - Man
    - Woman
    - Non-Binary/Other
    - Decline to Answer
- Race
  (Please specify)
    - _____
- Location
    - Country (Select one, pull down menu)
    - State (Select one, pull down menu)
- Type of rehabilitation practitioner (Choose all that apply):
    - Physical therapist
    - Occupational therapist
    - Speech and language therapist
    - Respiratory therapist
    - Recreational therapist
    - Yoga therapist

    - Yoga teacher
    - Physiatrist
    - Rehab counselors
    - Rehab psych
    - Psychologist
    - Psychiatrist
    - Music therapist
    - Art therapist
    - Other (please specify)
- Highest degree of education in rehabilitation field:
    - Associate's
    - Bachelor's
    - Master's
    - Clinical doctorate (OTD, DPT, SLPD, PsyD, DNP, DBH)
    - PhD
- How many years of experience do you have working in rehabilitation:
    - 0-5
    - 6-10
    - 11-15
    - 16-20
    - 21-25
    - 26-30
    - 31+
- Current practice setting (Choose all that apply):
    - Inpatient acute rehab
    - Outpatient
    - Mobile outpatient or home health
    - ICU/acute care
    - Educational facility
    - Community
    - Skilled nursing facility
    - Other (Please specify)
        - _____
- Past practice setting(s) (Choose all that apply):
    - Inpatient
    - Outpatient
    - Mobile outpatient or home health
    - ICU/acute care
    - Educational facility
    - Community

    - Skilled nursing facility
    - Other (Please specify)
        - _____
- What age group(s) do you treat in your current practice setting? (Choose all that apply)
    - Early pediatric (0-2)
    - Pediatric (3-17)
    - Young adult (18-26)
    - Adult (27-64)
    - Geriatric (65+)
- Diagnoses that you primarily treat in your current practice (Choose all that apply):
    - Neurological injuries/disorders (e.g. brain injury, stroke, spinal cord injury)
    - Behavioral disorders (e.g. substance abuse, mental illness)
    - Developmental or genetic disorders (e.g. cerebral palsy)
    - Orthopedic injuries (surgery related; e.g. carpal tunnel, stress fracture)
    - Trauma related injuries (e.g. vehicle accident, assault)
    - Progressive disability (e.g. MS, PD)
    - Chronic Disorders (e.g. COPD, diabetes, heart disease, arthritis, cancer, etc.)
    - Progressive Disorders (e.g. Parkinson's Disease, ALS, Alziemers, etc.)

Trauma-Specific Questions

Please answer the following statements with how strongly you identify or agree with them:

- Assessing a patients' history of psychological trauma is a part of my evaluation plan
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always
- I use formal screening tools to assess the presence or absence of psychological trauma in my patients
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always
- I have received formal training on best practice methods for treating patients with psychological trauma (trauma-informed care).
    - Yes (Please specify)
        - _____

    - No
    - Not sure
- My workplace provided training with specific and useful methods to treat patients with psychological trauma, or trauma-informed care.
    - NA: My workplace did not provide training
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly agree
- Recognizing, screening for, and integrating the treatment of psychological trauma is within my scope of practice
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly agree
- I feel confident in identifying signs of post-traumatic stress disorder or psychological trauma in my patients
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly agree
- I am knowledgeable about the physiological, emotional, and behavioral effects of psychological trauma
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly agree
- I feel that the physiological, emotional, and behavioral effects of psychological trauma can have a significant impact on rehabilitation outcomes
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly agree

- Psychological trauma has been a barrier to my patients' success in rehabilitation.
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always
- I practice trauma-informed therapy or rehabilitation.
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always
- I help patients cope with psychological trauma during rehabilitation
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always
- I educate patients and their families on the warning signs of PTSD or psychological trauma, potential triggers, and common symptoms
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always
- I use mindfulness techniques and/or yoga during my intervention sessions with my clients.
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always
- I have/had clients who I believe experienced psychological trauma as a result of a medical event (injury, accident, etc.)
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always

Illness Related Trauma Questions

The following interview questions and probes will be used for the interview. Participants may be asked follow up questions related to what they discuss.

Background:
Previous research shows that approximately 25% of individuals develop PTSD or clinically significant PTSD symptoms after serious illness or injury like stroke, spinal cord injury, or upper limb amputation (Edmonson, et al., 2013; Kunz et al., 2021; Kearns, et al., 2019) . We are researching rehabilitation professionals' perceptions of, experiences with, and strategies for addressing this type of trauma, referred to as illness-induced trauma.
We are researching rehabilitation therapists' perceptions of and strategies for addressing illness-induced trauma. Illness-induced trauma is PTSD or clinically significant post-traumatic stress symptoms brought on by a serious medical event, illness, or injury such as stroke, amputation, or spinal cord injury.

- I work with clients who experience illness-induced trauma
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always
- I consider the effects of illness-induced trauma when working with clients
    - Never
    - Rarely
    - Sometimes
    - Often
    - Always
- I believe that illness-induced trauma and trauma induced by external events (assault, combat) have similar psychological and behavioral manifestations.
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly agree
- The current guidelines for trauma-informed care adequately consider and represent the needs of clients with illness-induced trauma.
    - Strongly disagree
    - Disagree
    - Neutral
    - Agree
    - Strongly agree
- I am interested in learning more about illness-induced trauma and how to provide trauma-informed care

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Interview Info

- Would you be willing to complete a 45 minute follow-up interview to help the researchers better understand rehabilitation practitioners' perspectives on illness-induced trauma?
    - Yes
        - (email address/contact info)
    - No

Supplemental File 2: Interview Questions

Questions for Interviewers

Background:
We are researching rehabilitation therapists' perceptions of and strategies for addressing illness-induced trauma. Illness-induced trauma is PTSD or clinically significant post-traumatic stress symptoms brought on by a serious medical event, illness, or injury such as stroke, amputation, or spinal cord injury.

1) What has been your experience with treating clients with post-traumatic stress disorder or post-traumatic stress symptoms?

2) Tell me about how you generally incorporate trauma-informed care with your clients?

3) Tell me about any experience treating clients whose post-traumatic stress resulted from a serious medical event or illness?

4) Please describe any pattern you may have noticed as to which patients develop or seem to develop illness-related trauma.

5) Tell me about how you are able to recognize that clients are experiencing illness-induced trauma?
    a) What were the signs or symptoms you noticed during sessions?
    b) How does this differ from clients/patients with other trauma?

6) How does illness-induced trauma affect these clients' rehabilitation process?

7) Tell me about how your intervention strategies and approach change when treating clients with illness-induced trauma?

8) Please tell me about whether you use any mindfulness techniques, meditation, or yoga as an intervention with these clients.

9) What is the biggest barrier to recognizing illness-induced trauma and providing adequate care for these patients?

10) What advice or information would you share with new therapists to improve their care of patients with illness-induced trauma?

Supplemental File 3: TIC Practices in Different Practice Settings