

2023

## First Responder and Veteran Yoga for Posttraumatic Stress, Coping, and Anxiety

Nicole M. McKenna  
*Walden University*

Follow this and additional works at: <https://scholarworks.waldenu.edu/dissertations>



Part of the [Alternative and Complementary Medicine Commons](#), and the [Psychology Commons](#)

---

This Dissertation is brought to you for free and open access by the Walden Dissertations and Doctoral Studies Collection at ScholarWorks. It has been accepted for inclusion in Walden Dissertations and Doctoral Studies by an authorized administrator of ScholarWorks. For more information, please contact [ScholarWorks@waldenu.edu](mailto:ScholarWorks@waldenu.edu).

# Walden University

College of Psychology and Community Services

This is to certify that the doctoral dissertation by

Nicole M. McKenna

has been found to be complete and satisfactory in all respects,  
and that any and all revisions required by  
the review committee have been made.

## Review Committee

Dr. Scott Gfeller, Committee Chairperson, Psychology Faculty

Dr. Bethany Walters, Committee Member, Psychology Faculty

Dr. Jerrod Brown, University Reviewer, Psychology Faculty

Chief Academic Officer and Provost  
Sue Subocz, Ph.D.

Walden University  
2023

Abstract

First Responder and Veteran Yoga for Posttraumatic Stress, Coping, and Anxiety

by

Nicole M. McKenna

MPhil, Walden University, 2021

BS, Columbia Southern University, 2012

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Forensic Psychology

Walden University

May 2023

## Abstract

Constant exposures to trauma and violence often impact the wellbeing of veterans and first responders. Related heavy tolls have created an urgent need for wellness programs and coping strategies. This study utilized organismic valuing process theory as a lens to explore two research questions with a purpose to describe participants' lived experiences and related perceptions of effectiveness. Specifically, the research was an exploration of (a) how first responders and veterans using yoga for posttraumatic stress, anxiety, and coping described their lived experiences with the intervention and (b) how first responders and veterans perceived the effectiveness of yoga for symptom improvement, overall wellbeing, and work performance. Six participants completed individual, semistructured, Zoom interviews. Interview transcription, open coding, and selecting coding were employed for data analysis and the four primary themes that emerged (a) self-awareness, (b) perceived benefits/improvements, (c) gratitude/appreciation, and (d) barriers/stigmas. Findings revealed that all participants expressed physical and psychological improvements related to consistent yoga. Recommendations included that future researchers could examine whether experiences of posttraumatic growth and other benefits are specifically attributed to yoga practice or reflective of predisposition towards growth-minded perceptions. Further exploration of barriers and stigmas about yoga and investigation of the lived experiences of those who have not found yoga helpful could provide information that can guide leaders to develop wellness programs custom designed to improve the overall health and work performance of their personnel and by extension improve community relationships and foster positive social change.

First Responder and Veteran Yoga for Posttraumatic Stress, Coping, and Anxiety

by

Nicole M. McKenna

MA, Walden University, 2021

BS, Columbia Southern University, 2012

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Forensic Psychology

Walden University

May 2023

## Dedication

This research endeavor is dedicated to all who have honorably served the citizens of our great nation as first responders or member of our armed forces. As a reflection of gratitude for your selfless service, the unimaginable personal sacrifices regularly made, traumatic injuries experienced, and commitment to serve despite the constant endurance of often relentlessly painful experiences that can sometimes injure the soul. I see you and recognize your suffering. I hope this effort can in some small way contribute to the development and evolution of proactive research-backed wellness programs that focus on recovery, resilience, empowerment, and can facilitate individualized customizations as needed. May you be safe. May you be loved. May you be seen. May you be appreciated.

## Acknowledgments

I would like to extend my deepest gratitude to Dr. Scott Gfeller and Dr. Bethany Walters. Your professionalism, patience, guidance, and invaluable feedback were critical for successful navigation this challenging endeavor!

To my Mom, I couldn't have imagined the life I am creating and none of it would be possible without your love, support, and encouragement. Thank you for loving me enough to be my parent and being strong enough to encourage me to chase my dreams. I am endlessly grateful for the privilege of being your daughter and love you more than you know.

To my cherished friends Aisha Bakkar, Denise Sawyer, Nick Baran, Alex Baran, Lora Edwards, Amanda Bertram, and the Walden Wonder Women thank you for all the meetups, lunch dates, yoga explorations, and meaningful conversations. Your friendships, love, support, and constant encouragement were essential to completing this journey! You are treasured and I look forward to changing the world with you!

To my dear friend and yoga teaching mentor, Victoria Privette; I am forever grateful to you for affording me the opportunity to teach yoga with you and your facilitation of an amazing yoga community that sees and honors the complex dimensions and fluctuations of growth, innovation, and individual wellness. It's an honor to work with you and I couldn't have completed this journey without you!

## Table of Contents

List of Tables .....	v
List of Figures .....	vi
Chapter 1: Introduction to the Study.....	1
Background.....	2
Problem Statement.....	5
Purpose.....	8
Research Questions.....	9
Framework .....	10
Nature of the Study.....	11
Definitions.....	13
Assumptions.....	15
Scope and Delimitations .....	15
Limitations .....	18
Significance.....	19
Summary .....	20
Chapter 2: Literature Review .....	22
Overview of Literature Search Strategy .....	22
Theoretical Foundation .....	24
Theories of PTG.....	24
OVP Theory of Growth Through Adversity .....	29
Literature Review Related to Key Concepts.....	35



History Overview of Trauma, PTSD, and PTG .....	35
Trauma Exposure and Excessive Stress in First Responders and Veterans.....	41
Physical and Psychological Impacts of Trauma and Excessive Stress .....	45
Yoga for Stress, Anxiety, Trauma Recovery, and PTSD .....	49
Summary and Conclusions .....	59
Chapter 3: Research Method.....	61
Research Design and Rationale .....	62
Role of Researcher .....	66
Methodology .....	67
Participant Selection Logic .....	68
Instrumentation .....	69
Instruments Developed by Researcher .....	70
Procedures for Recruitment, Participation, and Data Collection .....	70
Zoom Interviews .....	72
Data Analysis Plan .....	74
Trustworthiness.....	74
Credibility .....	75
Transferability.....	75
Dependability .....	76
Confirmability.....	76
Ethical Procedures .....	77
University IRB Approval.....	77

Informed Consent.....	77
Confidentiality Measures .....	78
Transcripts.....	79
Destruction of Data.....	79
Summary.....	79
Chapter 4: Results .....	81
Setting .....	81
Demographics .....	82
Data Collection .....	83
Data Analysis .....	84
Evidence of Trustworthiness.....	86
Credibility .....	86
Transferability.....	87
Dependability .....	87
Confirmability.....	88
Study Results .....	88
RQ1 – Lived Experiences .....	92
RQ2 – Participant Perceptions .....	101
Summary.....	107
Chapter 5: Discussion, Conclusions, and Recommendations.....	109
Interpretation of the Findings.....	109
Understanding the Lived Experiences .....	111

Understanding Participant Perspectives .....	120
Limitations of the Study.....	127
Recommendations.....	128
Implications.....	129
Positive Social Change .....	129
Methodological, Theoretical, and Empirical Implications .....	129
Conclusions.....	130
References.....	132
Appendix: Structured Interview Questions.....	132

## List of Tables

Table 1. Participant Demographics.....	83
Table 2. Themes.....	89
Table 3. Themes and Categories.....	90
Table 4. Participant Responses to “Tell me how you were introduced to yoga”.....	92
Table 5. Participant Responses to “What about any risks or harm you think might be related to yoga practice in general” .....	107

## List of Figures

Figure 1. Codebook.....	91
-------------------------	----

## Chapter 1: Introduction to the Study

The unfortunate reality is that most people either currently, or someday will know someone who suffers from posttraumatic stress disorder (PTSD) because, in the United States, the projected lifetime risk for PTSD is 8.7% (American Psychiatric Association, 2013). Unfortunately, higher rates are estimated for those with a career that requires frequent exposure to trauma, such as first responders and military personnel (American Psychiatric Association, 2013). PTSD can impact survivors of natural disasters, military veterans, police officers, emergency medical services workers, mass shooting survivors, domestic violence survivors, sexual assault survivors, firefighters, and countless others as well.

Although the circumstances that introduce PTSD into a person's life are individually unique, those who develop the disorder can experience common debilitating symptoms that often diminish the quality of their lives substantially (Sciarrino et al., 2017); and yet in the United States and around the world, the struggle to provide effective treatments continues. Currently, the literature reflects that an estimated 30%–60% of those with PTSD continue to experience residual symptoms or have no symptom reduction at all despite having completed interventions that are both research-backed and considered to be the best protocols for treatment (Sciarrino et al., 2017). An issue that is consistent across the literature is the lack of appropriate controls and other limitations that have resulted in the diminished significance of any findings; there is a need to better understand the experiences of individuals, including those engaged with alternative treatment approaches.

Yoga, meditation, and a variety of other mindfulness practices have become extremely popular approaches for fostering improved physical and mental wellness in recent history (Nguyen-Feng et al., 2018), and there is a growing number of specialized programs being created and advertised for veterans and first responders including police, firefighters, emergency medical technicians, and disaster response workers. Although most research related to yoga and meditation practices appears promising and free from harmful side-effects, there have been several study limitations that diminish the weight of findings and leave a great deal unknown. It is imperative that additional investigations be conducted regarding these popular alternative approaches to managing mental and physical wellness and ensure that practices are safe and effective for our veterans and first responders.

### **Background**

Often, first responders and veterans become very unhealthy people conducting critically difficult operations that introduce additional stress, anxiety, and trauma exposures that frequently contribute to the deterioration of their physical and mental wellness (Doyle et al., 2021; Price, 2017). It is crucial to focus on the wellness of our military personnel, veterans, and first responders because the safety and security of our nation are dependent on their essential work. The relentless challenges our nation has endured throughout the recent global pandemic underscore the urgency for meaningful changes to emergency response protocols and how we monitor and support the wellness of these essential selfless servant. Interestingly, there appears to be little focus on the wellness of the human beings doing these difficult jobs in service of their community and

a great deal of emphasis on politics, legislation, funding, and training instead. Price (2017) explained that deficits in cognitive and emotional functioning caused by psychiatric impairment could compromise officers' ability to perform essential work responsibilities. Hasty or overreactive responses and hesitation in responding, are both possible consequences of officer impairment that can lead to adverse or sometimes unnecessarily fatal outcomes (Doyle et al., 2021; Price, 2017). These realities point towards our leaders having misguided focus on how to improve and reform our essential agencies (Price, 2017). We must explore ways to improve the wellness, resilience, and pathways to recovery from traumatic exposures that can help prevent development of PTSD and other issues for our first responders and veterans, so they are empowered to grow and thrive while serving our nation. A critical task related to developing impactful wellness programs is to discover the lived experiences of individuals within these specific populations who have found effective and sustainable approaches to maintaining optimal overall wellness and fitness for duty, and to conduct research to investigate potential risks and benefits.

One important article reflected findings from a review and synthesis of yoga for PTSD (Sciarrino et al., 2017). In their article, Sciarrino et al. (2017) explained that because of low success rates associated with current research-backed interventions and the lifetime projected prevalence rate of PTSD, sufferers often have an accompanying mental health diagnosis such as substance abuse, and far too often these individuals experience symptoms that can and will impact their functioning across multiple domains in life: socially, interpersonally, and work-related.



Findings from a qualitative descriptive analysis published by West et al. (2017) reflected essential insights regarding the lived experiences of yoga practitioners. Feelings of gratitude, relatedness, feelings of acceptance, centeredness, and empowerment were identified as five themes reflected by participants' interview responses. Consistent with most yoga related research, limitations related to participants and sample size diminish what appear to be promising findings.

Reinhardt et al. (2018) studied both active-duty personnel and military veterans with PTSD and evaluated the efficacy of a 10-week yoga intervention on the symptoms associated with PTSD. This study aligned with the findings of other studies conducted; results suggest there are many potential benefits for yoga as an intervention for PTSD. However, more extensive sample size studies are needed to collect sufficient data and establish empirical evidence of the efficacy of such programs.

A systematic literature review Cushing and Braun (2018) conducted was executed in compliance with the preferred items for systematic reviews and meta-analyses (PRISMA) guidelines. Only 15 of the 175 records identified met criteria for inclusion, and there was a 70% or higher study retention rate in 14 of the 15 studies. Significant improvements were reflected overall with PTSD symptoms following these interventions. Each study included had post-9/11 veterans; however, nearly 85% of participants served in other conflicts, the most predominant being Vietnam (Cushing & Braun, 2018). Findings related to this study, like so many others, provided no empirical evidence because of limitations and inconsistencies in study design and execution. Consistent with

most related literature, findings highlight the need for further research with improved study design and better long-term follow-up.

Although these and other studies regarding yoga have produced interesting and potentially encouraging findings, a great deal of work remains ahead to discover what empirical evidence might emerge in support of specific programs and interventions. It is necessary to understand the lived experiences of first responders and veterans who are already using yoga programs successfully so that future researchers of larger-scale and potentially evidence-producing studies are armed with a deeper understanding of crucial program design and execution considerations.

### **Problem Statement**

It remains unknown to the scholarly community what the lived experiences are for first responders and veterans who practice yoga as an intervention for coping with the excessive stress and traumatic situations they are frequently involved with. The purpose of this qualitative study was to explore and describe experiences of first responders and veterans who practice yoga for posttraumatic stress, coping, and anxiety associated with their work and understand how they perceive the impacts of yoga on their physical and mental health, relationships and interactions with others, and the quality of their work performance. This information will begin to bridge the gap in knowledge that exists related to understanding if and how yoga interventions are impactful for first responders and veterans so organizational leaders can begin to objectively evaluate potential risks and benefits of investing in yoga wellness programs. Understanding the experiences of those successfully using the practice will also provide critical information that can be

used by future researchers to improve study design, execution, and participant retention and enhance the significance of findings.

Most related studies revealed limitations associated with sample size, methodological approach, lack of detailed information on intervention execution, length of intervention, and no or poor follow-up that diminish the significance of findings (Cushing & Braun, 2018). In one such study, examining the effectiveness of a 6-week trauma-sensitive yoga intervention customized to be military-focused and facilitated by a veteran yoga teacher, a decrease in PTSD symptomatology was observed, including decreased insomnia, anxiety, and depression symptoms, along with improved mindfulness (Cushing et al., 2018). Despite positive results, the authors acknowledged limitations of sample size, participant demographics, lack of control group, and long-term follow-up that require critical evaluation of results, leading them to note the need for more research to broaden our understanding of this type of intervention. In a similar study, researchers looked at symptom improvement with active duty and veteran participants of a 10-week Kripalu yoga intervention, and although their findings align with similar studies in the field, limitations with small sample sizes and high dropout rates restrict the meaningfulness of results (Reinhardt et al., 2018). There is further speculation that the stigma of yoga being just for women is a powerful barrier to the participation of many men, especially those assimilated into a military culture, who might otherwise participate and benefit significantly from yoga interventions (Cushing et al., 2018). A continued review of current literature revealed an urgent need for research to

develop empirical evidence to support the utilization of alternative options for primary and adjunctive treatments for veterans struggling with PTSD.

Currently, the most recommended research-backed therapies have meager success rates that leave far too many at risk for additional mental health issues, substance abuse issues, and increased suicide risk (Scission et al., 2017). There are significant emotional, physical, and financial costs associated with a lack of effective treatment for PTSD and chronic stress. There are also several potential challenges, including but certainly not limited to secondary mental health challenges, driving under the influence (DUI) arrests, domestic violence, and destruction of personal and social relationships that impact not only those who have PTSD but also their family, friends, and the community surrounding them as well (Sciarrino et al., 2017). Several factors can contribute to the difficulties associated with treating PTSD and chronic stress, the most significant being that each individual's experience of PTSD is as unique as the traumatic experiences that brought on the disorder. Despite a clear understanding of the uniqueness of the disorder, there remains a struggle with providing effective treatments. One of the most frustrating challenges is that even treatments that are evidence-backed and currently employed as the best options often leave patients with an incomplete response to treatment or residual symptoms (West et al., 2017).

The U.S. Department of Veteran Affairs (n.d.) reports on their national PTSD website 30% of veterans of Vietnam have experienced PTSD in their lifetime, 12% of Gulf War veterans, and 11-20% of veterans of Operations Enduring Freedom and Iraqi Freedom experience PTSD in any given year. With increasing violence in these still

ongoing operations and the expanding number of multiple deployments required of military personnel, it seems only a matter of time before PTSD rates will continue to rise substantially if such poor treatment results continue. It is essential to provide new avenues of approach for diminishing the risks for psychiatric impairments resulting from excessive work stress and trauma exposures that can compromise the performance of law enforcement officers (Price, 2017). Although previous research efforts conducted on yoga for PTSD have shown promise, a lack of appropriate controls, the limited number of participants, high attrition rates, and other limitations have narrowed viable knowledge extracted from the work (Sciarrino et al., 2017). What was also unclear was understanding lived experiences of study participants and what their perceptions are of any impacts associated with yoga on their wellbeing and work responsibilities.

### **Purpose**

The purpose of this qualitative study was to explore and describe experiences and perceptions of the impacts of yoga on their physical and mental health, relationships and interactions with others, and the quality of work performance of first responders and veterans who practice yoga for posttraumatic stress, coping, and anxiety associated with their work. This understanding was essential to the evaluation of potential posttraumatic growth (PTG) or lack thereof associated with yoga programs in these populations and might prove vital to future successful wellness program development.

This study was well-suited for a qualitative approach because although anyone who might experience and recover from trauma does so in their own unique way, the support and comfort of a community can be incredibly impactful on the healing and

recovery processes (Sullivan et al., 2018; Van der kolk, 2014). The naturalistic context afforded by a qualitative effort provided for the consideration of information excluded from a quantitative inquiry (Patton, 2014). The organismic valuing process (OVP) theory served as the foundational framework for this examination of veterans and first responders using yoga. This theoretical framework focused the examination on coping behavior changes associated with the practice of yoga and perceived connections that sparked positive personal growth for participants as well (S. Joseph & Linley, 2005). Understanding how participants experienced integration into a consistent yoga practice and why they believe it is effective for them illuminated potential connections between yoga and PTG.

While there were several viable sources of data for this phenomenological qualitative study, semistructured interviews were used for data collection. I conducted interviews with first responders and veterans who engaged in a consistent yoga practice for coping and stress management for at least one year. Data collection with this approach allowed for gathering data that genuinely reflected the lived experiences of these individuals and how they perceive yoga as an intervention. This information was essential to identify if the OVP framework had any impact on how participants perceive yoga, the effectiveness of the practice, and why.

### **Research Questions**

Some first responders and veterans have elected to use yoga as an intervention to assist them with the management of the consistent exposures to stress and trauma associated with their work. It was paramount to learn if and how yoga works for veterans

and first responders who practice so organizations can have valuable insights of potential risks and benefits to guide the establishment of quality wellness programs for their personnel. The following research questions guided this study:

RQ1: How do first responders and veterans who practice yoga for posttraumatic stress, anxiety, and coping describe their experiences with the intervention?

RQ2: How do these first responders and veterans perceive the effectiveness of yoga for symptom improvement, overall wellbeing, and work performance.

### **Framework**

The framework for this study was based on Joseph and Lindley's (2005) OVP theory. This option provided a comprehensive theoretical framework that accounted for not only growth but also numerous relationships between distress and growth, as well as typical avoidant or intrusive symptoms associated with PTSD (Joseph & Lindley, 2005). This theory is often used in positive psychology research, posttraumatic stress research, and studies related to growth and recovery following trauma (Joseph & Lindley, 2005). The examination of first responder experiences through this lens provided rich insights into their perceptions of how the practice of yoga relates to their management of stress, anxiety, related symptoms, work performance, and other critical aspects of life.

The OVP theory is associated with the spark of positive personal growth that can be possible following trauma, which Joseph and Linley (2005) explained in their work. Assimilation, negative accommodation, and positive accommodation are the three potential outcomes positioned in this theory, and both social and environmental supports available will influence the outcome (Joseph & Linley, 2005). When an individual is

congruent with their OVP, they typically experience unconditional positive self-regard at higher levels, more compassion, and openness to new experiences that affords the ability to realize an optimal state of both psychological and social functioning (Maurer & Daukantaite, 2020). This optimal functioning state is of great benefit and might influence positive accommodation following challenging experiences such as a traumatic exposure.

Joseph (2019) explained from the humanistic psychology tradition of OVP theory that PTG is representative of a normal affective, cognitive process. This process initiates a viable change focused on the constructive development of personality that supports adaptive functioning and resilience (Joseph, 2019). Utilization of OVP theory provided an opportunity to discover potential connections between yoga and the experience of PTG following traumatic experiences in veteran and first responder populations. This information could be vital to understanding how leaders should design wellness programs to encourage voluntary participation and improve unit cohesion.

### **Nature of the Study**

The nature of this study was qualitative with a generic qualitative approach (see Patton, 2014). In this research effort, I sought to understand the lived experiences of first responders and veterans who choose to use yoga as a coping tool for stress, trauma, anxiety, and vicarious trauma they experience at work. Qualitative research was a viable option for the exploration of the first responder's lived experiences using yoga for stress management. It was essential to understand why these individuals rely on this approach to appreciate the extensive or limited potential possibilities associated with implementing these types of programs for other first responders. It was equally important to learn how



these first responders perceive the benefits of practicing yoga in an environment filled with their peers and if it impacted the effectiveness of the experience. The focus on how first responders processed their experiences was consistent with the various dimensions of growth and/or adaptation described within Joseph and Lindley's (2005) OVP theory and unsurfaced considerations potentially necessary for successful future programs. Also, a qualitative approach for examining this topic ensured an understanding of data far richer than possible with a quantitative approach.

I employed several effective and acceptable approaches for gathering qualitative research data and semistructured interviews for this research. Purposeful sampling was utilized to recruit study participants because it ensured data collected reflected only the experiences of veterans and first responders to whom the research questions applied (Taylor et al., 2020). Ideal study participants were veterans and first responders who regularly practice yoga primarily for the management of stress-related symptoms associated with their prior service or current work for at least 12 months. Participants participated in a semistructured interview via the videoconferencing platform Zoom (<https://zoom.us>). Failure to meet population or yoga practice criteria (i.e., regularly practicing yoga an average of 2 days per week for 12 months or longer) were exclusionary criteria for this study.

After data were collected and transcribed, I used a variety of coding processes to analyze data retrieved; this was a continuous process as data collection unfolded. Open coding was used to develop categories and code notes, then second level axial coding was used to create core codes next, selecting coding was used for third-level, which allowed

for the facilitation of meaning construction and refined expression of the data (Williams & Moser, 2019). Also, the qualitative data management software NVivo Plus (<https://lumivero.com/products/nvivo>) was used to facilitate the management of data and help to simplify secondary coding efforts (Moser & Korstjens, 2018).

### **Definitions**

Operational definitions and search strategy terms are provided here. It is important to note that more than one acceptable definition may be related with research terminology.

*Adaptive functioning* refers to an individual's abilities and skills to maintain life engagement and functions while navigating the demands of life (Joseph, 2019).

*Emergency medical technician (EMT/EMS)* is a person specially trained to provide emergency prehospital care for sick and injured persons (Sell et al., 2013).

*First responders* are professionals trained to respond to emergencies and crisis situations including: police officers, emergency medical personnel, and fire fighters (Cass & Benuto, 2022).

*Fitness for duty* is a specialized formal examination of incumbent law enforcement personnel when evidence exists of diminished work performance that could prevent the individual from safely and effectively executing their work duties or a reasonable suggestion of existing psychological impairment (Price, 2017).

*Meditation* is a mind training practice that produces direct physiological effects on the nervous system and brain. (Cruikshank, 2016).

*Mind–body intervention* is an intervention that benefits both mental and physical stress-related disorders (Jindani & Khalsa, 2015).

*Posttraumatic growth (PTG)* occurs when an individual resolves dissonance experienced after trauma and meaningfully rebuild their assumptive world, which is perceived as growth and can facilitate alterations in life philosophy, self-perception, and relationships with others (Splevins et al., 2010).

*Posttraumatic stress disorder (PTSD)* is the experience of one or more intrusion symptoms for one month or longer associated with and experienced after exposure to a traumatic event that included exposure to threatened or actual death, sexual violence, or serious injury; this can be a direct experience, as a witness, as a family member of the victim, or repeated exposures to trauma such as first responders (American Psychiatric Association, 2013).

*Resilience* refers broadly to a trajectory of healthy and stable psychological function both before and after an adverse experience (Infurna & Jayawickreme, 2019).

*Veteran* refers to any person having served in a branch of the U.S. Military either as an active-duty member, reservist, or guard member; any person having served a year (if not retired prior service must have occurred within the past 5 years) or more for a first responder agency including police, fire, crisis workers, and EMS.

*Yoga* is a practice that encourages disciplining the mind, emotions, will, and intellect so practitioners can observe life in all aspects evenly (Davis et al., 2020; Iyengar, 1965; M. C. Joseph et al., 2019). The primary purpose of ancient yoga traditions is to

alleviate suffering and bolster optimal mental and physical thriving (Mocanu et al., 2018).

### **Assumptions**

Several assumptions were vital to this study. It was assumed that participants would be truthful about meeting study inclusion criteria and that they would provide honest and accurate information. It was assumed that participants practice yoga by choice and as a result may have had more positive views of yoga than do their nonpracticing peers. It was assumed that participants were familiar with foundational yoga philosophy. It was assumed that participants' yoga practices include some elements of meditation and/or focused breathwork. It was assumed that participants believe yoga influences their overall wellness.

It was necessary to presume the integrity of participants because it would be time, labor, and resource excessive to have independently verified their qualifications. It was critical to presume that participants were likely to have a somewhat positive bias towards yoga because they have chosen the practice and were willing to voluntarily share their experiences. It was also reasonable to presume participants would have explored breathwork and/or meditation with their practice and have developed a familiarity with foundational yoga philosophy after 12 months or more of regular practice.

### **Scope and Delimitations**

To capture all the various dimensions of data mentioned above, conducting semistructured interviews with veterans and first responders who consistently practice yoga for work related stress, anxiety, or depression was the primary source of data.

Questions were focused on experiences participants have had related to their yoga practice and if and how they related those experiences to their coping abilities, overall wellness, relationships with others, and/or work performance. Interview questions were crafted using the Post Traumatic Growth Inventory (Lenz et al., 2019) as a guide to ensure that data extracted were appropriate for analysis.

Finding study participants for this research effort was quite straightforward. I contacted the following organizations to assist with participant recruitment: Yoga Alliance, Yoga Medicine, Red, White & Blue, Pause first, and Yoga for First Responders. These national organizations have several locations throughout the United States. Using these partners to assist with participant recruitment resulted in geographical diversity. Research assistance requested included asking these organizations to email their members an explanation of the study and information on how to participate if interested. All interviews were conducted using virtual video conferencing (i.e., Zoom). This application platform allowed for online face-to-face interviewing with audio recording, which helped to improve the accuracy of transcription and analysis.

For this research effort, a sample size of 8–12 first responders and veterans were targeted. This sample size is optimal when using a homogeneous sampling method with a highly homogenous population (i.e., a subgroup of first responders in a common yoga program) can achieve data saturation in a sample size as small as 10 (Moser & Korstjens, 2018). Data saturation is the point at which interviews with participants expose no new information (Moser & Korstjens, 2018). When the population studied has shared experiences and commonalities, it increases the possibility of common data in interview

responses (Moser & Korstjens, 2018). Homogeneous sampling was appropriate for this research effort because the interviews were intended to provide an understanding of the lived experiences of first responders practicing yoga in the appropriate context (Moser & Korstjens, 2018). This sample size was also appropriate because a dissertation with specific time constraints and resource restrictions requires a sample size that a researcher can reasonably collect and analyze data from (Moser & Korstjens, 2018).

I transcribed interviews and employed a variety of coding processes to analyze data retrieved. Open coding is a process appropriate for all qualitative data and was employed to separate data into parts to examine similarities and differences (Williams & Moser, 2019). Another process effective for all qualitative data, axial coding, was utilized to develop core codes based on relationships between open codes discovered (Williams & Moser, 2019). Selecting coding was then utilized to facilitate the advancement of the data to allow for construction of meaning and refined expression of participant responses (Williams & Moser, 2019). Also, the qualitative data management software Nvivo Plus was used to facilitate the management of data and help to simplify secondary coding efforts (Williams & Moser, 2019). Research inclusion criteria for this project included the following:

All participants had to be a veteran or first responder consistently practicing yoga for management of stress related symptoms associated with their work for at least 12 months. Each participant had to be willing to participate in a semistructured interview via Zoom. Any current or former first responder or veteran with a minimum of 1 year of service as a first responder or military member was eligible for participation. All

participants confirmed participation in the consistent practice of yoga (i.e., two days per week for a least one year before being interviewed). All participants had a reliable device with internet access and already had had the Zoom program downloaded.

Research exclusionary criteria for this project included veterans and first responders who failed to meet the population or yoga practice criteria listed above. Data retrieved from this effort is potentially transferable to veteran and first responder populations.

### **Limitations**

The biggest challenge associated with this study was isolating the impacts of yoga from other potential influences in participants' lives. Careful crafting of questions for semistructured interviews helped to limit misinterpretations of data. One limitation for this research effort was a lack of generalizability of findings because of the small sample size (Patton, 2014). The potential for researcher bias and interview data quality being relative to the insights of participants were additional limitations to the trustworthiness of findings (Patton, 2014). Researcher bias was accounted for and reconsidered throughout the research process with the use of memo bracketing (see Tufford & Newman 2012).

Data related to this research was stored electronically on an external hard drive to diminish the potential risk of data being hacked or otherwise unlawfully accessed. Each participant's data was encrypted and filed by a randomly assigned case number with no identifying information to protect the participant's personal information. Another potential risk was the misinterpretation of data or transcribing errors related to data collected. I provided participants with transcripts of their contributions from interviews to

avoid inaccuracy and asked them to review and provide any necessary changes to ensure that data reported is reflective of the most accurate responses possible.

### **Significance**

With this research, I sought to fill a gap in understanding by explicitly focusing on the lived experiences of veterans and first responders who choose to participate in yoga to manage symptoms associated with chronic exposure to extreme stress, anxiety, and trauma experienced in their work and why they perceive the effectiveness of the approach. A focus on first responder and veteran populations and providing descriptions of their lived experiences was only one quality that made this project unique. The investigation of why these individuals perceived the effectiveness of the approach is another dimension not previously explored. Other researchers have focused just on reporting the improvement or lack thereof of symptoms associated with short-term intervention programs rather than those who participated in a long-term maintenance yoga practice.

Another limitation in the current literature is that previous researchers failed to provide vital information about the actual intervention studied such postures, breathing techniques, frequency of class attendance, length of each class, and dialogue used by teachers when reporting findings, making replication studies impossible and diminishing overall findings (Sciarrino et al., 2017). Yoga practice often leads practitioners to experience improved mindfulness, enhanced physical fitness, improved sleep, and sense of empowerment (West et al., 2017), which likely contribute to positive findings reflected in current literature focused on yoga.



Research has yet to address why participants believe yoga leads to these experiences, and this information is vital to understanding who might benefit from a yoga practice. To understand the potential benefits of yoga and how it might be useful to maintaining the physical and mental wellness of veterans and first responders, it is imperative to understand the direct influence yoga has on positive psychological changes experienced during recovery from traumatic experiences. It is paramount to understand how yoga affects practitioners following traumatic circumstances or extraordinarily stressful situations and how it impacts PTG (Joseph, 2019), to assess the viability of use. This information can be helpful for agencies that employ veterans and first responders and recognize the need to provide better prevention and recovery programs for their personnel so they can become more effective in their service to the community.

### **Summary**

There is no singular solution to issues regarding reformation of military and first responder cultural tendencies of poor coping nor is there a single path to successful management of stress, anxiety, depression, or avoidance of PTSD for these unique essential personnel. As science, our society, and technologies continue to innovate and evolve with more frequency, the complexity of challenges and increased stresses related to providing a safe and secure nation for our citizens to reside in intensifies. We have a responsibility to all citizens to ensure the health and wellness of those protecting and defending our nation and communities. As previously mentioned, several quantitative studies have been conducted on yoga as an intervention; however, limitations such as high drop-out rates have diminished the significance of related findings. It was vital to

understand the lived experiences of veterans and first responders using yoga as a wellness tool to objectively assess potential risks and benefits of such practices and discover program design considerations specific to these unique populations so future researchers can improve intervention design and, by extension, participant retention rates. This research provides organizational leaders with a foundational introduction to potential benefits and risks associated with the use of proactive yoga and meditation programs to improve employee wellness so they are empowered to make appropriate choices for their personnel and communities. A detailed review of search strategy processes and current literature is provided in Chapter 2. This research includes an explanation of the theoretical framework and key concepts that highlight existing knowledge gaps that this research aimed to address.

## Chapter 2: Literature Review

It was unknown to the scholarly community what the lived experiences were for first responders and veterans who practice yoga as an intervention for coping with the traumatic situations they frequently encounter. This study aimed to discover and describe the lived experiences of first responders and veterans using yoga to manage the stress, anxiety, and trauma associated with their work. The literature review that follows has four areas of emphasis. First, I provided an overview of the processes used to execute an exhaustive review of related available literature. The second area addresses literature related to the history of PTG, PTSD, and OVP theory. In the third area, I cover literature regarding the potential impacts of excessive stress and trauma exposure in first responders and veteran populations. The fourth area includes literature related to yoga as an intervention for PTSD, stress, depression, compassion fatigue, burnout, and anxiety in first responders and veterans. Additionally, I provide a synthesis of literature related to yoga's cumulative benefits as a mindfulness practice for trauma recovery, resilience, and overall psychological well-being. I conclude the literature review with a discussion of the need for employee wellness programs focused on equipping first responders and veterans with effective coping strategies to cultivate growth and resilience following extreme stress and trauma exposures.

### **Overview of Literature Search Strategy**

The Boolean system was used to collect research for this literature review, a strategy that included using keywords and phrases to extract results specific to this topic of study (Lowe et al., 2018, King et al., 2017; Younger & Boddy, 2009). ProQuest,

SAGE Premier, Thoreau, EBSCOhost, Academic Search Complete, and PsychINFO are the six online databases queried to locate articles for the literature review that follows.

The following keywords were used for database searching: *first responders or firefighters or paramedics or police or emergency services or EMS or veterans and stress and suicide; vicarious trauma or secondary traumatic stress or compassion fatigue or burnout and yoga; stress and coping; acute stress; positive coping strategies or coping skills or coping or cope and organismic valuing theory; yoga and complementary and alternative medicine; yoga for depression; post traumatic growth or post-traumatic growth or PTG or posttraumatic growth; post traumatic growth inventory; mindfulness-based treatments for PTSD; PTSD and work performance or job performance or employee performance and stress, anxiety, and depression; and trauma and growth.*

Tens of thousands of results spanning nearly 70 years were returned when searching for anxiety, depression, stress, and coping in general. However, when limited to first responder and veteran populations, far less literature is available, and while there are a few historical outlier articles related specifically to these populations, the majority of the 6,874 results were from the past 30 years. A gap is easily identified in the literature regarding posttraumatic stress (PTS/PTSD) and PTG that widens when searches are restricted to first responders and veteran populations. A general search for content on PTS and/or PTSD returns 218,089 with peer-reviewed articles with historical works from as far back as 1915, while a general search for PTG provides 4,330 peer-reviewed results going back historically to 1983. When these searches are restricted to first responder and veteran populations PTS/PTSD results are reduced to 48,067 dating back to 1957 and

PTG results are a mere 775 with 2002 being the most historical peer-reviewed work. From the onset, search parameters included a request for peer-reviewed and full-text articles. The exclusion of articles not available in English was the first step in the filtering process used to select literature. Abstract review was the next part of filtering articles, then seminal works from oldest to newest, and finally articles published in the past 5 years.

## **Theoretical Foundation**

### **Theories of PTG**

Just as research interest in PTG was ignited by research surrounding PTSD, PTSD theories provide essential foundational knowledge that any viable theory of PTG must accommodate (Joseph & Linley, 2005). The most pertinent theoretical perspectives for understanding PTSD related to an integrative theory of growth are emotional processing, information-processing approach, social-cognitive theory, cognitive synthesis, and psychosocial perspectives (Joseph & Linley, 2005). These various perspectives provide imperative information for understanding how individuals navigate the struggles of moving past trauma experiences.

The concept of emotional processing provided by Rachman in 1980 offers a framework for conceptualizing psychological reactions to trauma and stress from a behavioral perspective (Joseph & Linley, 2005). What Rachman described as signs of unsatisfactory emotional processing are similar to symptoms provided in the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* as diagnostic criteria for PTSD, and his theory offers a clearer understanding of how people can recapture pre-trauma status

(Joseph & Linley, 2005). Importantly Rachman's work provided a conceptual framework for understanding an array of complex and incomparable phenomena, highlighted intrinsic motivation to process new emotional experiences, and acknowledged that emotional state, personality, and activity could either impede or promote successful emotional processing (Joseph & Linley, 2005). Although emotional processing research was not specifically focused on PTSD, it is knowledge essential for understanding the disorder's complexities.

To understand how memory can impact the development of posttraumatic stress reactions, Horowitz's psychodynamically informed information-processing approach provides insights on how trauma can destroy an individual's schemas of both themselves and the world around them, which can impair their ability to interpret new information (Joseph & Linley, 2005). Like Rachman, Horowitz posited an intrinsic motivation that drives individuals to integrate new experiences into their schemas, which he labeled completion tendency (Joseph & Linley, 2005). Horowitz further opined that when new information fails to be integrated successfully, it can essentially become trapped in an individual's active memory, causing intrusions into the consciousness such as nightmares, unwanted thoughts, and flashbacks (Joseph & Linley, 2005). This knowledge is vital for understanding how PTSD symptoms can result from incomplete processing of information associated with a traumatic or stressful experience.

An examination of Janoff-Bulman's social-cognitive theory reflects some extension of Horowitz's work in the accommodation for the notion of completion tendency and recognizing an intrinsic motivation for trauma survivors to find meaning in their

experiences (Joseph & Linley, 2005). Janoff-Bulman also highlighted the distinction between automatically occurring processes and intentional efforts employed by individuals to restructure their assumptive world following stressful or traumatic experiences (Joseph & Linley, 2005). This literature provided more understanding of how individuals can influence their struggles and how their struggles are necessary to successfully integrate challenging experiences.

For an explanation regarding cognitive synthesis, it is crucial to consider the cognitive processing model of PTSD offered by Creamer et al. (1992), who proposed that for effective recovery to be possible following trauma, an individual's fear network must be activated to enable proper network resolution processing (Joseph & Linley, 2005). Creamer et al. also posited that fear network activation would initiate an array of both avoidant and defensive coping strategies; and when individuals experience initially intense intrusive symptoms, they are likely to successfully cope, whereas low levels of initial intrusion can be a predictor of chronic symptoms and often poorer outcomes (Joseph & Linley, 2005). Additionally, Creamer et al. argued that avoidance follows intrusion and acts as a coping strategy for intrusive memories, and although this might be useful for relieving immediate distress, overuse of the strategy can be maladaptive because it might prohibit activation of the fear network which is necessary for effective coping (Joseph & Linley, 2005). This literature provides evidence of a natural balance to the process of healthy coping. Also, it explains how it is not until the experience exceeds an individual's coping capacity that issues arise.

It is also paramount to consider the introduction of psychosocial perspectives by Joseph et al. (1995, 1997), who presented an extension of cognitive theories and argued that individual differences such as social support, personality, and cognitive appraisal can not only impact posttraumatic stress but can also contribute to greater vulnerability or resilience to poor outcomes following stressful or traumatic experiences (Joseph & Linley, 2005). This literature introduced the need to accommodate for the influence of social support and personality before trauma exposure when investigating PTG (Joseph & Linley, 2005). These PTSD perspectives and theories provided imperative information that other researchers have used as a platform for conducting investigations surrounding growth outcomes following adversity.

Not only are PTSD theories and perspectives essential considerations for any viable integrative theory of growth, but four theoretical considerations must predicate such a theory (Joseph & Linley, 2005). The first is the accommodation of a theoretical assumption of an elemental completion tendency that facilitates the expedition of cognitive-emotional processing of post-trauma stress reactions; next, growth theories of this nature must account for not only the need to process the new trauma-related information but must also specify how that information is processed to ignite growth; third, an explanation of the connection of meaning-making and how it impacts growth is needed; and finally, an integrative theory of growth must account for both the characteristics of growth and PTSD, which to be achieved requires a pathway for consideration of both the hedonic tradition of subjective well-being and the eudaimonic tradition of psychological well-being (Joseph & Linley, 2005). The functional descriptive



model of PTG developed in 1995 and updated in 2004 by Tedeschi and Calhoun and the OVP theory of growth developed by Joseph and Linley in 2005 are considered the most comprehensive theories of PTG (Splevins et al., 2010). Both theories hypothesize that trauma exposure can challenge the assumptive world and create dissonance between an individual's pre and post-trauma worldview that can lead to schematic chaos and substantial psychological distress (Splevins et al., 2010). Both theories also posit that the individual's need to resolve the dissonance experienced after trauma and meaningfully rebuild their assumptive world is perceived as growth and can facilitate alterations in life philosophy, self-perception, and relationships with others (Splevins et al., 2010).

Additionally, both theories opine that coping style, social support, and personality structure can moderate emotional distress and enhance or limit the potential for a growth outcome (Joseph & Linley, 2005; Splevins et al., 2010; Tedeschi & Calhoun, 2004). It is the explicit description of the metatheoretical assumptions of growth, and intentional use of the term to communicate that trauma is the catalyst that ignites an intrinsic drive toward actualization that distinguishes OVP theory from the functional descriptive model (Splevins et al., 2010). The primary drawback to the functional descriptive model is that it fails to account for why individuals would be motivated to move past a pretrauma status to acquire new growth and fulfillment (Joseph & Linley, 2005). Understanding this motivation is paramount to enhance our knowledge of PTG and foster the development of a variety of interventions that can help trauma survivors navigate their recovery and move on towards growth if desired.

### **OVP Theory of Growth Through Adversity**

The OVP theory of growth through adversity was developed to introduce a more sophisticated and comprehensive theoretical framework to explain the growth phenomenon that can occur following adversity (Zacchaeus, 2020). OVP theory of growth through adversity emphasizes that each individual possesses an inherent ability to know what is essential to them and necessary for the pursuit and fulfillment of their specific life aspirations (Gower et al., 2022; Joseph, 2019; Joseph & Linley, 2005; Maurer & Daukantaitė, 2020; Splevins et al., 2010; Zacchaeus, 2020). This theory posits that individuals are intrinsically motivated to migrate towards growth after traumatic experiences and provides that the psychological resolution of trauma-related challenges can foster three potential cognitive outcomes (Joseph, 2019; Joseph & Linley, 2005; Maurer & Daukantaitė, 2020; Splevins et al., 2010; Zacchaeus, 2020). The first potential cognitive outcome is that trauma experiences are assimilated, which allows the individual to resume their pretrauma baseline; however, there is a retained vulnerability to retraumatization in the future with this outcome (Joseph, 2019; Joseph & Linley, 2005; Maurer & Daukantaitė, 2020; Splevins et al., 2010; Zacchaeus, 2020). The second potential cognitive outcome is accommodation of traumatic experiences negatively, creating distress and psychopathology (Joseph, 2019; Joseph & Linley, 2005; Maurer & Daukantaitė, 2020; Splevins et al., 2010; Zacchaeus, 2020). The third potential cognitive outcome is that trauma experiences are accommodated in a positive direction igniting motivation for growth because the individual was able to refine their worldview by successful integration the new traumatic information (Joseph, 2019; Joseph & Linley,

2005; Maurer & Daukantaitė, 2020; Splevins et al., 2010; Zacchaeus, 2020). OVP theory provides four theoretical principles that explain what mechanisms influence whether new trauma information integration results in positive accommodation rather than either assimilation or negative accommodation (Joseph & Linley, 2005). These four principles are completion tendency, accommodation versus assimilation, meaning as comprehensibility versus meaning as significance, and eudaimonic versus hedonic well-being (Joseph & Linley, 2005).

Completion tendency refers to the process that unfolds when an adverse event shatters an individual's assumptive world resulting in the need to integrate the new trauma-related information (Joseph & Linley, 2005). Completion tendency is considered a part of the OVP, which holds that human nature prompts an innate need to integrate newly acquired information and reorganize the self-structure through modification of existing worldview as necessary, making positive accommodation of trauma-related information possible (Joseph & Linley, 2005). When people experience trauma, they often realize conflict and incongruence between their worldview and the new trauma information, become keenly aware of humans' fragility, and discover limitations of the human condition that challenge their previous assumptions of the world themselves (Joseph & Linley, 2005). These existential challenges motivate the individual to integrate the new trauma information, and the resulting struggle from this natural process unfolding sends the individual fluctuating between phases of intrusion and avoidance until a baseline is achieved (Joseph & Linley, 2005).

Accommodation versus assimilation holds that baseline achievement reflects that an individual has either achieved successful revision of existing schemas to accommodate the traumatic information or cognitive assimilation of the traumatic memory has been accomplished (Joseph & Linley, 2005). While the natural tendency is towards positive accommodation, the struggle of the process requires a social environment that satisfies the individual's basic psychological needs for competence, autonomy, and relatedness (Joseph & Linley, 2005). The extent to which these essential needs are met or lacking in both the pre- and post-trauma environment will influence the propensity toward positive or negative accommodation accordingly such that the more needs are met, the more opportunity for positive accommodation to result (Joseph & Linley, 2005). Assimilation impedes the natural OVP and is accomplished when the individual fails to engage with the significance of their experience and remains attached to pre-trauma schemas keeping their assumptive world more susceptible to fragmentation and the experience of future traumatization (Joseph & Linley, 2005).

Meaning as comprehensibility versus meaning as significance accounts for how individuals navigate the natural search for meaning that follows adverse experiences (Joseph & Linley, 2005). As the individual seeks to understand the event retrospectively, they will ask questions to learn how and why the experience might have occurred and when comprehensibility of the event is accomplished, they may assimilate or accommodate the new information as previously mentioned (Joseph & Linley, 2005). When the OVP is fostered, the individual can be open to explore the existential challenges associated with the event and launch a search for meaning significance by

asking questions such as how the incident impacts how they are living, what philosophies they embrace, and whether it is congruent with their worldview (Joseph & Linley, 2005). When these questions are positively accommodated, meaning significance questions can ignite growth, potentially leading to greater resilience, improved relationships, and enhanced appreciation for life (Joseph & Linley, 2005). Unfortunately, when meaning significance questions are negatively accommodated, it can lead to helplessness and hopelessness, deteriorating resilience, destroying relationships, and diminishing appreciation for life (Joseph & Linley, 2005).

Eudaimonic versus hedonic well-being provides that while positive accommodation of the traumatic event and development of meaning as significance can enhance the individual's wisdom, it might not lead to improved subjective well-being and instead leave them sadder (Joseph & Linley, 2005). The experience of growth with this process is one of improved psychological well-being and is reflected in deeper spirituality, closer relationships, and improved self-acceptance (Joseph & Linley, 2005).

The OVP theory of growth through adversity also provides four factors for explaining individual differences in trauma responses (Joseph & Linley, 2005). The first provides that the greater the degree of disparity between an individual's preexisting beliefs and expectations and the new trauma-related information, the greater the potential for experiencing both enhanced posttraumatic stress symptoms and growth (Joseph & Linley, 2005). The second factor is whether the individual's social environment has previously been prohibitive or supportive of their OVP (Joseph & Linley, 2005). The third factor is the extent to which the individual acts in accordance with their OVP and

engages with the challenging work required to conduct the effortful appraisals necessary to achieve growth (Joseph & Linley, 2005). The fourth factor is whether the individual's social environment supports and meets their basic psychological needs for competence, autonomy, and relatedness as they work to accommodate the traumatic information (Joseph & Linley, 2005).

A significant strength of the OVP theory of growth following adversity is that it accounts for the complex and multidimensional mechanisms involved in the natural process of recovering from trauma and factors that can impact potential adverse outcomes. What could be assessed as an ideal example of how this process can unfold is observed in the story of one 5-year-old boy following the terror attacks in New York City on September 11, 2001. The young boy named Noam Saul was less than 1500 ft away from the World Trade Center in his first-grade classroom when he watched the first plane crash into the building (Van Der Kolk, 2014). Fortunately, the boy and his family were not hurt, and he was quickly reunited with them and returned to the comfort and safety of the loving, caring, and supportive environment he was accustomed to (Van Der Kolk, 2014). On September 12, 2001, Noam drew a picture of the horrible crash he witnessed, and when asked why he had drawn black circles surrounding the base of the building, he explained that the circles were trampolines, so if anything like that were ever to happen again, people would be safe to jump out onto the trampolines (Van Der Kolk, 2014). This young boy was able to cognitively process his traumatic experience and reframe his view of the world by providing a creative solution to the new potential danger he understood existed (Van Der Kolk, 2014). This well-cared-for and loved little boy was empowered

by the positive nurturing environment that continued to fully support his psychological needs for autonomy, competence, and relatedness (Joseph & Linley, 2005), so he was free to process the incident and make necessary adjustments to his vision of the world without a great deal of struggle. Unfortunately, not all children are afforded the benefit of such ideal circumstances and supportive responses by caregivers, nor are the vast majority of adolescents or adults, which, when viewed from the lens of the OVP theory of growth following adversity, sheds light on why so many people globally are suffering from the impacts of PTSD.

First responders are, by definition, individuals trained to provide immediate assistance in response to an emergency, whether it is accidental, a natural disaster, medical cause, terrorism, or criminal acts (Lindenfield, 2018). Because first responders are essentially paid to be trauma and crisis resolution experts, it is utterly shocking that so many experience significant emotional, psychological, and often physical suffering from their work's overwhelming demands and refuse help. Research efforts exploring the experiences of first responders and veterans who have developed effective and healthy coping strategies and practices are imperative for cultivating programs that can encourage positive changes in the health, overall well-being, and by extension, quality of work performance all first responders (Lindenfield, 2018). Both the four principles and four individual factors provided with OVP theory are essential considerations for any focused investigation of people's experiences following trauma, and when adequately observed and explored, can lead to the discovery of rich data. This theory has been used in studies investigating PTSD, positive psychology, and growth following adversity (Joseph &

Linley, 2005), making it an ideal framework for the current study of first responders and veterans already using yoga to manage PTS. Additionally, using this framework as a lens for exploration with this investigation can help us understand how to facilitate appropriate assistance for those navigating extraordinary challenges while recovering from an adverse experience and helping people become better equipped to cope with frequent immersion in extremely stressful environments.

### **Literature Review Related to Key Concepts**

#### **History Overview of Trauma, PTSD, and PTG**

While the observation of growth following adversity has only somewhat recently become the focus of empirical and theoretical work, throughout history, several philosophies and works of literature have alluded to the idea of personal gain associated with suffering (Joseph & Linley, 2005). There have been various terms used to describe PTG, and when researching the entire array of terms, including those tangentially associated, peer-reviewed information can be found dating as far back as the 1900s. Buddhism, Hinduism, Judaism, Christianity, and Islam are major religions that have referenced observance of positive psychological changes provoked by traumatic or stressful events (Joseph, 2011; Joseph & Linley, 2005; Riffle et al., 2020). To understand what PTG is and why it has become a topic of great interest to researchers, it is imperative to examine the primary mechanism responsible for initiating PTG, which is posttraumatic stress (PTS) resulting from a traumatic experience (Joseph, 2011). As is the case with PTG, literature can be found dating back centuries related to what is currently



labeled acute stress disorder (ASD), PTSD, or one of several other trauma-related disorders.

### ***Overview of Trauma***

It is speculated that the earliest descriptions of trauma were provided by a Babylonian king written over 5,000 years ago and inscribed on clay tablets (Joseph, 2011). The king's writings were reflective of severe grief and described both mental and physical symptoms related to the traumatic loss, similar to today's symptoms associated with ASD and PTSD (Joseph, 2011). Another well-known early historical account of trauma was related to the Great Fire of London in 1666, when 6 months after living through the tragedy, Samuel Pepys wrote of the physical and emotional impacts he experienced, and his accounts were descriptive of hallmark PTSD symptoms (Joseph, 2011). However, it was not until the railway was invented some two hundred years later that trauma began to occur differently because early train travel was quite dangerous and resulted in hundreds of deaths from traumatic crashes annually (Joseph, 2011). Soon some train crash survivors were suffering from physical and emotional symptoms associated with their tragic accident experiences that led them to seek medical help. In 1867, a physician named John Eric Erichsen published information related to a condition he labeled "railway spine" in his book *On Railway and Other Injuries of the Nervous System*, where he described nightmares, paralysis, intrusive thoughts, sleep disturbances, and memory issues as common symptoms of the disorder (Joseph, 2011). A short time later, railway spine was debated by professionals like Herbert Page, who in 1883 disagreed with Erichsen's assessment that symptoms of railway spine were a result of

damage to the nervous system caused by spine concussion and instead proposed that the condition was a psychological disorder caused by a “nervous shock” (Joseph, 2011). Another period of significant evolution in our knowledge surrounding trauma-related disorders occurred because of World War I (WWI). As the war began to unfold, the field of psychiatry was in its infancy and viewed with a great deal of skepticism (Joseph, 2011). It did not take long for war-devastated soldiers to begin displaying a wide array of troubling symptoms ranging from sadness and fatigue to erratic behaviors and disassociation that led to Charles Myers’s 1915 article in the medical journal *The Lancet* where he labeled the disorder “shell shock” (Joseph, 2011). While railway spine and nervous shock eventually faded out of textbooks as railway safety improved, shell shock was abandoned as a disorder near the end of WWI when professionals concluded soldiers’ reactions were not related to any moral failing but were instead considered “normal” responses for men in such stressful circumstances (Joseph, 2011). Posttrauma syndrome, battle fatigue, traumatophobia, war neurosis, and combat exhaustion were introduced as diagnostic terms during World War II (WWII), and around the same time, interest began to emerge related to civilian trauma survivors (Joseph, 2011). However, this would certainly not be the end of the war, contributing to expanding our knowledge regarding trauma and PTSD.

### ***Overview of PTS/PTSD***

The Vietnam War was the catalyst for introducing the concept of PTSD by the American Psychological Association in their publication of the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; *DSM-3*), released in 1980 (Joseph, 2011). All

editions of the *DSM* have been used by mental health professionals to assist in making diagnoses and guiding treatment programs; the manual is also an essential tool for researchers to not only conduct viable studies but also to ensure a common language is utilized across research and clinical professions (American Psychiatric Association, 2013). Numbing of responsiveness, re-experiencing of trauma, and a miscellaneous section that included avoidance of reminders, hyper-alertness, impairment of memory, guilt, and difficulty concentrating were the three categories of PTSD issues listed in the *DSM-3* (Joseph, 2011). As research has expanded our knowledge and understanding related to PTSD and other trauma-related disorders, the grouping of symptom categories related to such disorders has evolved. Today diagnostic criteria for ASD, PTSD, and several other trauma-related disorders are provided in the current publication of the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013). In the *DSM-5*, PTSD and ASD share similar diagnostic criteria such as exposure to serious injury, threatened or actual death, or sexual violence (American Psychiatric Association, 2013). An individual could have experienced the trauma; a loved one could have experienced it, an individual could have been witness to a traumatic incident, or extreme and/or repeated exposure to aversive details of trauma most typical for first responders (American Psychiatric Association, 2013). In addition to traumatic exposure criteria, individuals diagnosed with ASD or PTSD can experience a variety of intrusive symptoms, arousal symptoms, avoidance symptoms, persistent negative mood, and/or dissociative symptoms (American Psychiatric Association, 2013), and the primary difference in diagnosis is the length of time individuals are suffering

from symptoms. The emphasis for most early PTSD research was on managing associated symptoms and developing treatment protocols to assist those diagnosed with returning to normal daily functioning (Joseph, 2011). This early research was imperative for creating pathways to the somewhat recent and rapid increases in research focused on PTG because those interests have been mainly forged in recognition of PTSD as a viable problem worthy of significant research.

### ***Overview of PTG***

The result of that recognition was an explosion of research conducted surrounding PTSD in the 1980s that led researchers in the 1990s to begin more focused explorations into positive changes and perceived benefits that PTSD researchers observed in some trauma survivors (Joseph, 2011; Joseph, 2019). Religions, philosophies, and various research literature have described their noted observations of this particular phenomenon using various terms. *Flourishing, quantum change, heightened existential awareness, positive changes in outlook, construing benefits, thriving, positive by-products, transformational coping, and stress-related growth* are all terms that have been used to describe what Tedeschi and Calhoun in 1995 labeled “posttraumatic growth” or “PTG” (Joseph, 2004; Joseph, 2019; Joseph & Linley, 2005; Maurer & Daukantaitė 2020). The term *PTG* is defined as the experience of positive psychological changes that result from navigating struggles associated with highly challenging circumstances or trauma (Jayawickreme & Blackie, 2014; Joseph, 2004; Joseph, 2011; Joseph, 2019; Joseph & Linley, 2005; Tedeschi & Calhoun, 1995; Tedeschi et al., 2018). The embracement of this term was to convey PTG as a process of positive transformational development

(Joseph, 2019) and has attracted interest in the topic from various disciplines and perspectives (Joseph, 2011; Joseph, 2019; Maurer & Daukantaitė, 2020). PTG and the positive changes in psychological well-being often associated with it can become a foundation for structuring an entirely new way of living, which is congruent with the central tenets of positive psychology (Joseph & Linley, 2005). Understanding what PTG is, requires a more in-depth knowledge of the primary facets of growth following adversity reported by those who have lived PTG experiences. One facet commonly reported with PTG is the experience of heightened altruism and compassion, accompanied by increased perception of value and appreciation for friends and family, leading to improved relationships (Jayawickreme & Blackie, 2014; Joseph, 2004; Joseph, 2011; Joseph, 2019; Joseph & Linley, 2005; Tedeschi & Calhoun, 1995; Tedeschi et al., 2018). A second commonly reported facet is a greater acceptance of limitations and vulnerabilities often coupled with changes in how people view themselves, perhaps observing a greater sense of wisdom, strength, and/or personal resiliency (Jayawickreme & Blackie, 2014; Joseph, 2004; Joseph, 2011; Joseph, 2019; Joseph & Linley, 2005; Tedeschi & Calhoun, 1995; Tedeschi et al., 2018). The third common facet reported was related to changes in an individual's life philosophy, often resulting in a reassessment of priorities reflecting an enhanced awareness of the fragility of life (Jayawickreme & Blackie, 2014; Joseph, 2004; Joseph, 2011; Joseph, 2019; Joseph & Linley, 2005; Tedeschi & Calhoun, 1995; Tedeschi et al., 2018). Also, people often report that they learn to interpret their trauma as an appreciated opportunity to grow while living in more authentic ways and feel inspired to help others through the benefit of sharing their

experiences (Joseph 2011; Joseph, 2019; Joseph & Linley, 2005; Tedeschi et al., 2018;). Once these common facets were discovered, researchers began to explore the general psychological processes involved with these facets of growth, and those examinations led to theory developments of PTG.

### **Trauma Exposure and Excessive Stress in First Responders and Veterans**

The unfortunate reality is that most people either currently or someday will know someone who suffers from PTSD because, in the United States, the projected lifetime risk for PTSD is 8.7% (American Psychiatric Association, 2013). PTSD can impact survivors of natural disasters, military veterans, police officers, emergency medical services workers, mass shooting survivors, domestic violence survivors, sexual assault survivors, firefighters, and countless others as well (Van Der Kolk, 2014). Although the circumstances that introduce PTSD into a person's life are individually unique, those who develop the disorder can experience common debilitating symptoms that often diminish the quality of their lives substantially (Joseph, 2019; Joseph & Linley, 2005; Maurer & Daukantaitė, 2020; Sciarrino et al., 2017; Splevins et al., 2010; Zacchaeus, 2020); and yet in the United States and around the world, the struggle to provide effective treatments continues. Currently, the literature reflects that an estimated 30% - 60% of those with PTSD continue to experience residual symptoms or have no symptom reduction at all despite having completed interventions that are both research-backed and considered to be the best protocols for treatment (Colegrove, 2020; Joseph, 2019; Lindenfield, 2018; Sciarrino et al., 2017; Tedeschi et al., 2018). Unfortunately, higher rates of PTSD are estimated for careers that require frequent exposure to trauma, such as first responders

and military personnel (American Psychiatric Association, 2013; Colegrove, 2020; Lindenfield, 2018). PTSD is far from the only negative outcome associated with the type of repeated trauma exposures that first responders and veterans typically experience. A variety of psychiatric injuries law enforcement officers can sustain that lead to an increased risk for depression, an array of stress-related medical conditions, alcohol-use disorders, and other trauma-related symptoms (Price, 2017). Also, police patrol officers, railroad police, and transit police experience some of the highest rates of illness and injuries across all occupations because of high-risk situations resulting in direct physical conflict with criminals (Bureau of Labor Statistics, 2020). The increased risk for law enforcement to develop psychiatric and or physical health issues related to their service is observed in the significant empirical support for an enhanced risk of excessively aggressive conduct, alcohol abuse, sleep disturbance, ischemic heart disease, PTSD, disability, and premature retirement, and relationship issues (Price, 2017). All of these potential issues can create not only suffering and a diminished quality of life for the individual impacted; but makes the entire community vulnerable to potential harm related to the individual's diminished cognitive and emotional functioning while on the job (Colegrove, 2020; Lindenfield, 2018; Price, 2017). An enhanced risk of psychopathology is associated with one or more traumatic exposure to severe human suffering, serious transportation accidents, explosions or fires, sudden violent or accident death (Setlack et al., 2021). These types of traumatic exposures were experienced by 80% of participants in a Canadian study of firefighters and paramedics, which is alarming because the probability of screening positive for anxiety, depression, and PTSD increases as the

number of traumatic exposures does (Setlack et al., 2021; Wheeler et al., 2018). Perhaps more alarming is that first responder and veteran populations are often thought to underreport the experience of symptoms and poor coping behaviors for fear of being judged as weak and or suffering long-term negative career repercussions (Colegrove, 2020; Lindenfeld, 2018; Wheeler et al., 2018). Emergency medical service paramedics (EMS) and emergency medical technician paramedics (EMT-P) are careers with an average tenure of just four years and have in recent years been experiencing severe personnel shortages leading to the prediction of an increase of 23%-33% growth in the field required through 2022 (Lindenfeld, 2018). Also, the unique work environments and organizational cultures associated with these professions can often be challenging barriers to the effectiveness of even the highest quality and evidenced backed treatment programs (Colegrove, 2020; Lindenfeld, 2018; Sciarrino et al., 2017; Setlack et al., 2021; Wheeler et al., 2018). Further examination of current literature reveals an urgent need for research to develop empirical evidence to support the utilization of alternative options for primary and adjunctive treatments for veterans struggling with PTSD. Currently, the most recommended research-backed therapies have low success rates that leave far too many at risk for additional mental health issues, substance abuse issues, and increased suicide risk (Sciarrino et al., 2017). There are significant emotional, physical, and financial costs associated with a lack of effective treatment for PTSD and chronic stress. There are also several potential challenges, including but certainly not limited to secondary mental health challenges, DUI arrests, domestic violence, and destruction of personal and social relationships that impact not only those who have PTSD but also their family, friends,



and the community surrounding them as well (Sciarrino et al., 2017). One of the most frustrating challenges is that even evidence-backed and currently employed “best option” treatments often leave patients with an incomplete response and or residual symptoms (West et al., 2017).

The United States Department of Veteran Affairs (n.d.) reported on their national PTSD website 30% of veterans of Vietnam have experienced PTSD in their lifetime, 12% of Gulf War veterans and 11%-20% of veterans of Operations Enduring Freedom and Iraqi Freedom experience PTSD in any given year. With increasing violence in these still ongoing operations and the expanding number of multiple deployments required of military personnel, it seems only a matter of time before PTSD rates will rise substantially, especially if such poor treatment results continue (Sciarrino et al., 2017) It is also essential to provide new avenues of approach for diminishing the risks for psychiatric impairments resulting from excessive work stress and trauma exposures that can compromise the performance of law enforcement officers (Price, 2017).

One extensive study in Canada examined 5813 correctional workers and emergency response workers, including police officers, dispatchers, correctional workers, firefighters, and paramedics, and the authors revealed that 44.5% were experiencing clinically significant symptoms associated with a diagnosable mental disorder, a shockingly high rate and estimated to be four times higher than the 10.1% for the general population (Lawn et al., 2020). A recently conducted systematic review of 27 international studies that provided data on 30,878 ambulance workers revealed that 27% experienced general psychological distress, 15% depression, 15% anxiety, and an 11%

rate of prevalence for PTSD (Lawn et al., 2020). Stress is often considered simply in the context of how it impacts an individual's mental and emotional wellness when in reality, physical ailments leading to body damage are often closely related to stress and trauma (Van Der Kolk, 2014). Muscular skeletal injuries, headaches, weight gain, sleep disruption, fatigue, exposure to dangerous pathogens, and dietary problems were all physical manifestations identified as common among ambulance personnel (Lawn et al., 2020). The idea that trauma and stress impact primarily the mind seems to persist in no small part because most research and treatment protocols related to PTSD and other stress and trauma associated disorders are focused and targeted on the mind (Van Der Kolk, 2014). Perhaps this mind specific focus is a result of the global expansion of medical research and knowledge regarding the individual systems of the body and has led us to be a bit too specialized in some instances and allows us to forget that as humans, we need. When something impacts a specific system in the body, the rest of the organism is impacted as well, so regardless of our conscious awareness, the entire organism needs proper treatment to fully recover when specific challenges to natural processes are endured (Levine, 2015; Porges, 2011; Sullivan et al., 2018).

### **Physical and Psychological Impacts of Trauma and Excessive Stress**

It is remarkable how effectively the human brain and body can facilitate the operation of so many exceptional functions simultaneously without an individual being consciously aware of the processes unfolding. While these primitive and instinctive responses are essential to our survival in life, when the system fails to regain equilibrium, significant struggle and negative impacts will eventually follow (Levine, 2015; Porges,

2011,; Van Der Kolk, 2014). An examination of the neuroscience of trauma reveals that the experience of a threat, significant stress, or traumatic situation is an entire organism experience that ignites an immediate primal and multi-system response designed to protect and preserve life (Levine, 2015; Sullivan et al., 2018; Van Der Kolk, 2014).

The polyvagal theory offers a more substantial explanation of how this intricately interconnected process transpires and can potentially impact outcomes during and after trauma (Dana, 2018; Levine, 2015; Porges, 2011). According to Polyvagal theory, the autonomic nervous system (ANS) is a component of the nervous system responsible for the regulation of involuntary functions like heart rate and breathing as well as self-protective responses including flight, fight, or freeze responses (Dana, 2018; Levine, 2015; Porges, 2011; Sullivan et al., 2018). The ANS is comprised of three complexes: the ventral vagal complex (VVC, a subsystem of the parasympathetic nervous system [PNS]), the sympathetic nervous system (SNS), and the dorsal vagal complex (DVC), also a subsystem of the PNS; (Dana, 2018; Levine, 2015; Porges, 2011). The VVC is the first complex of the ANS and is linked with the social engagement system as well as restore and rest responses; the second complex, the SNS is related to the flight or fight response; the DVC is identified with the freeze response when engagement and or escape are impossible (Dana, 2018; Levine, 2015; Porges, 2011). In addition to impacts related to ANS complexes, areas including the frontal cortex, limbic system, and brainstem are significant regions of the brain impacted by trauma as prescribed by the triune model of brain functioning (Dana, 2018; Levine, 2015; Porges, 2011). The frontal cortex is often referred to as the “thinking brain” because of its responsibility for executive and

intellectual functioning, self-awareness, verbal language, and conscious thought (Dana, 2018; Porges, 2011, Sullivan et al., 2018). The limbic system has been labeled as the “emotional brain” as it is responsible for implicit memory as well as emotional and somatosensory experience (Dana, 2018; Porges, 2011, Sullivan et al., 2018). The brainstem is referred to as the “instinctive brain” due to responsibility for our instinctive responses, impulses, and physical language of body sensations (Dana, 2018; Porges, 2011, Sullivan et al., 2018). Knowing the significant regions of the brain impacted by trauma provides a general understanding of how and why some typical PTS and PTSD symptoms can develop; however, to foster a deeper understanding of the dangers of leaving unresolved trauma to fester, it is imperative to understand three smaller areas within the triune brain (Dana, 2018; Porges, 2011). The first area is the periaqueductal gray (PAG), which is known as the most primitive danger detecting area of the brain and is part of the instinctive brain located in the brainstem (Dana, 2018; Porges, 2011). An individual’s senses can activate the PAG when a threat is detected, and that activation initiates the fight/flight or freeze response; unfortunately, this area can become dysregulated and remain in an overreactive state (continuously messaging the ANS to self-protect) following even a single traumatic experience (Dana, 2018; Porges, 2011, Sullivan et al., 2018). A second smaller area essential to consider is the amygdala, known as the body’s “smoke detector,” is located in the emotional brain and is responsible for using sensory and emotional information to determine if fight/flight or freeze is the appropriate response to the danger identified (Dana, 2018; Porges, 2011, Sullivan et al., 2018). The thinking brain houses the third smaller brain area important for trauma, the

medial prefrontal cortex (PFC), which is commonly referred to as the “watchtower” or “third eye” because it is located just above the eyes and serves to make sense of what is observed and decide how to (Dana, 2018; Levine, 2015; Porges, 2011). Unfortunately, when the PFC is impacted by trauma and becomes underactive, it can potentially diminish an individual’s ability to think, act, and respond appropriately (Dana, 2018; Levine, 2015; Porges, 2011, Sullivan et al., 2018). When the nervous system remains dysregulated following trauma, they might experience altered executive functioning and diminished cognitive capabilities as a result.

Traditional talk therapy is likely to be ineffective or, in some instances, even harmful for an individual with a nervous system on alert and diminished cognitive and executive functioning (Levine, 2015; Sullivan et al., 2018; Van Der Kolk, 2014). Although research from nearly every academic discipline has contributed to our general knowledge and understanding that human perception abilities under ideal circumstances are remarkable and can still be inaccurate because of endless physical and mental variables from person to person that influence how all sensory information is processed (Dana, 2018; Levine, 2015; Sullivan et al., 2018). When stress, anxiety, and or trauma are introduced, the diminishment of quality perception and accurate information processing are likely to be significantly reduced (Dana, 2018; Levine, 2015; Sullivan et al., 2018). While it should be evident that diminished cognitive functioning of any kind in military and first responder populations could prove catastrophic, a lack of proactive employee wellness programs (EWP) to enhance resilience and encourage consistent self-care to

promote commitment to optimal physical, mental, and emotional wellness would indicate otherwise.

Fortunately, research related to stress, trauma, PTSD, and neurobiology has continued to expand our knowledge of the complex and primarily unconscious physiological and psychological reactions that often accompany traumatic experiences. As a result, researchers have begun to recognize a need for a whole-body approach to treatment (Macy et al., 2018; Reinhardt et al., 2018; Sullivan et al., 2018; West et al., 2017). This recognition is reflected in an increased interest in the examination of viable alternatives to traditional treatment modalities for those struggling to regain equilibrium following traumatic exposure.

### **Yoga for Stress, Anxiety, Trauma Recovery, and PTSD**

As previously mentioned, PTSD affects approximately 21 million Americans or 7%-12% of our population, with veterans disproportionately impacted and despite a wealth of resources available for treatment, a variety of reasons typically contribute to delays or refusal to seek treatment (Davis et al., 2020). Poor treatment outcomes with traditional evidence-backed treatment protocols have contributed to increased interest and pursuit of treatments related to complementary and integrative health (CIH) modalities (Davis et al., 2020). In addition to a shift from the traditional term complementary and alternative medicine (CAM), CIH treatments are desirable to those with concerns regarding adverse impacts associated with medications, poor efficacy of traditional psychotherapeutic approaches, and prefer a more active role in managing their treatment (Davis et al., 2020).

Yoga is an ancient practice that researchers have begun to explore as one potential assistive intervention for several mental and physical health challenges, including but not limited to pain, stress, anxiety, diabetes mellitus, depression, chronic heart failure, schizophrenia, menopausal syndrome, metabolic syndrome, obesity, and PTSD (Mocanu et al., 2018). The Sanskrit word *yuj*, which means to attach and yoke, bind, join, to use and apply, concentrate and direct one's attention on, and communion or union; is the origin from which the word *yoga* is derived (Davis et al., 2020; Iyengar, 1965; M. C. Joseph et al., 2019). Yoga encourages disciplining the mind, emotions, will, and intellect so practitioners can observe life in all aspects evenly (Davis et al., 2020; Iyengar, 1965; M. C. Joseph et al., 2019). The primary purpose of ancient yoga traditions is to alleviate suffering and bolster optimal mental and physical thriving (Mocanu et al., 2018). One such tradition, Raja yoga, proposes that suffering can be relieved through the practice of eight limbs that signify observance of universal ethical and moral principles, calming of the senses, individual self-restraint, concentration, meditation, breath control, physical postures, and pure contemplation (Mocanu et al., 2018). Yoga philosophy encourages mindful self-awareness, so practitioners become empowered to more accurately interpret their experiences and select appropriate responses.

It is primarily the mindfulness elements of adjunct therapies like meditation, yoga, and Tai Chi that have captured the interests of researchers from various disciplines resulting in a rapidly expanding body of research related to a variety of intervention approaches and targeting an array of populations. Military populations (including active duty, reservists, veterans, and their families) often participate in CAMs and mindfulness

practices to proactively manage stress and supplement traditional therapies (Bonura & Fountain, 2020). In one survey of retirees, active-duty military personnel, and their spouses, 81% of respondents reported the use of mindfulness techniques and/or CAM strategies as part of their health care plan and were in favor of CAM treatment options being available for use at military treatment facilities (Bonura & Fountain, 2020). Unfortunately, this survey combines veterans with both active-duty personnel and their spouses leaving no way to know the percentage of veterans specifically using and in favor of mindfulness practices being offered.

Despite mind–body therapies being a newer area of research interest, a few quality studies have reviewed and synthesized current literature and provide suggestions for expanding related research endeavors to cultivate additional empirical evidence regarding alternative approaches to treatment for stress, anxiety, depression, and PTSD. One such review examined available evidence within the literature supporting the use of yoga as a CAM for those battling PTSD (Sciarrino et al., 2017). These authors identified 486 studies across five databases that met essential criteria for inclusion; however, when additional criteria were added to further filter results, researchers were left with just seven peer-reviewed articles that examined the effectiveness of yoga for PTSD (Sciarrino et al., 2017). Although this review discovered potentially encouraging findings, similar to other research related to this topic, limitations ranging from small sample size to lack of intervention execution transparency contributed to a diminishment of the overall significance of reported findings (Sciarrino et al., 2017). Researchers offered several helpful suggestions for future research to be carried out more effectively so the field can



build evidence for understanding all associated risks and potential benefits of yoga programs for PTSD. One key recommendation was to allow the field to develop and employ yoga programs then research program impacts and outcomes (Sciarrino et al., 2017). This approach creates an opportunity to examine then share sequencing and other execution instructions more specifically across the field to improve study design, improve participant retention rates, and by extension, the significance of findings (Sciarrino et al., 2017). Research efforts that can investigate the experiences of those who have used yoga as a tool for wellness are necessary to gather essential information that can contribute to the construction of effective programs for individuals and organizations.

In 2018, Cushing and Braun conducted a systematic review focused on studies of post 9/11 veterans and mind–body therapies for PTSD specifically related to combat experience (Cushing & Braun, 2018). Their database searches revealed a total of 175 records, and after filtering, 15 studies were found to meet all criteria for review inclusion (Cushing & Braun, 2018). All 15 studies involved programs that included gentle or seated yoga, breathing exercises, meditation, or mantra repetition, with 14 of 15 studies reporting a 70% or higher participant retention rate (Cushing & Braun, 2018). Review results revealed significant improvements in PTSD symptoms, reduced anxiety and depression, and improved sleep quality and mindfulness following mind–body interventions that are encouraging; however, as noted in most studies related to the topic, several limitations impede the significance findings (Cushing & Braun, 2018). An additional limitation related to participants for this review, while post 9/11 veterans participated in all studies included, approximately 85% of the overall participants served

in Vietnam or conflicts other than 9/11 (Cushing & Braun, 2018). The authors make many suggestions for future researchers to consider including, learning more about potential barriers to using these practices, long-term effectiveness, approaches to overcome identified barriers, and if these approaches can help improve PTSD resilience (Cushing & Braun, 2018). Examination of the lived experiences of veterans and first responders already using yoga as a tool for wellness can provide essential information to the field to improve future research.

Another critical study conducted in 2018 (Macy et al., 2018) was a meta-review of yoga for trauma and related mental health problems. These researchers sought to investigate claims from health and human services providers that many individuals were successfully using yoga to cope with posttraumatic experiences such as depression, anxiety, and PTSD (Macy et al., 2018). Researchers wanted to examine available evidence regarding the efficacy of yoga for mental health purposes and discover what current clinical recommendations are offered for the use of such programs (Macy et al., 2018). This meta-review explored 13 literature reviews that, in total, examined 185 studies, one of which was a meta-analysis (Macy et al., 2018). Consistent with other research, findings were encouraging yet preliminary with limited significance because of various limitations and overall lack of rigor related to studies conducted (Macy et al., 2018). One crucial limitation noted by the authors was a lack of consistency in some research efforts that make it impossible to effectively analyze and synthesize findings in any meaningful way (Macy et al., 2018). Yoga interventions studied were different regarding program duration, type and length of classes, practice environments, teacher

qualifications and methods, outcome measurements, and assessment tools employed (Macy et al., 2018). The authors suggest that yoga programs only be offered as a complementary treatment until reliable evidence becomes available to support specified guidelines and prescriptions for use (Macy et al., 2018). It was suggested that future researchers focus on improved rigor and consistency along with larger sample sizes that will provide viable findings (Macy et al., 2018). Again, it is clear that learning how and why individuals have chosen to use yoga is imperative to design future studies that can recruit and retain large numbers of participants and produce quality findings that can be used as evidence regarding the effectiveness of such programs.

Additional related literature is also limited because most studies conducted thus far have focused primarily on how yoga impacts symptoms when used as a short-term alternative or supplemental intervention. In conjunction with several others, these limitations have diminished the significance of potentially positive findings reported in many studies (Macy et al., 2018; Reinhardt et al., 2018; Steele et al., 2018). There is now a heightened urgency to examine potential positive and negative implications of using alternative treatment modalities like yoga in veteran and first responder populations because current literature provides little more than a scratch on the surface of what needs to be explored and more and more non-traditional programs are being marketed for veteran and first responder populations without evidence of potential outcomes (Macy et al., 2018). It is essential to distinguish what elements of yoga practice are most impactful and why so when programs are modified for clinical or organizational settings, key

benefits are not stripped away, while honoring the unique cultural considerations necessary for these unique populations.

One promising yoga alternative intervention study involved Australian veterans with combat-related PTSD who continued to experience significant symptoms despite traditional PTSD treatments (McCarthy et al., 2017). Researchers used an eight-week pre-intervention waiting period to test and monitor study participants and establish baseline data for specific biomarkers and a variety of other assessments, including PTSD checklist (PCL); the Pittsburgh Sleep Quality Index (PSQI); the Adult/Adolescent Sensory Profile (AASP); the SF36 Quality of Life instrument; the Depression, Anxiety, and Stress Scale (DASS), and a brief structured pre-enrollment attitudes towards yoga assessment (McCarthy et al., 2017). Analysis of of pre and post-intervention data reflected significant improvements in SF36 and PSQI scores and decreases in all DASS sub-scale scores, and decreased PCL overall score and sub-scales with no adverse events reported (McCarthy et al., 2017). Participants also reported an additional array of benefits such as reduced stress and an amplified sense of wellbeing following the yoga intervention (McCarthy et al., 2017). Like so many other yoga-related studies, limitations related to study design somewhat diminish these seemingly significant findings.

A 10-week randomized yoga intervention of veterans and active-duty military personnel diagnosed with PTSD was very well designed; unfortunately, it was also plagued by limitations of low recruitment and high dropout rates that significantly diminished any potentially promising findings (Reindardt et al., 2018). This study utilized a control group, a yoga intervention group, and a wait-list yoga control to collect data pre

and post-intervention using the 30 items semistructured Clinician-Administered PTSD Scale (CAPS) interview tool (Reindardt et al., 2018). Additional data was collected pre, mid, and post-intervention with other data collection tools, including the 17 items self-report questionnaire labeled the PTSD Checklist (both the PCL-Military and PCL-Civilian versions were employed) and the Impact of Events Scale-Revised (IES-R), which is a 22 item self-report measure (Reindardt et al., 2018). Although some findings from this study seem promising, a 51% dropout rate and other limitations reduced the significance of results (Reindardt et al., 2018) to only viable evidence of the need to learn more about the lived experiences of veterans who have successfully used mindful interventions like yoga to heal so that future yoga intervention studies might be better designed, have larger sample sizes, and retention rates to improve the significance of results.

In London, Kidd and Eatough (2017) investigated the relationship between yoga practice and overall wellbeing from an experiential qualitative perspective. They used semistructured interviews to examine the lived experiences of five men living in London who regularly practiced yoga for a year or longer. Researchers then employed interpretive phenomenological analysis (IPA) to verbatim transcripts from participant interviews which revealed four interrelated experiential themes including personal meaning and significance of yoga practice concerning their sense of overall wellbeing; mind-body connection inherent in their practice; an enhanced sense of physical and emotional awareness; and the transformative and stabilizing effect of the practice on their lives (Kidd & Eatough, 2017). The authors were careful to point out that the use of IPA

was intentional to extract the lived experiences of these men rather than to understand yoga (Kidd & Eatough, 2017). This study offers some initial insights into possible experiences related to yoga practice; however, results are valid for limited purposes and relatable to a very narrow population.

Another promising qualitative study on trauma-sensitive yoga (TSY) for PTSD examined the perceived changes and growth experienced by 31 women with chronic PTSD related to childhood trauma after completing a 10-week trauma-sensitive program (West & Spinazzola, 2017). The 31 participants were recruited from a previous study in which they were in a randomized control group; the current researchers sought to fill gaps from the original study and find out if participants perceived changes in symptom experience during participation in the yoga program and, if so what if any impact did they associate with the TSY program (West & Spinazzola, 2017). Semistructured interviews were created using PTSD broad symptom categories and OVP theory of growth as guides to extract data aligned with perceptions of symptom changes and growth related to the yoga experiences (West & Spinazzola, 2017). Data analysis of verbatim transcripts led researchers to the identification of five themes: gratitude and compassion, relatedness, acceptance, centeredness, and empowerment that were provided in the acronym GRACE (West & Spinazzola, 2017). This study reflected highly encouraging findings in support of using TSY for women with chronic PTSD, which is significant; however, the usefulness of these findings relates to a particular and limited population.

Another qualitative study conducted in Canada in 2015 examined yoga intervention experiences in patients with PTSD (Jindani & Khalsa, 2015). These

researchers cited a significant imbalance related to the study of yoga interventions. They expressed that while several quantitative studies of yoga interventions focused on PTSD symptom improvement were available in the literature; while an absence of qualitative explorations of the lived experiences of yoga intervention participants remained (Jindani & Khalsa, 2015). A total of 40 study participants with PTSD (verified by screening with the Post-Traumatic Stress Disorder Checklist (PCL-17)) participated in a semistructured telephone interview following their completion of an 8 week trauma-sensitive Kundalini yoga program (Jindani & Khalsa, 2015). After researchers transcribed all interviews they employed qualitative thematic analysis to extract critical information regarding this topic on which little is currently known (Jindani & Khalsa, 2015). Their analysis initially revealed three hundred codes that were refined into twelve major codes before being clustered into three predominant themes (Jindani & Khalsa, 2015). The primary themes were self-observed changes (subthemes: mind, body, relationship, emotional changes, self-reflection, cognitive, action-behavioral, and psychosocial), new awareness (subthemes: perceptions of prior trauma, medical interventions and spirituality), and yoga program (subthemes: program development, home practice, and group support) (Jindani & Khalsa, 2015). Findings from this descriptive qualitative study are encouraging and the authors suggest further research is need in mind–body interventions for trauma recovery and suggest investigations related to appropriate timing for introduction of mind–body interventions because it is an area of debate among experts (Jindani & Khalsa, 2015) exploring the lived experiences of first responders using yoga is likely to provide some

initial insights into the impacts of yoga practice when used pre and post traumatic exposure.

### **Summary and Conclusions**

Current research regarding yoga as a CAM for a variety of mental health issues such as depression, anxiety, and PTSD is consistently potentially encouraging while lacking rigor attributable primarily to limitations related to flaws in study design, low participant recruitment rates, poor participant retention rates, and lack of long-term follow-up data (Macy et al., 2018; Reinhardt et al., 2018; Steele et al., 2018). An examination of the lived experiences of first responders and veterans using yoga successfully contributed rich descriptive information that researchers can consider when designing future large scale studies to improve participation and retention rates so findings can provide significant empirical evidence of efficacy or lack thereof. Yoga programs are expanding on a daily, if not faster rate, in the United States. More and more of these programs are being marketed for specific populations and sometimes promising incredible results with no evidence or scientific support of efficacy or potentially harmful side effects.

It was paramount to understand the lived experiences of veterans and first responders who have discovered and rely on yoga as their primary tool for coping with excessive stress and traumatic experiences to understand better if, why, and how it has been effective. Analyzing the experiences of those using yoga provides organizational leaders with a better understanding of the potential implications of offering yoga and



other mindful practices as options for EWPs and provides vital data for future research study design improvements.

### Chapter 3: Research Method

It was unknown to the scholarly community what the lived experiences are for first responders and veterans who practice yoga to cope with the traumatic situations they frequently experience. The purpose of this qualitative study was to explore and describe the experiences of veterans and first responders who regularly practice yoga for coping with traumatic exposures, depression, posttraumatic stress, and or anxiety associated with their work. Learning how these individuals perceive the impacts of yoga on their physical, emotional and mental health, relationships, interactions with others, and the quality of their work performance provided a greater understanding of why they have committed themselves to practicing yoga regularly.

A review of current literature related to yoga as a CAM for veterans, first responders, and various other populations revealed an area of research primarily focused on evaluating the effectiveness of short-term yoga intervention programs by measuring symptoms pre- and post-intervention. In keeping with the medical model approach to the treatment of illnesses and disorders, randomized control trials are considered the optimal approach for the development of evidence-based practice with meta-analysis and systematic reviews are typically more valued and prioritized over other methodologies (Capon et al., 2019). Unfortunately, small sample sizes, high dropout rates, inconsistencies in the duration and type of yoga being examined, and various approaches to outcome measures are some of the methodological drawbacks that have diminished the significance of related findings (Capon et al., 2019). It can be argued that an overemphasis on quantitative methods to explore yoga has created a gap in our

understanding of critical practice-based evidence that can potentially be gleaned from qualitative methods (Capon et al., 2019). Understanding why yoga is impactful and effective or not is essential knowledge for organizational leaders tasked with maintaining programs to support the health and welfare of the first responders, military personnel, and veterans who serve and defend our communities.

The sections that follow explain the evidence for research methodology and design, research protocols, the role of the researcher, potential bias, processes to reduce potential bias, ethical considerations, participant selection criteria, participant recruiting, participant debriefing, sample size, and saturation, data collection methods, transcribing protocols, coding protocols, data analysis protocols, reporting protocols, trustworthiness, ethical procedures, all related limitations that were utilized for this study and a summary of the information provided.

### **Research Design and Rationale**

This qualitative examination was guided by the following research questions:

- RQ1: How do first responders and veterans who practice yoga for posttraumatic stress, anxiety, and coping describe their experiences with the intervention?
- RQ2: How do these first responders and veterans perceive the effectiveness of yoga for symptom improvement, overall wellbeing, and work performance?

As previously mentioned, an increased interest in alternative treatments for PTSD, depression, anxiety, and other mental health issues led to several quantitative studies aimed at evaluating the effectiveness of yoga as an intervention. Despite important and

meaningful findings from a majority of such studies, most fall short of providing clear empirical evidence in support of such interventions. A shortage of qualitative research examining the experiences of individuals participating in yoga programs is a gap in the literature that, if bridged, could provide critical information for future researchers to consider in quantitative study design that could be influential to participant retention rates. As a result of the current qualitative gap, it remained unknown to the scholarly community what the lived experiences are for first responders and veterans who practice yoga to cope with the traumatic situations they frequently experience. The purpose of this qualitative study was to explore and describe the experiences of veterans and first responders who regularly practice yoga for coping with traumatic exposures, depression, posttraumatic stress, and or anxiety associated with their work. It was essential to understand how these individuals perceive the impacts of yoga on their physical, emotional, and mental health, relationships, interactions with others, and the quality of their work performance.

This study was well suited for a qualitative approach because although individuals experience and recover from stress, anxiety, depression, and traumatic exposures in their own unique way, the support and comfort of a community can be incredibly impactful on coping and healing recovery processes. The naturalistic context afforded by a qualitative effort provided for the consideration of information that would have been excluded from a quantitative inquiry (Patton, 2014). The OVP theory served as the foundational framework for examining how yoga impacts veterans and first responders. This theoretical framework was focused on examining participants' perceived changes in

coping behaviors and any growth associated with yoga practice (Joseph & Linley, 2005). Understanding how participants experienced integration into a consistent yoga practice and why they believe it is effective illuminated potential connections between yoga and PTG.

While several viable sources and methods of data collection could have been chosen for this phenomenological qualitative study, semistructured interviews were utilized. I conducted these semistructured interviews with first responders and veterans who have engaged in a consistent yoga practice for coping with excessive and or posttraumatic stress, depression, anxiety, and or PTSD for at least one year. Collecting data with this approach extracted data that genuinely reflected the participants' lived experiences and how they perceive yoga as an intervention. This information was essential to identify if the OVP framework impacted how participants perceive yoga, the effectiveness of the practice, and why.

Although yoga research thus far has focused primarily on its potential as a CAM, psychology, in general, has begun to realize that many yoga and related Eastern traditions mirror or complement several assumptions of Western psychological traditions (Mocanu et al., 2018). For example, a comparison can be made between the aim of yoga practice to reduce mind wandering (Mocanu et al., 2018), improve concentration, and enhanced sustained focused awareness (Harris, 2019) and Western understandings of reduced rumination and enhanced focused attention (Mocanu et al., 2018). Reframing, goal-setting, self-regulation, and cognitive reappraisal are top-down cognitive means employed in conjunction with many cognitive-behavioral treatments (Monaco et al.,

2018) and comparable to yoga's aim to promote unbiased observations and acceptance. Hence, individuals can navigate the most challenging of experiences with less pain and suffering. It is impossible to understand the potential impact of yoga practice on pain and suffering without knowing the individual's lived experiences, and quantitative methods cannot unearth this richly valuable information (Patton, 2014). This information is paramount to enhancing our understanding of how yoga might impact the intricate connections between body and mind as experienced and recounted by the individual, rather than being measured by a standardized tool.

A 2019 study of the oral histories of World Trade Center disaster responders provided further support for a qualitative investigation of first responders lived experiences following trauma (Hammock et al., 2019). This study revealed specific rich details that could only be extracted from the authentic expression of personal experiences which added vital context to the data and the discovery of new insights that complicate current models of post trauma relationship functioning (Hammock et al., 2019). These findings will arm researchers with valuable information to consider when designing future studies related to first responder relationships following trauma. Another recent qualitative analysis of first responder online trauma narratives offers additional evidence for the need to expand qualitative research related to first responder wellness (Casas & Benuto, 2022). This study analyzed 30 first responder narratives voluntarily submitted to a first responders' online peer support website designed to offer first responders an outlet for sharing their experiences anonymously (Casas & Benuto, 2022). Researchers explained the use of linguistic analysis followed by content analysis using a thematic

analysis framework that revealed that while first responders desire the social support of peers; they prefer to share their experiences with non-familiar peers rather than co-workers (Casas & Benuto, 2022). This information is imperative for organizational leaders to consider when developing employee wellness programs and services for their personnel and could only be discovered using qualitative inquiry.

### **Role of Researcher**

A researcher is an inseparable part of data collection in qualitative research, specifically when using semistructured interviews, which impose the possibility of the researcher's perceptions and/or bias influencing the validity of the inquiry (Patton, 2014). The goal is not for the researcher to be void of bias, as this is generally understood to be an impossibility; the goal is instead to acknowledge and examine all perceptions and potential biases that are likely to influence the research and then ensure transparency and reflexivity to retain constant awareness of bias and preserve the integrity of data collection.

The process of conducting an interview makes the researcher's role one of observer-participant because participants are aware of the research and chose to participate, meet the researcher, and continuously interact with the researcher throughout data collection processes (Patton, 2014). It is essential to note that participants' biases and perceptions regarding the research focus and researcher could have impacted their responses and enhanced or diminished the type and extent of authentic information they were willing to share. Unfortunately, these participants had no obligation to be forthcoming or evaluate their perceptions and potential bias, so extracting the most

accurate data was mainly dependent on how participants felt about the interviewer. Rapport development was paramount to success of the semistructured interviews conducted, and such rapport establishment required an appropriate level of trust and credibility to be created with each participant (Patton, 2014). Transparency was a critical element of establishing trust and credibility to ensure genuine human interactions, and being transparent with participants allowed for successful interview outcomes.

### **Methodology**

As previously mentioned, military personnel and first responders typically experience notably higher rates of stress, anxiety, and trauma exposure than do the general population. In addition to risks associated with duty requirements and complex work environments, there is an additional challenge of unique organizational cultures that have historically devalued those seeking help for mental health, despite policies and programs that encourage and provide help (Haugen et al., 2017). Understanding how veterans and first responders using yoga have been successfully introduced to the practice despite typical specific cultural misconceptions that mindfulness practices are contrary to the hero-like mentality typical in first responder and military environments (Bonura & Fountain, 2020) provided essential knowledge that might be helpful for leaders creating future wellness programs. Qualitative methods afforded the opportunity to learn what specific motivations, influences, and other factors were impactful for participants ultimately embracing yoga as an effective tool. This information might be helpful for improving research designs for randomized control trial studies by understanding how to effectively recruit and retain participants to achieve larger sample sizes, lower dropout



rates, and more uniformity in yoga program types and durations to investigate and contribute to improvement in the quality of research and significance of related findings.

### **Participant Selection Logic**

#### ***Participants***

A participant population comprised of veterans (i.e., individuals who have served in any branch of the U.S. Armed Forces) and first responders (i.e., police, firefighters, emergency medical technicians, and disaster response workers) created an opportunity to examine perceived benefits, risks, limitations, and other experiences associated with a consistent yoga practice utilized to maintain health, encourage recovery, and or enhance resilience. The vital information discovered is of potential value to leaders seeking to improve critical personnel's health, wellness, and work performance. This population was ideal for examination of the possibilities associated with the utilization of yoga practice on chronic stress, anxiety, and trauma because of their typically higher levels of work associated stressors, constant trauma exposures, challenging and consistently evolving work environments, and difficulties achieving positive outcomes with traditional therapeutic methods of intervention for PTSD and plethora of other mental and physical illnesses and disorders.

#### ***Sampling***

Criterion sampling was used for this qualitative phenomenological study. This sampling approach is commonly used with phenomenological endeavors and is employed by choosing to include only participants who meet specified criteria and have lived experiences with the phenomenon being investigated (Moser & Korstjens, 2018). It is

commonly suggested that eight to 12 or fewer interviews are appropriate for phenomenological research because data from 10 interviews will typically achieve data saturation (Moser & Korstjens, 2018). Data saturation is determined to have been accomplished when sufficient data to highlight categories, variety, and/or patterns has been collected (Moser & Korstjens, 2018). A target of eight to 12 participants was estimated to be sufficient for this research effort; however, data saturation was achieved at six participants and collaborative decision-making effort employed with the dissertation committee confirmed this as the final number of participants (Moser & Korstjens, 2018). This sample size was also appropriate because a dissertation with specific time constraints and resource restrictions requires a sample size that a researcher can reasonably collect and analyze data from (Moser & Korstjens, 2018). Prior to engagement in any participant recruitment or interviewing activities, institutional review board (IRB) approval was solidified.

### **Instrumentation**

The primary data collection instrument used for this study was a semistructured interview. I used current literature and study research questions to construct a 20-question interview guide focused on learning how and why yoga practice is used and its perceived impacts on wellness, work performance, resilience, and growth. Follow-up questions were incorporated as necessary to improve clarity or explore potentially crucial additional information. Understanding how participants experienced integration into a consistent yoga practice and why they believe it is effective illuminated potential connections

between yoga and enhanced PTG. A 90-minute maximum time allotment was designated for each interview, and the average interview time was 75 minutes.

### **Instruments Developed by Researcher**

As previously stated, both research questions and current literature were used to guide the creation of 20 semistructured interview questions. Having these designated research interview questions ensured that all participants answered the same questions when responding about their experiences. My dissertation committee verified the finalized interview questions before I conducted rehearsal interviews with two family members via Zoom to simulate the interview experience, evaluate question effectiveness and identify potential issues. Feedback and refinement suggestions from rehearsal participants indicated that and no changes to the research interview questions were necessary.

### **Procedures for Recruitment, Participation, and Data Collection**

#### ***Recruitment***

Finding study participants for this research effort was quite straightforward. I shared recruitment flyers across a variety of platforms and social media outlets. Using this approach to participant recruitment resulted in the geographical diversity of participants, which offered more depth and dimension to the data collected. Flyers containing the study information were provided to assistive organizations and shared with law enforcement, first responder, and veteran agencies on social media as well. All interviews were conducted using the online program Zoom. This application platform allowed for online face-to-face interviewing; it is a well-known and accepted way to

communicate that is used daily in various professional fields and across global locations. With participant consent, audio recordings were made of all interviews to ensure accurate transcribing for data analysis.

Research inclusion criteria for this project included the following: all participants must (a) be a first responder or veteran consistently practicing yoga to manage stress-related symptoms associated with their prior service or current work for at least 12 months, (b) be willing to participate in a semistructured interview via Zoom, (c) confirm yoga participation as “consistent” as defined by study criteria (consistent practice is an average of two days per week or eight classes per month for a least one year before being interviewed), and (d) have a reliable device with internet access and already have or be willing to download the Zoom program.

Research exclusionary criteria for this project included the following: Any veteran or first responders who failed to meet population or yoga practice criteria.

### ***Participation***

When prospective participants made contact via email, I reviewed the information received and responded to all interested potential participants. Verifying how each participant learned of the study and motivation to participate was covered during the pre-participation screening email which confirmed that the individual met study inclusion criteria as already described. Demographic information collected was limited to the individual’s age, relatable work experience, and gender. After participant interest and eligibility were confirmed, an informed consent form was emailed to the participant for completion; once the completed informed consent was received a date and time was set

for conducting the interview. Informed consent and recording permission were discussed again at the beginning of each interview. Interviews were conducted on a rolling basis so that as soon as a participant is enrolled in the study their interview was scheduled, conducted, transcribed, reviewed for accuracy (after transcription of each interview was complete, a summary of the interview was emailed to the participant for verification of accuracy and the opportunity to amend any information they found inaccurate within seven days), and then analyzed.

### ***Data Collection***

All data for this study was collected from semistructured interviews. After participant interest and eligibility were confirmed, a digital copy of informed consent was emailed to the participant for completion and after informed consent was completed, a date and time was set for conducting the interview. Each participant was contacted within 24 hours of the scheduled appointment time to confirm their appointment. Additionally, this ensured the participant received the appropriate Zoom link and security code for their interview appointment.

### **Zoom Interviews**

Virtual Zoom interviews were conducted from my office space. This area provided a neutral and distraction-free environment. Before each interview, audio recording equipment was prepared and working order verified. I logged in to the secured Zoom meeting 10 minutes before each scheduled interview to verify that all technological elements were functioning correctly.

Once the participant joined the Zoom meeting, I greeted the individual professionally, thanked them for their participation, and engaged the participant in a brief rapport-building conversation to establish a sense of ease to enhance the openness of communication (see Patton, 2015). Informed consent was reiterated and verified as well as consent to audio recording, and once verified, the recording was started. I explained the purpose of the study and emphasized that all participation was optional, and the participant could choose not to answer questions or stop the interview at any time. Privacy and confidentiality considerations and procedures regarding participation were covered at length to ensure understanding.

The 20-question researcher-developed and dissertation committee-approved interview guide ensured the same questions were asked of all participants, and I annotated all interview notes directly on my printed copy. As appropriate, follow-up questions were asked to improve clarity, understanding, or further probe content the researcher found relevant. I noted verbal and nonverbal responses from participants and remained mindful of shifts in stress, anxiety, or discomfort displayed and, none of the participants displayed or expressed any signs of distress.

There was a minimal risk that this interview could cause psychological injury, so participants were provided with a list of mental health providers (on their informed consent document) whom they could contact if their participation resulted in excess stress, anxiety, depression, or other psychological difficulties. At the close of the interview, a short debriefing was conducted to explain the remaining process of transcription and participant summary review.

## **Data Analysis Plan**

I transcribed all interviews and used a variety of coding processes to analyze data retrieved; this was a continuous process as data collection unfolded. Open coding is a process appropriate for all qualitative data and was used as the first level of coding to separate data into parts to examine similarities and differences (Williams & Moser, 2019). The open coding process was imperative for the development of categories supported by code notes and related to the text provided by participants and for cultivating categorizing codes (Williams & Moser, 2019). Second level axial coding was then be used to create core codes based on relationships identified between open codes (Williams & Moser, 2019). Selecting coding was used for third-level coding, which allowed for the facilitation of meaning construction and refined expression of the data (Williams & Moser, 2019). Also, the qualitative data management software Nvivo Plus facilitated the management of data and helped to simplify secondary coding efforts (Moser & Korstjens, 2018).

## **Trustworthiness**

Qualitative researchers strive to achieve trustworthiness which is accomplished when consumers of the resulting literature have confidence in the information reported yet would not expect exact replication of the researcher's reported findings in their application of the same study (Korstjens, & Moser, 2017, 2018; Stahl & King, 2020). Trustworthiness is typically enhanced when researchers rely on the evaluation of four general criteria: credibility transferability, dependability, and confirmability (Korstjens, & Moser, 2017, 2018; Stahl & King, 2020) when conducting qualitative research efforts.

**Credibility**

Credibility is typically quite subjective because it seeks to explain how research findings are congruent with reality, and such assessment of congruence is based upon individual judgments (Stahl & King, 2020). Credibility enhancement in qualitative research is frequently achieved using one or more triangulation techniques such as theoretical triangulation, data triangulation, investigator triangulation, or environmental triangulation (Stahl & King, 2020). Triangulation optimizes credibility by using various procedures or sources of information to recognize patterns across data (Stahl & King, 2020). The use of veterans and first responders as participants created environmental triangulation because of subtle differences in participants' working situations and various contexts under which they experience stress and trauma. In addition, investigator triangulation was employed with the dissertation committee as both members evaluated the data analysis process and shared their conclusions for analysis interpretations.

**Transferability**

Transferability can be challenging as it is easily confused with the quantitative research aim of replicability, which qualitative research cannot and does not seek to achieve (Stahl & King, 2020). Transferability can be appreciated as a recommendation that can be researched for applicability to other contexts rather than a recipe to be followed for replicating results (Stahl & King, 2020). When researchers provide quality detailed descriptions of observations used for data collection, it vastly improves the transferability of reported findings. I annotated detailed notes throughout each interview



to ensure rich details are provided to convey the most vivid picture of participants' experiences possible to readers.

### **Dependability**

Dependability provides the trust element in qualitative research trustworthiness (Stahl & King, 2020). Peer debriefing is a commonly recommended method of developing trust in qualitative research (Stahl & King, 2020) and was employed for this research endeavor. Two peers evaluated data analysis for feedback and professional insights in addition to what was provided by the dissertation committee for peer debriefing. Another method for improving trust in qualitative research that was employed for this research effort is bracketing. Bracketing is a practical approach for reflexive auditing of researcher bias and potential influences on data collection and analysis (Stahl & King, 2020; Tufford & Newman, 2012). Bracketing ensured that I remained aware of my bias and annotated measures employed to prevent bias from impacting trustworthiness.

### **Confirmability**

Confirmability is accomplished when the researcher gets as close to objective as possible for a qualitative examination (Stahl & King, 2020) of the phenomenon. Auditing the research processes selected, data analysis procedures employed, field notes, bracketing memos, and other applicable research materials evaluated by a professional unrelated to the research project is a primary approach for achievement of confirmability in qualitative research (Moser & Korstjens, 2018). I submitted all documents for

evaluation by the professional staff at the Walden Writing Center to achieve enhanced confirmability for this project.

### **Ethical Procedures**

Adherence to the highest ethical standards is imperative for successful engagement in quality qualitative research. Participant confidentiality, prevention from psychological or physical harm, and respectful treatment of all participants are crucial for ethical research (Gabbidon & Chenneville, 2021). Informed consent is a necessary process of ensuring an ethical research project is carried out. It is essential to ensure that each participant fully understands that their participation is optional, and the individual can cease participation at any time without penalty or explanation. Detailed information on how participant data is protected was explained to all participants to ensure transparency of the process as well. A listing of mental health providers participants could contact if they experienced any psychological harm as a result of being interviewed was also included on the informed consent document.

### **University IRB Approval**

No arrangements to conduct research were made until after IRB approval #08-25-22-0425721 was secured. All applicable regulations that guide the IRB approval processes were stickily adhered to. I remained vigilant throughout the process to ensure applicable research restrictions were honored as well.

### **Informed Consent**

Interested potential participants were instructed to email the researcher if interested in participation. Participant eligibility was verified via email, and individuals

who confirmed a wish to participate were provided with the digital informed consent form as an attachment with their interview appointment confirmation email. Participants needed to select “I consent” on their return form to be included in the study.

Included in the informed consent for this study was an overview of the purpose, uses, processes, related activities, participation timeframes, and related potential risks. This document also covered the utterly voluntary nature of participation and the option to discontinue participation at any time for any reason without penalty. All confidentiality processes were explained in detail and security measures for all data from collection to destruction. Participant questions and concerns were addressed to ensure everyone was completely informed and comfortable with how the research process unfolded.

### **Confidentiality Measures**

When each participant was enrolled in the study, a file was generated and a case number assigned for tracking all collected data, including audio interview recording. A linking list document was used to track participant real names until member checking was completed. I retained this electronic document in a password-protected file saved in an encrypted format on an external hard drive I purchased for securing all research data. Once the member checking process was complete, the document was deleted to satisfy the destruction of this sensitive information to support participant confidentiality. Informed consent was attained via encrypted email and upon receipt was downloaded and filed with each participant’s research case file. All audio recordings were captured on a USB digital recorder purchased for this study; all interviewee files were labeled by participant case number. Participants choose a code name to use for their interview to

assure confidentiality was maintained throughout the interview recording process. When not actively being used for research efforts, the USB digital recorder was secured in a small safe in my home office desk along with all other research materials.

### **Transcripts**

Transcription of all audio data and notes were accomplished upon completion of participant interviews. A summary transcription was emailed via a password protected document to each participant for member checking accuracy review with a request for return within seven days. All digital transcription files were retained on the previously mentioned designated external hard drive. The external hard drive and all paper documents related to this study were locked in a desk located in my home office when not being used for conducting research activities.

### **Destruction of Data**

All data and records related to this research effort will remain securely filed for five years after the study is complete and then will be destroyed. Digital records will be permanently deleted and paper files shredded. This process will allow for any necessary professional review of the research process and ensure the retention of participant confidentiality.

### **Summary**

When reviewing research focused on yoga as an intervention, an issue consistent across the literature is that a lack of appropriate controls and other limitations have resulted in the diminished significance of any findings. In addition, there is a need to understand better the experiences of individuals engaged with alternative treatment

approaches like yoga to better understand potential benefits and liabilities related to these alternative modalities. As yoga continues to become more popular in the United States, yoga classes, workshops, and specified programs advertising treatment for trauma and stress are competing for the business of people living with PTSD who are resistant to traditional treatment. Although most programs are likely helpful to some or perhaps all who participate, it is also likely that some might have negative experiences and worsen symptoms. To provide organizational leaders with appropriate guidance on best practices for improving the wellness of essential personnel serving their communities, it is imperative to examine the lived experiences of veterans and first responders already using yoga as a tool for stress management, anxiety, depression, and or recovery from traumatic exposures.

This qualitative examination of the lived experiences of first responders and veterans using yoga is a beginning pathway towards building a bridge for the existing gap in knowledge and help organizational leaders gain a deeper understanding of potential risks and benefits of investing in yoga programs for their personnel. In the next chapter an overview of data analysis is provided. Descriptions of participant demographics, data collection procedures, qualitative data analysis procedures, evidence of trustworthiness, results, and summary are included.

## Chapter 4: Results

The purpose of this qualitative study was to examine the lived experiences of veterans and first responders using yoga to manage excessive stress, anxiety, depression and or trauma exposures related to their work. This qualitative examination was guided by the following research questions:

- RQ1: How do first responders and veterans who practice yoga for posttraumatic stress, anxiety, and coping describe their experiences with the intervention?
- RQ2: How do these first responders and veterans perceive the effectiveness of yoga for symptom improvement, overall wellbeing, and work performance?

This chapter provides a description of the demographics, data collection procedures, qualitative data analysis procedures, evidence of trustworthiness, presentation of results, and summary. The section that covers study results is midway through this chapter and organized in accordance with the aforementioned research questions. Data collected were processed in NVivo Plus software, which assisted with coding and the creation of categories and themes.

### **Setting**

Three of the participants in this study were previously known to me. One of these participants is an alumnus of Walden University with whom I attended academic residencies in 2019 and 2020. This participant saw the recruitment flyer on Facebook and contacted me to confirm eligibility and request participation. The second participant known to me is a veteran who previously attended yoga classes at the same yoga studio

as me. This participant saw the recruitment flyer in the local library and contacted me to confirm eligibility and request participation. The third participant known to me is a first responder who also attended yoga classes at the same yoga studio as me. This participant saw the recruitment flyer posted in a local yoga studio and contacted me to confirm eligibility and request participation. All participants contacted me via email and all participants received an enrollment email with the IRB approved Informed Consent Form as an attachment prior to study enrollment. All participant interviews were conducted via Zoom and confirmation of consent to record audio was achieved prior to interview start. It is possible that participants previously known to me were more or less comfortable expressing the full depth of their lived experiences in more detail or possibly biased their perceptions to be expressed more positively or negatively than actually experienced.

### **Demographics**

Five of the study participants were veterans and one participant a first responder; of interest, four of the five veteran participants currently work or volunteer in first responder roles. Five of the participants identified as female and one as male. One participant was in the 55+ age group, while the other five participants were in the 36–54 age group. The related demographic information can be viewed in Table 1.

**Table 1***Participant Demographics*

No. of participants	Age	Branch of service	Gender	Occupation	Responders who are also veterans
3	36-54	Marine Corps	Female	First responder	Crisis first responder
1	36-54	Air Force	Female	Veteran	Crisis first responder
1	55 +	Marine Corps	Male	Veteran	Unassigned
1	36-54	Unassigned	Female	First responder	Not applicable

**Data Collection**

Qualitative data from semistructured interviews were collected from six participants. Virtual Zoom interviews were conducted from my office space. This area provided a neutral and distraction-free environment. Before each interview, audio recording equipment was prepared and working order verified. I logged in to the secured Zoom meeting 10 minutes before each scheduled interview to verify that all technological elements were functioning correctly.

Once the participant joined the Zoom meeting, the individual was greeted professionally, thanked for their participation, and engaged in a brief rapport-building conversation to establish a sense of ease to enhance the openness of communication (see Patton, 2015). Informed consent was reiterated and verified as well as consent to audio recording, and once verified, the recording was started. I explained the purpose of the study and emphasized that all participation was optional, and the participant could choose not to answer questions or stop the interview at any time. Privacy and confidentiality



considerations and procedures regarding participation were covered at length to ensure understanding.

The 20-question researcher-developed and dissertation committee-approved interview guide (see Appendix) ensured the same questions were asked of all participants, and all interview notes were annotated directly on a printed copy. As appropriate, follow-up questions were asked to improve clarity, understanding, or further probe content I found relevant. Verbal and nonverbal responses from participants and annotated notes throughout each interview were taken to capture a more complete picture of the data collected.

As mentioned in Chapter 3, it is commonly suggested that eight to 12 or fewer interviews are appropriate for phenomenological qualitative studies (Moser & Korstjens, 2018). After transcribing the sixth participant's interview, I observed that themes were repeated in each participant interview and no new information had been generated, and as such data saturation was achieved.

### **Data Analysis**

All interviews were transcribed first with the use of transcription software Rev (<https://www.rev.com>) then verified by listening to the interview again and reviewing the transcription line by line making corrections as necessary. I also employed a variety of coding processes to analyze data retrieved; this was a continuous process as data collection unfolded. Inductive analysis was used to analyze participant interviews to ensure that the data were utilized to determine themes and categories rather than any preconceived themes established by bias (Williams & Moser, 2019). Each set of

participant interview data was analyzed then findings were compared to develop more expanded categories and themes.

Open coding is a process appropriate for all qualitative data and was used as the first level of coding to separate data into parts to examine similarities and differences (Williams & Moser, 2019). I began open coding by highlighting all words, phrases, and paragraphs that seemed relevant to the research questions. Next, I uploaded the interview data in NVivo Plus, a qualitative data software package, and used both the text query and visual word cloud tools to identify additional words linked to the research questions. The open coding process was imperative for the development of categories supported by code notes and related to the text provided by participants and cultivating categorizing codes (Williams & Moser, 2019). Second level axial coding was then used to create core codes based on relationships identified between open codes (Williams & Moser, 2019) and related to the research questions. Some codes were merged, additional codes were added, and others refined as code relationships were discovered throughout the axial coding process.

Throughout the third-level selecting coding process, data were examined in relation to the study research questions and in the context of the OVP theory to facilitate meaning construction and develop a more refined expression of the data (Williams & Moser, 2019). In addition, the qualitative data management software NVivo Plus facilitated the management of data, was employed during open coding with text queries and visual word clouds and helped to simplify secondary coding efforts (Moser & Korstjens, 2018).

Transcribing participant interviews afforded the opportunity to cultivate a deeper familiarity with all collected data. After transcription of each interview was complete and before uploading interview data to NVivo, I separated the data by interview questions to diversify the open coding process. This also allowed me to keep a master document of all participant responses and continuously review and compare new interview responses with previously collected, which further enhanced my familiarity with the data and facilitated easeful identification of data saturation achievement.

### **Evidence of Trustworthiness**

Qualitative researchers strive to achieve trustworthiness which is accomplished when consumers of the resulting literature have confidence in the information reported yet would not expect exact replication of the researcher's reported findings in their application of the same study (Stahl & King, 2020). Trustworthiness is typically enhanced when researchers rely on the evaluation of four general criteria: credibility transferability, dependability, and confirmability (Stahl & King, 2020) when conducting qualitative research efforts.

#### **Credibility**

Credibility is typically quite subjective because it seeks to explain how research findings are congruent with reality, and such assessment of congruence is based upon individual judgments (Stahl & King, 2020). Credibility enhancement in qualitative research is frequently achieved using one or more triangulation techniques such as theoretical triangulation, data triangulation, investigator triangulation, or environmental triangulation (Stahl & King, 2020). Triangulation optimizes credibility by using various

procedures or sources of information to recognize patterns across data (Stahl & King, 2020). The use of veterans and first responders as participants created environmental triangulation because of the differences in participants' working situations and various contexts under which they experience stress and trauma. In addition, investigator triangulation was employed with the dissertation committee as both members evaluated the data and analysis process and shared their conclusions for analysis interpretations.

### **Transferability**

Transferability can be challenging as it is easily confused with the quantitative research aim of replicability, which qualitative research cannot and does not seek to achieve (Stahl & King, 2020). Transferability can be appreciated as a recommendation that can be researched for applicability to other contexts rather than a recipe to be followed for replicating results (Stahl & King, 2020). When researchers can provide quality detailed descriptions of observations used for data collection, it vastly improves the transferability of reported findings. I annotated detailed notes throughout each interview to ensure rich details are provided to convey the most vivid picture of participants' experiences possible to readers.

### **Dependability**

Dependability provides the trust element in qualitative research trustworthiness (Stahl & King, 2020). Peer debriefing is a commonly recommended method of developing trust in qualitative research (Stahl & King, 2020) and was employed for this research endeavor. Two peers evaluated data analysis for feedback and professional insights in addition to what was provided by the dissertation committee for peer

debriefing. Another method for improving trust in qualitative research that I employed for this study was bracketing. Bracketing is a practical approach for reflexive auditing of researcher bias and potential influences on data collection and analysis (Stahl & King, 2020). Bracketing journals and field notes taken throughout data collection and analysis processes assured that I remained aware of potential bias influence and measures employed to prevent bias from impacting trustworthiness.

### **Confirmability**

Confirmability is accomplished when the researcher gets as close to objective as possible for a qualitative examination (Stahl & King, 2020) of the phenomenon. Auditing of research processes selected, data analysis procedures employed, and other applicable research materials evaluated by a professional unrelated to the research project is a primary approach for achievement of confirmability in qualitative research (Moser & Korstjens, 2018). I submitted all documents for evaluation by the professional staff at the Walden Writing Center to achieve enhanced confirmability for this project.

### **Study Results**

It is essential to understand how veterans and first responders describe their experiences using yoga as well as how they perceive the impacts of the practice on their physical and mental health, relationships and interactions, and quality of their work performance. I explored the lived experiences and perceptions of veterans and first responders using yoga as their primary wellness practice for posttraumatic stress, anxiety, and coping and aimed to probe the data for any indications of potential PTG participants

expressed related to their yoga practice. The results for this study were separated by research question and are presented with four primary themes.

The first research question investigated how participants described their lived experiences with a consistent yoga practice, while the second research question explored their perceptions of how yoga affects their lives, relationships and interactions, and work performance. The four primary themes were referenced by all six participants in relation to both research questions (see Table 2). In Table 2, the research questions and primary themes are provided with the number of related references. The file column refers to the number of participants whose interviews were coded and included within the specific theme. The reference column represents the number of times codes were referenced within the specific theme.

**Table 2**

*Themes*

Name	Files	References
RQ1-lived experiences	6	467
Self-awareness	6	258
Perceived benefits/improvements	6	88
Gratitude/appreciation	6	116
Barriers	6	7
RQ2 –participant perceptions	6	473
Self-awareness	6	130
Perceived benefits/improvements	6	187
Gratitude /appreciation	6	129
Barriers	6	25

Table 3 provides more specific information regarding all identified themes and related categories. As with Table 2, the file column refers to the number of participants whose interviews were coded and included within the specific theme. The reference column represents the number of times codes were referenced within the specific theme.

**Table 3**

*Themes and Categories*

Theme and categories	Files	References
Self-Awareness	6	258
Agency/choice	6	48
Patience	6	42
Compassion/tolerance	6	40
Perceived benefits/improvements	6	187
Psychological benefits	6	54
Physical benefits	6	34
Gratitude/appreciation	6	176
Commitment to growth	6	62
Quality social engagement	6	54
Barriers	6	30
Stigmas	6	16
Potential risks or harm	6	7

Figure 1 provides more specific information on the codebook used for coding data. The code column provides the name of the code and the criteria for coding column describes the criteria for coding data under the specified code.

**Figure 1***Codebook*

<i>Code</i>	<i>Criteria for Coding</i>
Self-Awareness	Participant expresses an intentional and honest process of self-evaluation and acknowledges their own contributions or limitations in a situation.
Agency / Choice	Participant expresses knowledge and understanding of what controls and agency they have and what controls and agency they do not have.
Compassion / Tolerance	Participant expressed the importance of compassion and tolerance for self and others.
Patience	Participant expresses the importance of observing patience with self, others, and or life situations.
Perceived Benefits / Improvements	Participant describes benefits or improvements they relate to yoga specifically.
Physical Benefits	Participant described physical benefits associated with their yoga practice.
Psychological Benefits	Participants described psychological benefits associated with their yoga practice.
Gratitude / Appreciation	Participant describes the importance and or impact of practicing gratitude and appreciation.
Commitment to Growth	Participant explains a purpose, intention, and or actions that reflect their commitment to learning new things and improving themselves.
Quality Social Engagement	Participant expresses the importance of quality social engagements for optimal coping and overall wellness.
Barriers / Stigmas	Participants describes barriers or stigmas related to yoga practice.
Potential Risks or Harm	Participant described potential risks or harm that might be associated with yoga practice.
Stigmas	Participant described stigmas they believe are associated with yoga and might deter their peers from participation in the practice.



## RQ1 – Lived Experiences

The section that follows explains how participants expressed the four primary themes within descriptions of their lived experiences using yoga consistently. Participants explained their yoga experiences without limitations so they could provide an authentic description of their individual experiences. One interesting finding related to this research question was that all six participants described being introduced to yoga by a friend(s) or family member. Table 4 provides a list of participants responses to the structured interview question “Tell me how you were introduced to yoga.”

**Table 4**

*Participant Responses to “Tell me how you were introduced to yoga”*

Participant ID	Participant responses
Participant 1	“It was my best friend, she said; Hey, let’s go try out this yoga. You can burn like 600 calories in an hour and a half.”
Participant 2	“Oh gosh, It was actually a friend at church, she got certified in teaching yoga and sporadically taught classes at our church”
Participant 3	“This really good girlfriend, we were in bootcamp together in the Marine Corps and she had been going to these hot yoga classes.”
Participant 4	“My friend, my BFF from basic training, she lived in LA while I was in Omaha and the next time we met up she said let’s go do some yoga.”
Participant 5	“A group of young lady friends from work challenged me; you should come to yoga; and I went to yoga and I realized this is another world.”
Participant 6	“So, it was my Dad; back in 2018, he’s like, this yoga studio has a free class on the weekend so let’s go take their free class and see what it is like and I was like okay, all right, I’ll go with you.”

Each participant also described their first yoga experience as completely different from what they anticipated and their experiences with the practice now. For example, P3 explained,

I had always thought of yoga, which is a very naïve stereotypical point of view: You had to look a certain way, you had to already be flexible to, I don't know, it was just like, oh, just stretching kind of thing. And so even when I went that first day I had basketball shorts on cuz she said it gets hot. And I was like, I wore too much clothing, it was really hot! But I went with her that one day and it was like, ugh. I was like, I fell in love immediately. So, I started, like I said, actually it doesn't feel like that long ago, but 2016. And, so it was very physical based and it was hot yoga. So very intense, which satisfied my very type A in overdoing everything. But through the years so I have learned through, cause I did my 200 hour training certification and I finished my 300 hour last year and I'm doing a yoga therapy program. So through that I have learned that yoga is not just physical. So I will still go to hot yoga classes, I'll go to the slow ones because of all my injuries but on the daily basis it's at home very slow and intentional with breathwork and meditation.

P6 expressed,

I thought you had to be skinny and flexible for yoga and it was six of us in this free class, and they were so kind, and it was such the opposite of what I thought it would be. When I first started it was more of the restorative stuff and now, I like

the power and I like it mixed with gentle and love myofascial release because it's a self-massage and yoga in nature is fantastic.

And P1 shared,

I thought yoga was just light stretching so I was surprised when I went to my first class at a heated studio and it was very physically demanding and I really liked that a lot. It felt like a good workout. But then as I've gotten more into it, I realize that well it's a workout, yes, but it is also a brain workout and you get just as much out of making mind muscle body connection and focusing on muscle groups and core engaging and not flying through it. So, what I used to love was flow fast. And now I don't flow fast all.

### *Self-Awareness*

Data coded to this theme reflected a participant's expression of intentional self-evaluation and acknowledgement of contributions, strengths, and or limitations in a situation. Participants repeatedly expressed improvements in self-awareness when describing their lived experiences with yoga. All six participant interviews provided coded data to this theme and all associated categories. Each participant shared expressions of self-awareness related to their physical experience with yoga, one such expression provided by P4, "I just keep realizing there's no easy fix and I know I could do some things better but there's the trade off with your mental health too, it's a balance and there's only so much you can do." P3 explained: "now that I'm slowing down my practice and listening to my body, it has been most rewarding physically and mentally." P2 provided a similar response:

I can do all these different things and see how it feels in my body and that awareness in my body to notice what side is tighter and when I am starting to hurt, make an adjustment or pull back a little.

**Agency/Choice.** One of the categories associated with the theme of self-awareness is agency/choice. Participant responses that expressed knowledge and understanding of the controls and choices a person has in a situation and what choices and controls they do not have, were coded to this category. P1 described choosing new approaches in response to stress and anxiety while in the car with her daughters:

I am a little stressed out and I don't wanna take my stress out on you guys. So I'm trying to calm myself. This is how I'm calming myself. And I'm very, very deliberately taking long slow breaths. And so my girls see that all the time and I'm hoping they are learning to choose breathing when they need to calm down.

P2 said "I can look back on my life and think I wouldn't change anything because I can see how everything brought me to where I am today. And everything was a choice that I made." While P5 expressed the following:

Self-reflection and feedback are key. I'll explain it like this; If you see a turtle on top of a 10 ft pole, it had help getting there; now let that marinate for a moment. We all need help, but you have to know the help you need, where to get the help, and make the choice to get the help.

**Patience.** The second category associated with the theme of self-awareness is patience. Participant responses coded to this category expressed the importance of

observing patience with themselves and others. P6 provided a work example that was coded to this category:

So going back to the being patient and learning how to breathe also what's immensely important that, it's funny because I'll try to teach interns this, but I don't think I was really good at it until I started doing more yoga practices. The sitting in silence with people not anticipating, not filling in, not having expectation that people say a certain thing in a certain way, but just being okay with nothing happening.

P4 explained,

I definitely feel way more calm and in control. It definitely has had an impact on learning how to take pauses. I even know it's helped me to be more mindful of when my body is starting to react to certain stimuli and to be able to maybe walk out because I don't want to say anything not nice.

And P1 explained how improved patience attributed to yoga has influenced parenting for her:

It's very easy to want to react. And before, so I started homeschooling them a couple years before I started doing yoga. I mean we've had to talk to them and apologize to them because I was very intolerant of them not doing the best. I mean I would be like, what are you doing? I would yell at them and which was totally unproductive. Absolutely unproductive and ineffective and just created little microtraumas for them. So yoga has helped me more than anything to breathe to just calm the hell down, put things in perspective, realize.

**Compassion/Tolerance.** The third category associated with the theme of self-awareness is compassion/tolerance. Participant responses coded to this category expressed the importance of compassion and or tolerance of themselves and others. P2 expressed,

I think when you are really paying attention to you and taking care of yourself and loving yourself, not judging yourself and being okay with what you can do for that day, you are taking that into your relationships with other people.

P3 said,

and it's like this, yoga has helped me with self-compassion, stop beating myself up for every little thing and so I'm getting to know who I truly am and cuz of that I'm able to appreciate myself and be more compassionate with other people too.

### ***Perceived Benefits/Improvements***

Data coded to this theme is reflective of perceived benefits or improvements participants expressed in association with their yoga experiences. The two categories associated with this theme were physical benefits and psychological benefits. All participants provided responses that were coded in each category. The physical benefits category contains data participants expressed related to physical benefits they reported related to their yoga experiences. The psychological benefits category reflects participant expressions of psychological benefits they experienced related to their yoga practice.

**Physical Benefits.** One of P1's coded responses was "if I had not been doing yoga before and after my hip replacement, there's no way that I would've recovered as fast as I did. I mean I almost feel bad to get VA disability for it." P6's explanation "Yoga

will keep you, it keeps you being able to bend and shape and in all the ways that your body needs to, that we don't even recognize I can scoop the liter without having back pain now." was also coded to the physical benefits category.

**Psychological Benefits.** Coded in the psychological benefits category P6 shared "when I found my yoga practice, it was like I actually don't have to force myself to go. I can go and I enjoy doing this even when it's hard." And one of P1's responses coded to psychological benefits was "So really making me be mindful of my actions and how my actions impact other people."

### ***Gratitude/Appreciation***

Data coded to this theme reflects a participant's description of the importance and impacts of practicing gratitude and appreciation on their lived experiences. There are two categories associated with this theme, Commitment to Growth and Quality Social Engagements. Examples of data coded to this theme and these two categories are provided within this section. P1 stated "I'm grateful that I found yoga when I did because had I not, and I just continued down that parenting path of drill instructor mode, then they would be a train wreck." And P4 shared a very similar statement "I feel like I got yoga just in the nick of time to be able to reverse course on the way that I was parenting."

**Commitment to Growth.** Data was coded to the Commitment to Growth category when the participant explained experiences where their purpose, intention, and or actions reflected a commitment to learning and improvement. A couple examples of data coded to the Commitment to Growth category include P3 provided:

it made me really appreciate diversity. And even now it transferred over into my current work situation and even before I was volunteering with youth and foster care. And so we'd get all different kind of demographics and it's really like it helped me to see and appreciate. And also yoga helped me with this too is see the human being and see that spirit or light within them no matter what kind of trauma or experiences or even sometimes criminal behavior they had done or gone through, it's like, but you have to look back at maybe their whole experience and treat that person as a whole being.

And P5 said,

So as I got older I'm up to doing yoga at least four to six times a week. Back then I was only doing it maybe two times a week, but I did. But I was able to get myself better. If you keep coming back to the mat you get better and better and better.

**Quality Social Engagement.** The Quality Social Engagement category reflects data shared by participants that represented an expression of the importance of quality social engagements for their experiences with coping or overall wellness. One example from P1 was as follows:

So that when I'm with people, my friends like I can be engaged with them that moment and not worry about anything else. I think I've definitely found out that my love language is time, it's not gifts, or acts of service and that's the biggest thing that we take for granted and we're never going to get any more of is time. So it's made me recognize that and really think in the moment and appreciate



everything that I have and have gratitude for everything that I have and nature and appreciate the small things and not get so wrapped around the axle on things that I can't control.

P4 stated, "then talking to my friends and just let the tears flow, not trying to hold back.

That was a lesson I learned, just let it go cuz you don't want that shit to build up." And

P6 expressed,

Playing games with the nieces and nephews, love it. Going to a brewery and sitting down and it's usually me and my brother or me and Christie my sister-in-law and we sit down and my other brother brings his kids too. And we sit down and we play board games or card games, Phase 10 and all that. Because again, that's also about be mindful and in the present and it's forced mindfulness because you can't be anywhere but there in the moment playing the game.

### ***Barriers***

Data coded to this theme reflected participants descriptions of barriers they experienced related to their yoga practice. One example from P1 was "so being expensive, it's too expensive." P2 offered a very similar statement: "it was expensive even then. I mean it was 2012, and it was like 20 bucks a class." While P4 said, "it's more expensive, they got rid of it at my gym." There are two categories associated with this theme Stigmas and Potential Risks or Harm and some examples of both are offered here.

**Stigmas.** Data coded to this category represents expressions from participants that described an experience with stigma related to their yoga experiences. P6 shared, "when I

first started going, there was definitely an expectation of myself and an expectation of what yoga is based on that social media presentation of it.” And P3 stated, “because I was one of those people before I found it, found yoga and before I was actually practicing was like, oh, that’s just for girls.”

**Potential Risks or Harm.** Potential Risks or Harm is the second category of related coded data for the Barriers theme. Participant data coded here are descriptions of risks or harm participants described related to their yoga experiences. P5 explained, “injuries, you might pull a muscle; I did once when I did triangle pose once before I was warm enough.” And P6 shared, “Your pose doesn’t have to look like everybody else’s pose, if it did, then I don’t think I would’ve never continued. So I don’t and that’s the only harm I can really think of. And then I don’t know physically sometimes if I do oppose and do it, there’s been some pain afterwards.”

## **RQ2 – Participant Perceptions**

The section that follows explains how participants expressed the four primary themes within descriptions of their perceptions about the effectiveness of yoga for symptom improvement, overall wellbeing, and work performance. Participants explained their perceptions regarding the effectiveness of their yoga practice without interference and provided genuine expressions of their perceptions.

### ***Self-Awareness***

Data coded to this theme reflects a participant’s expression of their perceptions about the influence of yoga on their intentional self-evaluation and acknowledgement of contributions, strengths, and or limitations in a situation. Participants repeatedly

expressed improvements in self-awareness when describing their perceptions of the effectiveness of yoga. P3 said,

And so without all of these coping skills and wellness, I wouldn't even be where I am today. I don't know if I would be able to go through a PhD program. I don't know if I would've been able to work full time. So it's definitely made a difference.

While P6 offered "There's no trophy. It's about you. What you bring to the mat and what you have done with your body, you learn to listen to your body."

**Agency/Choice.** One of the categories associated with the theme of self-awareness is agency/choice. Participant responses coded here reflect their perceptions of how effective yoga has been on their knowledge and understanding of the controls and choices a person has in a situation and what choices and controls they do not have. For example, P1 said, "It's made me do, I've had to reflect on a lot of things that I needed to change about myself. And that's a hard thing, that yoga helped me choose." And P4 provided,

being just a more centered person, I notice how I show up, recognize when to engage or not, so I'm able to deal with the world and relationships better, especially at work or wherever, friendships and just makes you a better person I think.

**Patience.** The second category associated with the theme of self-awareness is patience. Participant responses coded to this category reflect their perceptions of how effective yoga has been for observing patience with themselves and others. P5 provided,

“So yoga has taught me patience, consideration and respect for one another. Which I think is very, very, key.” P2 stated, “You’re like, what? Heck. But you are not beating yourself up saying I’m digressing, it’s just the way that it is today.” when talking about how yoga has taught her to stay patient with herself on days that don’t go the way she planned.

**Compassion/Tolerance.** The third category associated with the theme of self-awareness is compassion/tolerance. Participant responses coded to this category expressed how effective they perceived yoga to be on enhancing their understanding of how important compassion and or tolerance of themselves and others is for their coping and wellbeing. P1 said, “So it’s helped me evaluate myself how I perceive people and realize that I need to get off of my high horse at times and not be so judgmental.” And P4 explained, “Just being more calm I think is better for me to be kind and more tolerant, before it was hard and I did not connect with others well.”

### ***Perceived Benefits/Improvements***

Data coded to this theme is reflective of perceived benefits or improvements participants expressed in association with their perceptions of yoga practice effectiveness. The two categories associated with this theme were physical benefits and psychological benefits.

**Physical Benefits.** The physical benefits category contains data participants expressed related the perceived effectiveness of physical benefits they reported related to their yoga experiences. P2’s explanation, “So yoga is great for just giving my range of motion with that aspect of it and being able to realize now that it’s that time to quiet my

mind,” and P5’s statement, “Well I got some bad knees so I think yoga helps me know how to move with what I have to work with and use props and other tools,” were coded to the physical benefits category.

**Psychological Benefits.** The psychological benefits category reflects participant perceptions of effectiveness of psychological benefits they related to yoga practice. and coded in this category P3 said, “I feel like yoga has helped me realize that human beings, we crave connection with ourselves and the connection with other people.”

### ***Gratitude/Appreciation***

Data coded to this theme reflects a participant’s perceptions of how effective yoga has been in relation to gratitude and appreciation on their coping and wellness. There are two categories associated with this theme, Commitment to Growth and Quality Social Engagements. Examples of data coded to this theme and these two categories are provided within this section. P2 expressed, “with yoga I realize that I am grateful to move my body and breathe and appreciate the little things far more than I used to.”

**Commitment to Growth.** Data was coded to the Commitment to Growth category when the participant explained perceptions of yoga impacting their purpose, intention, and or actions reflected a commitment to learning and improvement. A couple examples of data coded to the Commitment to Growth category include: “So I think having that insight to keep cognizant of the negative possibilities I might have if I don’t keep moving and stay in the positive habits.” was expressed by P4 and P6 stated “You can do hard things. And so I tell myself that mantra all the time.”

**Quality Social Engagement.** The Quality Social Engagement category reflects data shared by participants representative of their perceptions of how effective yoga has been related to quality social engagements for coping or overall wellness. One example from P3 “the yoga and holistic wellness that I’ve been doing is having, making those friendships where they create that safe space for me to be myself and express myself. And it’s like if I would’ve never started with yoga and this path, I wouldn’t have those friendships. So definitely made a big impact.” And P1 provided:

yoga helped me find my tribe, when you find people who truly are authentic and just want to be around you because you share values with them and common world view, that’s very rare because usually people just want something from you.

### ***Barriers***

Data coded to this theme reflect participants perspectives related to barriers that might limit the effectiveness of yoga. One example was from P6 who stated, “because of the Instagram presentation of some of the things that are yoga related that I think make it inaccessible for people who have physical issues as that may need more words of compassion.” There are two categories are associated with this theme Stigmas and Potential Risks or Harm and some examples of coded participant statements are offered here.

**Stigmas.** Stigmas, data coded to this category represents expressions from participants about perceptions related to stigmas they believe limit yoga participation. P5 said “peer group, yoga back in the seventies was a lady sport. So the average athlete,

especially guys would not be caught around a yoga studio on a mat” when he explained why he didn’t feel a lot of his peer would participate in yoga. And P3 stated “because I was one of those people before I found it, found yoga and before I was actually practicing was like, oh, that’s just for girls.” and P3 shared “having to look a certain way, that it is only for women. It’s only looking at the physical aspect of it, not what it can help with mental health issues.” also P2 explained:

I think of the stigma that I know exists among Christians there’s always a warning that goes out there that it’s (yoga) a spiritual and new age or something and that we should protect ourselves from spirits that are out there.

And P1 offered a similar perspective:

a lot of people in the military tend to be Christian and maybe they would view it as idolatry because just outta sheer ignorance and the fact that it does, it takes time and makes you have to reflect on yourself and most people don’t wanna reflect on themselves.

**Potential Risks or Harm.** The second category of related coded data for the Barriers theme is potential risks or harm. Participant data coded here are participant perceptions of risks or harm expressed related to yoga. An interesting finding related to this category was that each participant expressed the potential for injury or muscle soreness within their response to the follow up question asked of each participant “What about any risks or harm you think might be related to yoga practice in general.” Table 5 provides a list of excerpts from participant responses.

**Table 5**

*Participant Responses to “What about any risks or harm you think might be related to yoga practice in general”*

Participant ID	Participant Responses
Participant 1	“None, not at all for me but I guess someone might pull a muscle or have a physical injury though, I guess that would be a potential harm.”
Participant 2	“Yoga is so safe so all I can think of is the occasional muscles being sore and a few people I know have had shoulder or wrist injuries.”
Participant 3	“being stiff or sore muscles after might be considered a harm to people who are not active.”
Participant 4	“I don’t know of any; maybe an injury, that might be a risk.”
Participant 5	“An injury that takes you out of the game; it doesn’t happen often but sometimes students have gotten injuries.”
Participant 6	“Maybe muscle soreness sometimes. Or you could get an injury, I know I am careful and use props to avoid potential injury because I know other people have gotten injured sometimes.”

### **Summary**

The results for this study were separated by the research questions and presented with four primary themes. The first research question investigated how participants described their lived experiences with a consistent yoga practice, while the second research question explored their perceptions of how yoga effects their lives, relationships and interactions, and work performance. All participants interview data contributed to coding within each primary theme and in a several areas and participant responses were often quite similar, such as the discovery that each participant was introduced to yoga by a friend or family member.



Expressions of self-awareness, potential benefits and improvements, as well as gratitude and appreciation were interwoven into a majority of responses study participants provided. Feeling calmer, more centered, more objective, connected, tolerant, compassionate, kind, and accepting were communicated repeatedly too. All participants claim to be more mindful in many aspects of their lives and relationships and attributed the improvements to their yoga practice.

The Barriers theme was the least prevalent, which was not surprising because study participants practice yoga regularly and it would seem reasonable to assume they have more positive thoughts regarding their experiences and perceptions towards the practice. Also, because of their admitted consistent use of yoga, it would seem likely they would have limited exposures to barriers, stigmas, and harm. It was interesting however, that all participants noted the potential for physical injury and most participants believed specific stigmas remain connected to yoga and which they believe limits participation among their peers.

In the next chapter, these results will be discussed as related to limitations, recommendations, and potential implications for positive social change.

## Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative study was to explore and describe the experiences of veterans and first responders who regularly practice yoga for coping with traumatic exposures, depression, posttraumatic stress, and or anxiety associated with their work. This study was conducted using a generic qualitative approach (Patton, 2014). Use of the qualitative methodological approach for study design and semistructured interviews for data collection resulted in rich descriptions of participants' lived experiences and perceptions. The dominant themes and categories were self-awareness, agency/choice, patience, compassion/tolerance; perceived benefits/improvements, psychological benefits, physical benefits; gratitude/appreciation, commitment to growth, quality social engagement; barriers, stigmas, and potential risks/harm. The final chapter is comprised of discussion, conclusions, and recommendations.

### **Interpretation of the Findings**

Learning how participants perceive the impacts of yoga on their physical, emotional, and mental health; relationships; interactions with others; and quality of their work performance provided a greater understanding of why they have committed themselves to practicing yoga regularly as well as growth they attribute to it. As a result of this study, vivid descriptions of the qualities expressed by participants have been recognized and these qualities helped to facilitate deeper understanding of the attitudes and perceptions of veterans and first responders engaged in a consist yoga practice.

This study reflects findings similar to those of several yoga studies in current literature such as the Cushing and Braun's (2018) systematic review that focused on

mind–body therapies for PTSD specifically related to combat experience in post-9/11 veterans, where participants reported reduced anxiety, improved sleep, reduced depression, and significant overall improvements with PTSD symptoms following participation in mind–body intervention programs (Cushing & Braun, 2018). Participants in my study expressed similar improvements and in addition described growth in a variety of aspects. Often their growth experiences and perceptions were characterized as unintended positive side effects of the practice, as opposed to targeted goals or changes they intentionally sought out.

The theoretical framework for this study was OVP, developed by Joseph and Linley in 2005 and considered one of the most comprehensive theories of PTG (Splevins et al., 2010). This theory posits that individuals need to resolve the cognitive dissonance experienced after trauma and rebuild their assumptive world in a meaningful way, which is perceived as growth and may facilitate changes to self-perceptions, life philosophy, and relationships with others (Splevins et al., 2010). Although significant research exists related to yoga as an intervention used with veterans and other populations impacted by trauma and PTSD, there is a lack of investigation into their lived experiences and perceptions related to these interventions. There has also been a historical focus on measuring standardized symptom improvements specifically related to participation in a yoga program structured for a research intervention and lasting for a short period of time as well as an overemphasis on quantitative methodology for investigation, which have likely contributed to both lower participation interest and higher dropout rates associated with a number of studies in current literature. This research contributes to the

establishment of a bridge across the existing literature gap regarding the lived experiences and perceptions of veterans and first responders using yoga as a regular wellness tool for coping with the impacts of work-related experiences.

Through qualitative research and inductive analysis, several influential factors were presented and briefly explored in the previous chapter. These influential factors included self-awareness, agency/choice, patience, compassion/tolerance; perceived benefits/improvements, psychological benefits, physical benefits; gratitude/appreciation, commitment to growth, quality social engagement; barriers, stigmas, and potential risks/harm.

Participants' narratives confirmed descriptions of intentional efforts towards growth and improvements in several aspects of life after the establishment of a consistent yoga practice. This finding is not unlike themes reported by West and Spinazzola (2017), in their TSY yoga program research. Their study discovered five themes from the transcripts of participants including gratitude, relatedness, acceptance, compassion, and empowerment (West & Spinazzola, 2017). These similar findings in different populations (i.e., veterans and first responders vs. trauma survivors) are supportive of investigating the development of yoga programs that might offer opportunities for community outreach capable of fostering deep and meaningful connections between first responder agencies and the communities they serve.

### **Understanding the Lived Experiences**

Poor treatment outcomes with traditional evidence-backed treatment protocols have contributed to an increased interest in and pursuit of alternative treatment modalities

for PTSD (Davis et al., 2020). In addition to the poor outcomes with traditional approaches, increasingly those who are struggling are searching for non-pharmaceutical options and desire a more active role in their treatment management (Davis et al., 2020). The participants in this study emphasized being able to choose what they wanted for their yoga experiences as a one of the most appreciated elements of the practice.

In addition, participants provided repeated descriptions of self-awareness being essential to their practice experiences and perceived as enhanced by the practice. For example, P6 explained how her yoga practice has impacted her overall life satisfaction:

So now I happily own every choice I make. So like in class yoga class, instead of doing something because the rest of the class is doing it, I listen to my body and do what feels right to me but when I first started it was like in my head I was saying how much I sucked if I didn't do everything like the other students. So that like self-listening has helped my whole life because, well like ... so instead of looking back and thinking, like, um, what if did this or like, I should have or wish I had done this instead like I used to always do. So now I think every choice brought me to here and this is exactly right, it is here, well here is where I am supposed to be, if that makes any sense?

All participants described somewhat similar perceptions of enhanced self-awareness related to both their physical yoga experiences and overall life satisfaction impacts that they related to yoga. These similar expressions could be reflective of how consistent yoga practice with physical asanas or yoga poses may help to influence the practitioners'

physiological and by extension psychological responses to environmental stressors and perceptions of how the world is experienced.

Another experience commonly reported with PTG is an improved acceptance of limitations and vulnerabilities along with a shift in how people view themselves, perhaps observation of enhanced personal resiliency, strength, and or sense of wisdom (Jayawickreme & Blackie, 2014; Joseph, 2004, 2011, 2019; Joseph & Linley, 2005; Tedeschi & Calhoun, 1995; Tedeschi et al., 2018). Participants in this study explained PTG growth in similar ways and were coded to the patience category, for instance P4 shared,

I learned to be more patient and slow down and accept that I can't be in a hurry cuz especially as I get older, I have realized that for improvement to stick it happens over time you know if you want to get better you have to work at it regularly.

Each participant described instances of growth that reflected an enhanced self-awareness that seemed to afford an improved patience with themselves and others which they related to their yoga experiences. This type of PTG might be reflective of how yoga poses and breathwork help to rebalance the physiological experience which affords practitioners the opportunity to choose a response to even painful stimuli or experiences rather than having to react to such stimuli and or experiences as an emergency or with alarm.

PTG and the positive changes in psychological well-being frequently associated with it can help to facilitate a foundation for the establishment of a completely different

way of living (Joseph & Linley, 2005). The experience of heightened altruism and compassion, accompanied by enhanced perception of appreciation and value for family and friends that lead to improved relationships, is commonly reported with PTG (Jayawickreme & Blackie, 2014; Joseph, 2004, 2011, 2019; Joseph & Linley, 2005; Tedeschi & Calhoun, 1995; Tedeschi et al., 2018). Study participants described several experiences related to yoga that reflect PTG in this way coded to the compassion/tolerance category, such as P1's statement, "So it's helped me evaluate myself how I perceive people and realize that I need to get off my high horse at times and not be so judgmental," while she was explaining how doing yoga has changed her relationships with others. The similarity in each participants' experiences of improved compassion/tolerance expressed as PTG could be reflective of how a consistent yoga practice might enhance nervous system regulation and by extension help to improve cognitive function allowing for more compassion and empathy for others to be expressed and appreciated.

When anxiety, stress, and/or trauma are introduced, it is likely there will be significant reduction in the quality of perception and accuracy of information processing (Dana, 2018; Levine, 2015; Sullivan et al., 2018). Unfortunately, most frequently these deficits are not recognized or understood by an individual before suffering the pain and damages associated with poor and or unhealthy methods for coping. Once appropriate coping and or healing methods are employed, however, improvements can extend into growth both physically and psychologically. Study participants described a variety of perceived experiential benefits related to yoga. These participant responses were coded to

the theme of perceived benefits/improvements and separated into categories physical benefits and psychological benefits.

Traditional talk therapy is often ineffective, and in some cases harmful for an individual with a nervous system on alert with diminished cognitive and executive functioning (Levine, 2015; Sullivan et al., 2018; Van Der Kolk, 2014). Similar types of experiences were described by P3 when she explained how changing to yoga for coping was first physically beneficial for her and allowed her to start healing:

And so definitely some really bad coping. And also I wasn't having healthy, intimate relationships when I was young and first in the Marine Corps. So that was also damaging to myself. And I think it wasn't until I was invited to that first hot yoga class by a friend of mine who was also in the Marine Corps, but she was a veteran at the point I was still active. I could barely move without pain but then I went into that first class and I was able, my muscles loosened and I didn't realize how much I disassociated, so once I was present with my body I was able to move and to begin really healing.

This sense of disconnection from the physical body prior to beginning yoga practice was described in a variety of ways and in several responses by participants; interestingly most participants expressed that they were physically active regularly prior to adopting their yoga practices but did not report the same perceived benefits.

Several researchers have recently recognized the need for whole-body treatment approaches for PTSD because research expansions in neurobiology, stress, and PTSD, have extended our knowledge of the most unconscious and complex physiological and



psychological reactions that regularly accompany traumatic experiences (Macy et al., 2018; Reinhardt et al.; Sullivan et al., 2018; West et al., 2017). Participants described many experiences of processing emotion only after engaging in the physical yoga postures. P6 shared,

I think I'm more mindful when the disassociation does come up and when I do notice that there is some sadness that I'm not attending to, it's easier to when I'm on my mat, I'm like Ooh, you are crying during these hip openers, you must be holding on to something. And so it's also given me the ability to be able to recognize when I do need some time to cry or be upset or process and all that stuff.

This finding is another that could be reflective of yoga's impact being largely attributed to the physiological improvements associated with a more balanced nervous system.

A qualitative study in London conducted by Kidd and Eatough in 2017, investigated the lived experiences of five men who were regular yoga practitioners to examine the relationship between their yoga practice and overall wellbeing. Their analysis of participant interview transcripts revealed four interrelated experiential themes including personal meaning and significance of practice concerning their sense of overall wellbeing, mind–body connection inherent in their practice, an enhanced sense of physical and emotional awareness, and the transformative and stabilizing effect of the practice on their lives (Kidd & Eatough, 2017). Similar interrelated experiences were described by participants in this study and those responses were coded to psychological

benefits category. An example of data coded to psychological benefits related to lived experiences as described by P1:

It's made me better with my children and helps me deal with other people better. So all of the intolerance and judging I used to hold against people, it's tempered and I have become more accepting and so I don't feel like I'm always putting on a false face and I have learned to say no, it's helped me recognize that saying yes when I shouldn't it's just that this is not good for me or for the person or people that I'm having the experience with.

This similar finding of interrelated experiences being described by various participant populations could be reflective of some universal benefits experienced by those who practice consistently.

Yoga teaches practitioners to experience the observation of life evenly in all aspects through encouraging discipline of the mind, emotions, will and intellect (Davis et al., 2020; Iyengar, 1965; M. C. Joseph et al., 2019). Achievement of a more equitable and balanced observation of life along with enhanced gratitude and or appreciation after consistent participation in yoga was described by participants frequently in relation to their experiences with the practice. P5 stated,

It's really a life tool, it makes me notice and appreciate simple small things, things other people don't usually think about; like I am 68 I can stand up from sitting, like in this chair; like this and see I don't need my hands to support me I see lots of young folks can't do that.

in response to how changing to yoga for coping has impacted his life. In many participant responses there were interrelated descriptions of gratitude and or appreciation and commitment to growth and or quality social engagements.

Often, those who express the experience of PTG following trauma explain they have learned to interpret their trauma as an appreciated opportunity to simultaneously grow and live in more authentic ways and feel inspired to share their experiences to help others (Joseph, 2011, 2019; Joseph & Linley, 2005; Tedeschi et al., 2018). Participants described several experiences consistent with PTG related to their yoga practice. P2 provided,

with yoga, I really appreciate the self-guided open inquiry that has encouraged me to continue to get better and better because of mistakes instead of quitting or beating myself up. I have learned to focus how I choose, so I can be working on my breath, my alignment, where my gaze is fixed, so whatever I want; but I can get better each time I get on the mat. And that is now how I try to train people at work, well in ways that it applies; so like when they are learning and mess up I tell them mess ups teach us the most and we get better from them so they will hopefully learn to use their mistakes for learning instead of being ruined by them.

Her shift in perspective from being outcome focused to process focused is likely what enables her to now view imperfections and or mistakes as opportunities rather than failures.

When OVP is fostered, an individual becomes open to explore the existential challenges associated with their experience and launch an inquiry for meaning

significance by questioning how the experience impacts their living, philosophies they embrace, and congruence with their worldview (Joseph & Linley, 2005). Another factor that influences PTG is an individual's social environment being supportive or prohibitive of their OVP (Joseph & Linley, 2005). When explaining how a good friend introduced her to yoga. P3 stated,

I always thank her so much because of the healing I have found that's why I wanted to advance my own studies to help other people. So I've worked with law enforcement, other first responders and trauma survivors through yoga. So I felt like once I found this I was like, I want to pass this on.

Each participant was introduced to their yoga practice by a quality social connection, which may influence their positive perceptions of the practice and associated impacts.

Findings from a research review conducted on peer-reviewed articles that investigated the effectiveness of yoga for PTSD revealed the need for future researchers to improve study design to achieve improved participation, retention, and by extension significance of related findings (Sciarrino et al., 2017). One of several helpful suggestions offered to future researchers was to build evidence for understanding the associated risks and potential benefits of yoga programs for PTSD (Sciarrino et al., 2017). Participants provided minimal descriptions of barriers to yoga practice and those barriers were categorized as either stigmas or potential risks or harm. It is interesting to note that the barriers provided were mentioned consistently across participant responses.

The primary overall barrier mentioned by participants was cost, for example P4 said, "it's expensive, too expensive, and especially too expensive for people who need it

most.” The stigmas mentioned were also consistent across participants P2 stated “I think there is more of a stigma for men, cuz I’m in running groups that are a lot of men military retirees, some people they just associate yoga with being more for girls.” Potential risks or harm that participants mentioned related to their lived experiences were limited to potential injury. For example, P5 “I guess an injury that messes you up and takes you out the fight, like when I have a pulled muscle I have to limit what poses I can do.” These findings are consistent with the limited information available in current literature and is a topic that will likely require further investigation to fully appreciate.

### **Understanding Participant Perspectives**

We often consider stress only in the context of how it impacts or influences our emotional and mental wellness when in reality, physical ailments leading to body damage are often closely associated with stress and or trauma (Van Der Kolk, 2014). The historical overemphasis on emotional and mental aspects of stress are perhaps related to the common disregard of physical symptoms that may be related to stress and trauma.

Participants in this study explained how they perceive yoga helped them to improve self-awareness through the physical practices and how that improved self-awareness often helps them to realize their choice or agency in any situation. P1 explained,

Yeah, so even to this day if I go more than a day without working out, I hate it. I can feel tension, my chest tightening up, I have to have that physical release of the stress. So now it’s the bike. I don’t run anymore. It’s a lot of walking and it’s biking and of course yoga. Cuz I think I’m averaging at least four days a week

least, if not more. I realize now though that I need the physical movement along with the breath and mindfulness, it's like I can't do it all in my head, it all has to connect, I think yoga teaches you that and then I have to choose to do it, to be present and aware.

Each participant expressed similar perceived improvements in self-awareness that afforded their realization of having a choice or influence on the perceptions they have cultivated in any situation. P5 provided,

Think of this yoga practice like a car on the highway ... so you, your physical body is the car you drive, it can only do what it can do, so when you are driving on the highway you can't focus on the other cars, different models, if you are in an older model car it might be in perfect shape, well cared for and still running great; but it still gonna get passed by the brand new Jaguar and you are probably going to get hurt and break the car down if you try to make your car keep up. So instead you focus on taking care of your car, keeping it in tip top shape by listening to it and giving it what it needs, fuel, maintenance, fewer miles per day sometimes, you get the meaning; listen to your body to choose for your body not the other bodies in the room, I feel like that's what's different about yoga.

Unfortunately, when an area of the brain such as the PFC is impacted by trauma and becomes underactive, there is a potential for diminished capacity of thought, action, and or appropriateness of responses (Dana, 2018; Levine, 2015; Porges, 2011). This type of cognitive diminishment can manifest in many ways and might not be recognizable as something that is necessarily wrong; because it might be evaluated as simply a rude,

mean, sad, angry, or other personality type characterization rather than someone injured by a dysregulated nervous system. Participants all described perceptions of improved self-awareness related to yoga leading to improvements in patience with themselves and or others. In her response to how shifting coping strategies has influenced her life, P3 described,

And so now if I'm feeling off, I know and I can check in with myself; like What have I eaten? What have I done? Have I had a bowel movement? Have I had enough water? Or I am I just having a tough day because something in my life is just hard right now? Instead of throwing a temper tantrum because I don't feel well, I can now check myself and mindfully make adjustments until I resolve it.

This finding is another that could be linked to the rebalanced nervous system providing for access to overall optimal cognitive functioning.

Changes in an individual's life philosophy that are frequently associated with a reassessment of priorities reflective of an enhanced awareness of the fragility of life, is commonly experienced by those who have reported PTG (Jayawickreme & Blackie, 2014; Joseph, 2004, 2011, 2019; Joseph & Linley, 2005; Tedeschi & Calhoun, 1995; Tedeschi et al., 2018). All participants expressed a variety of perceptions that reflected an enhanced sense of self-awareness interrelated with improved compassion and or tolerance. One example was provided by P5 when he explained his perception of the influence yoga has had on his relationships and interactions with others:

Yoga has helped me be more patient and compassionate with myself and other people. Instead of judging people for not meeting the standards I have for me. I

remember to be grateful my body is capable of what my standards are that I have what I have to bring to the fight.

This shift in perception from the world needing to meet the individual's standards and expectations to an acceptance of all people being entitled to have their own completely different thoughts, beliefs, standards, and expectations; may be associated with yoga philosophy that encourages nonattachment, acceptance, and curiosity being expressed in teaching and or meditation scripts.

Perhaps the most frustrating challenge in the treatment of trauma induced stress, anxiety, and PTSD is that the best evidence-backed treatment protocols frequently leave patients suffering with residual symptoms and or incomplete response (West et al., 2017). Many researchers have theorized that poor treatment outcomes are reflective of the failure to integrate the physical body as part of the treatment process (Lawn et al., 2020; Van Der Kolk, 2014). Participants in the current study explained perceptions of yoga poses and breathwork practiced with it being the catalyst for learning to calm the mind in stressful circumstances away from their yoga practice and being a primary perceived benefit associated with the practice. P6 said,

And then yoga is also a good way of taking a break from it is definitely taking a break from all the other things that are expected in my life that I am responsible for. So it gives me a moment to focus on my body and breath and feel and calm everything.

This finding is another that might be attributed to the achievement of balance and proper functioning of the nervous system associated with yoga practice.



The limbic system, which is commonly referred to as the “emotional brain” is a region of the brain responsible for implicit memory and both emotional and somatosensory experience (Dana, 2018; Porges, 2011, Sullivan et al., 2018). This is part of the reason that pain can sometimes be experienced in the physical body without injury and why pain can be completely unnoticed with significant injury. There were many interview responses provided by study participants that reflected perceived psychological benefits attributed to their yoga practice. P2 offered,

I used to get pissed off a lot! Any little thing could set me off, especially at work. I would lose it and it was always because people were not doing things right or they were stupid or whatever. Now when I notice I am getting irritated or upset, I focus on me, I realize now that I can only control me so that’s where I have to focus to change what is happening.

While explaining her perceptions of how yoga has influenced her work performance. This finding may be indicative of the how improved bodily awareness often associated with long term yoga practice might contribute to enhanced timely recognition of shifts that are likely to impact their interactions with others.

Despite review results that revealed significant improvements in PTSD symptoms, reduced depression, anxiety, as well as improved quality of sleep accompanied by enhanced mindfulness following mind–body interventions; the potential significance of the results was diminished by a number of limitations; as noted in most studies related to the topic (Cushing & Braun, 2018). Participants all expressed

perceptions of similar physical improvements attributed to their yoga practice. P1 explained,

Yoga does reform your body and does define your muscle, but it's in a different way and it does take time and consistent practice but you start to feel the benefits.

I mean I didn't realize how much I wasn't breathing until I started taking yoga.

The experience of not breathing fully and or regularly is routinely reported by individuals in a state of nervous system dysregulation. This finding might further support the speculation of nervous system regulation being the true "magic" of yoga.

With the OVP process, the experience of growth is one of enhanced psychological well-being and is reflected in closer relationships, improved self-acceptance, and deeper spirituality (Joseph & Linley, 2005). Participants expressed several perceptions of growth with interrelated descriptions of gratitude, commitment to growth and or quality social engagements they related to their yoga practice. One such example from P2 "I feel like this grateful sense when I finish a class, grateful for a body that still moves, the community to practice with, and more love." And P6 offered "I have learned how to love my body for the things it can do and supporting it to grow and improve instead of feeling shame or guilty about what it can't do yet." While P3 stated,

I feel more connected and a deeper sense of love with my husband, some of my family, with friendships, and myself. And I feel like it is continuing to expand somehow, like there are fewer separations between us.

These expressions might be attributed to reintegration of body-mind awareness that seems to be a consistently reported side-effect of yoga practice.

A key recommendation offered by researchers to improve future research on yoga effectiveness for PTSD was to allow the field to develop and employ yoga programs then research impacts and outcomes to improve future study design, enrollment, and participation to improve the significance of related findings (Sciarrino et al., 2017). It is also essential to understand what prevents successful participation in such programs. Participants provided minimal descriptions related to perceived barriers to yoga practice and those barriers were categorized as either stigmas or potential risks or harm.

The primary perceived potential barriers mentioned by participants were religion and body image and or social media misperceptions of yoga. One example from P3 “some people seem to be confused about what yoga is; I have talked to a lot of people who honestly believe it is a cult or religion, and that’s why they hadn’t been interested in trying it.” The stigma perceptions mentioned were also consistent across participants and aligned with participants experiences P1 expressed “I think there is a bigger stigma in the military, but even civilians seem to think that yoga is just sitting and meditating or just for women and super flexible people.” Potential risks or harm that participants mentioned related to their perceptions of yoga were limited to potential injury. P4 shared “If someone is super out of shape and does too much too quickly they could get injured which would be more harmful than helpful I guess.” These findings have been mentioned in limited literature and there is a significant need for research to expand our awareness of how preconceived notions associated with yoga may influence an individual’s choice to participate in the practice.

### **Limitations of the Study**

The purpose of this qualitative study was to explore and describe the experiences of veterans and first responders who regularly practice yoga for coping with traumatic exposures, depression, posttraumatic stress, and or anxiety associated with their work and their perceptions of how effective the practice is for coping. This examination was guided by the OVP framework and findings are suggestive of potential positive associations between participation in consistent yoga practice and the experience of PTG in veterans and first responders.

Whether these findings could be extended to include all veterans and first responders who participate in a consistent yoga practice remains to be learned and requires future research. Sample size is another potential limitation associated with this study. The sample size was not large enough for a significant representation of veterans and first responders using yoga consistently. However, even in studies with larger samples, it is impossible to include the entirety of the target population. Realistically, this means all research is limited and generalizations can never be absolute.

Another possible limitation is that study participants were motivated to reach out and participate in this study, so it is possible their own positive bias towards the benefits of yoga practice influenced the objectivity of their recollections and descriptions. Although body language was noted throughout each participant Zoom interview, it is likely that only a small number of bodily communications were accurately observed and annotated as I was unfamiliar with any specific nuances related to how participants would typically express themselves.

Through this qualitative research and interpretation of findings, I have contributed to the establishment of a bridge for the research literature gap related to the lived experiences of veterans and first responders using yoga for coping with the impacts of their work experiences.

### **Recommendations**

This qualitative study aimed to explore and describe the experiences of veterans and first responders who regularly practice yoga for coping with traumatic exposures, depression, posttraumatic stress, and or anxiety associated with their work. Learning how these individuals perceive the impacts of yoga on their physical, emotional and mental health, relationships, interactions with others, and the quality of their work performance provided a greater understanding of why they have committed themselves to practicing yoga regularly.

Future researchers could explore whether experiences of PTG and other perceived benefits are specifically attributed to the yoga practice or if these benefits are experienced because of the individual having a predisposition towards growth minded perceptions that make them more receptive to yoga philosophy and the factors thought to encourage growth through the OVP process.

The barriers and stigmas described by participants such as cost and misperceptions surrounding yoga practice need to be further explored to cultivate a deeper understanding of how these barriers might be removed to afford more veterans and first responders access to yoga participation. Future researchers might explore this area further by investigating the lived experiences of veteran and first responders who

have tried a yoga intervention and not continued with the practice to understand why they did not find it helpful. This would afford a deeper understanding of what deters some from the practice and better appreciate the potential implications of integrating the practice into work-related wellness programs.

## **Implications**

### **Positive Social Change**

This study's findings may encourage social change by providing organizational leaders and other key stakeholders with critical information about the lived experiences of veterans and first responders using yoga successfully. This information could be used to guide the future development of organizational wellness programs that might enable improved coping and by extension enhance overall wellness and work performance.

The development and implementation of organizational wellness programs might be an important factor in resolving some of the challenges and issues that currently plague veteran and first responder populations. Improving the wellness of these populations affords the opportunity for improved work performance and could have the cascading effect of dissolving some of the barriers that often impede positive relationships between communities and first responder agencies.

### **Methodological, Theoretical, and Empirical Implications**

This study employed OVP as the theoretical framework for investigating the lived experiences and perceptions of first responders and veterans using a consistent yoga practice to cope with work related experiences. The OVP lens exposed a potential connection between consistent yoga practice and the experience of PTG. The results of

this study indicated that veterans and first responders using a consistent yoga practice described similar experiences and perceptions related to the practice. Participants all described being improved versions of themselves after integrating yoga practice into their lives and attribute improvements in relationships, work performance, and overall life satisfaction to their regular participation in yoga.

### **Conclusions**

This research provided valuable rich descriptions of the lived experiences of veterans and first responders using yoga for coping. The OVP theory which emphasizes the potential for growth and thriving following a traumatic experience guided this inquiry. According to study results, when utilized as a coping tool, consistent yoga practice can contribute to the experience of growth and thriving following excessive stress, anxiety, and or traumatic exposures. Learning how these individuals perceive the impacts of yoga on their physical, emotional, and mental health, relationships, interactions with others, and quality of their work performance provided a greater understanding of why they have committed themselves to practicing yoga regularly.

If we are to address the contentious debates about law enforcement issues in our nation, we must shift the conversation from being focused solely on training and or funding towards a factor that can facilitate meaningful change; the health and wellness of the individual human beings who are serving our communities in incredibly challenging circumstances. The improvement of their wellness will allow for better performance and execution of the extensive training they already receive; if we simply add more and more training requirements without addressing individual wellness it is more likely to worsen

issues as opposed to creating resolution. Funding can contribute to potential improvements; however, the issue is how additional funding is allocated, and unfortunately, there do not seem to be discussions about funding programs to improve employee wellness.

If we are committed to helping our nation's struggling veterans, it is imperative that we facilitate far more treatment options for the physical and psychological wounds they have endured associated with their service to our nation. Veterans and first responders should be empowered to pursue treatment options most advantageous for their individual circumstances and afforded access to alternative treatments as readily as all mainstream treatment options.



## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5<sup>th</sup> ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Bonura, K. B., & Fountain, D. M. (2020). From "hooah" to "om": mindfulness practices for a military population. *Journal of Social, Behavioral, and Health Sciences*, 14(1), 13. <https://doi.org/10.5590/jsbhs.2020.14.1.13>
- Capon, H., O'Shea, M., & McIver, S. (2019). Yoga and mental health: A synthesis of qualitative findings. *Complementary Therapies in Clinical Practice*, 37, 122-132. <https://doi.org/10.1016/j.ctcp.2019.101063>
- Casas, J. B., & Benuto, L. T. (2022). Breaking the silence: A qualitative analysis of trauma narratives submitted online by first responders. *Psychological Trauma: Theory, Research, Practice, and Policy*, 14(2), 190–198. <https://doi.org/10.1037/tra0001072>
- Colegrove, K. (2020). *Mindfulness for Warriors: Empowering First Responders to Reduce Stress and Build Resilience*. Mango.
- Creamer, M., Burgess, P., & Pattison, P. (1992). Reaction to trauma: a cognitive processing model. *Journal of abnormal psychology*, 101(3), 452. <https://doi.org/10.1037/0021-843x.101.3.452>
- Cruikshank, T. (2016). *Meditate Your Weight: A 21-Day Retreat to Optimize Your Metabolism and Feel Great*. Harmony.
- Cushing, R. E., Braun, K. L., & Alden, S. (2018). A qualitative study exploring yoga in veterans with PTSD symptoms. *International Journal of Yoga Therapy*, 28(1), 63-70. <https://doi.org/10.17761/2018-00020>

- Dana, D. (2018). *The Polyvagal theory in therapy: engaging the rhythm of regulation* (Norton series on interpersonal neurobiology). WW Norton & Company.
- Davis, L. W., Schmid, A. A., Daggy, J. K., Yang, Z., O'Connor, C. E., Schalk, N., ... & Knock, H. (2020). Symptoms improve after a yoga program designed for PTSD in a randomized controlled trial with veterans and civilians. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(8), 904.  
<https://doi.org/10.1037/tra0000564>
- Doyle, J.N., Campbell, M.A. & Gryshchuk, L. Occupational Stress and Anger: Mediating Effects of Resiliency in First Responders. *Journal of Police Crime Psych* 36, 463–472 (2021). <https://doi.org/10.1007/s11896-021-09429-y>
- Gabbidon, K., & Chenneville, T. (2021). Strategies to minimize further stigmatization of communities experiencing stigma: A guide for qualitative researchers. *Stigma and Health*, 6(1), 32. <https://doi.org/10.1037/sah0000280>
- Gower, T., Pham, J., Jouriles, E. N., Rosenfield, D., & Bowen, H. J. (2022). Cognitive biases in perceptions of posttraumatic growth: A systematic review and meta-analysis. *Clinical Psychology Review*, 94 (2022) 102159. <https://doi.org/10.1016/j.cpr.2022.102159>
- Hammock, A. C., Dreyer, R. E., Riaz, M., Clouston, S. A., McGlone, A., & Luft, B. (2019). Trauma and relationship strain: Oral histories with World Trade Center disaster responders. *Qualitative health research*, 29(12), 1751-1765.  
<https://doi.org/10.1177/1049732319837534>
- Harris, J. I., Chamberlin, E. S., Engdahl, B., Ayre, A., Usset, T., & Mendez, D. (2021). Spiritually integrated interventions for PTSD and moral injury: A review. *Current*

*Treatment Options in Psychiatry*, 8(4), 196-212. <https://doi.org/10.1007/s40501-021-00248-w>

Haugen, P. T., McCrillis, A. M., Smid, G. E., & Nijdam, M. J. (2017). Mental health stigma and barriers to mental health care for first responders: A systematic review and meta-analysis. *Journal of psychiatric research*, 94, 218-229.

<https://doi.org/10.1016/j.jpsychires.2017.08.001>

Infurna, F. J., & Jayawickreme, E. (2019). Fixing the growth illusion: New directions for research in resilience and posttraumatic growth. *Current Directions in Psychological Science*, 28(2), 152-158.

<https://doi.org/10.1177/0963721419827017>

Iyengar, B. K. S. (1965). *Light on yoga: the definitive guide to yoga practice*.

James, L. R., & Sells, S. B. (2013). Psychological climate: Theoretical perspectives and empirical research. In *Toward a psychology of situations* (pp. 285-306).

Psychology Press. <https://doi.org/10.4324/9780203759851-31>

Jayawickreme, E., & Blackie, L. E. R. (2014). Post-traumatic Growth as Positive Personality Change: Evidence, Controversies and Future Directions. *European Journal of Personality*, 28(4), 312–331

<https://doi.org/10.1002/per.1963>

Jindani, F., Turner, N., & Khalsa, S. B. S. (2015). A yoga intervention for posttraumatic stress: A preliminary randomized control trial. *Evidence-Based Complementary and Alternative Medicine*, 2015.

<https://doi.org/10.1155/2015/351746>

Joseph, S., Williams, R., & Yule, W. (1995). Psychosocial perspectives on post-traumatic stress. *Clinical Psychology Review*, 15(6), 515-544.

[https://doi.org/10.1016/0272-7358\(95\)00029-o](https://doi.org/10.1016/0272-7358(95)00029-o)

Joseph, S., Dalgleish, T., Williams, R., Yule, W., Thrasher, S., & Hodgkinson, P. (1997).

- Attitudes towards emotional expression and post-traumatic stress in survivors of the Herald of Free Enterprise disaster. *British Journal of Clinical Psychology*, 36(1), 133-138. <https://doi.org/10.1111/j.2044-8260.1997.tb01236.x>
- Joseph, S. & Linley, A.P. (2005). Positive Adjustment to Threatening Events: An Organismic Valuing Theory of Growth Through Adversity. Review of General Psychology, 9(3), 262–280. <https://doi.org/10.1037/1089-2680.9.3.262>
- Joseph, S. (2004). Client-centred therapy, post-traumatic stress disorder and post-traumatic growth: Theoretical perspectives and practical implications. *Psychology & Psychotherapy: Theory, Research & Practice*, 77(1), 101–119  
<https://doi.org/10.1348/147608304322874281>
- Joseph, S. (2011). *What doesn't kill us: The new psychology of posttraumatic growth*. Basic Books.
- Joseph, S. (2019). Posttraumatic growth as a process and an outcome: Vexing problems and paradoxes seen from the perspective of humanistic psychology. *The Humanistic Psychologist*. <https://doi.org/10.1037/hum0000156>
- Joseph, M. C., Kammath, S. P., & Fincy, M. P. (2019). Yoga and emotional intelligence. *IAHRW International Journal of Social Sciences Review*, 7(6), 1868–1872. <https://doi.org/10.30845/ijbss.v10n2p3>
- Kidd, M., & Eatough, V. (2017). Yoga, well-being, and transcendence: An interpretative phenomenological analysis. *The Humanistic Psychologist*, 45(3), 258.  
<https://doi.org/10.1037/hum0000068>
- King, G., Lam, P., & Roberts, M. E. (2017). Computer-Assisted Keyword and Document Set Discovery from Unstructured Text. *American Journal of Political Science*

- (John Wiley & Sons, Inc.), 61(4), 971–988. <https://doi.org/10.1111/ajps.12291>
- Korstjens, I., & Moser, A. (2017). Series: Practical guidance to qualitative research. Part 2: Context, research questions and designs. *The European Journal of General Practice*, 23(1), 274–279. <https://doi.org/10.1080/13814788.2017.1375090>
- Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1), 120–124. <https://doi.org/10.1080/13814788.2017.1375092>
- Lawn, S., Roberts, L., Willis, E., Couzner, L., Mohammadi, L., & Goble, E. (2020). The effects of emergency medical service work on the psychological, physical, and social well-being of ambulance personnel: a systematic review of qualitative research. *BMC Psychiatry*, 20(1), 1-16. <https://doi.org/10.1186/s12888-020-02752-4>
- Lenz, A. S., Ho, C.-M., Rocha, L., & Aras, Y. (2021). Reliability Generalization of Scores on the Post-Traumatic Growth Inventory. *Measurement and Evaluation in Counseling and Development*, 54(2), 106–119. <https://doi.org/10.1080/07481756.2020.1747940>
- Levine, P. A. (2015). *Trauma and memory: Brain and body in a search for the living past: A practical guide for understanding and working with traumatic memory*. North Atlantic Books.
- Lindenfeld, G. (2018). *First Responders: Compassion Fatigue; Burnout; PTSD*. CreateSpace Independent Publishing Platform.
- Lowe, M. S., Maxson, B. K., Stone, S. M., Miller, W., Snajdr, E., & Hanna, K. (2018). The Boolean Is Dead, Long Live the Boolean! Natural Language versus Boolean

- Searching in Introductory Undergraduate Instruction. *College & Research Libraries*, 79(4), 517–534. <https://doi.org/10.5860/crl.79.4.517>
- Macy, R. J., Jones, E., Graham, L. M., & Roach, L. (2018). Yoga for trauma and related mental health problems: A meta-review with clinical and service recommendations. *Trauma, Violence, & Abuse*, 19(1), 35-57. <https://doi.org/10.1177/1524838015620834>
- Maurer, M.M. & Daukantaitė, D. (2020). Revisiting the Organismic Valuing Process Theory of Personal Growth: A Theoretical Review of Rogers and Its Connection to Positive Psychology. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.01706>
- McCarthy, L., Fuller, J., Davidson, G., Crump, A., Positano, S., & Alderman, C. (2017). Assessment of yoga as an adjuvant treatment for combat-related posttraumatic stress disorder. *Australasian Psychiatry*, 25(4), 354-357. <https://doi.org/10.1177/1039856217695870>
- Mocanu, E., Mohr, C., Pouyan, N., Thuillard, S., & Dan-Glauser, E. S. (2018). Reasons, years and frequency of yoga practice: Effect on emotion response reactivity. *Frontiers in human neuroscience*, 12, 264. <https://doi.org/10.3389/fnhum.2018.00264>
- Moser, A., & Korstjens, I. (2018). Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European journal of general practice*, 24(1), 9-18. <https://doi.org/10.1080/13814788.2017.1375091>
- Nguyen-Feng, V. N., Clark, C. J., & Butler, M. E. (2019). Yoga as an intervention for psychological symptoms following trauma: A systematic review and quantitative

- synthesis. *Psychological services*, 16(3), 513. <https://doi.org/10.1037/ser0000191>
- Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage publications.
- Porges, S. W. (2011). *The polyvagal theory: Neurophysiological foundations of emotions, attachment, communication, and self-regulation (Norton Series on Interpersonal Neurobiology)*. WW Norton & Company.
- Price, M. (2017). Psychiatric disability in law enforcement officers. *Behavioral sciences & the law*, 35(2), 113-123. <https://doi.org/10.1002/bsl.2278>
- Reinhardt, K. M., Noggle Taylor, J. J., Johnston, J., Zameer, A., Cheema, S., & Khalsa, S. B. S. (2018). Kripalu yoga for military veterans with PTSD: a randomized trial. *Journal of clinical psychology*, 74(1), 93-108.  
<https://doi.org/10.1002/jclp.22483>
- Riffle, O. M., Lewis, P. R., & Tedeschi, R. G. (2020). Posttraumatic growth after disasters. *Positive psychological approaches to disaster: Meaning, resilience, and posttraumatic growth*, 155-167. [https://doi.org/10.1007/978-3-030-32007-2\\_10](https://doi.org/10.1007/978-3-030-32007-2_10)
- Sciarrino, N. A., DeLucia, C., O'Brien, K., & McAdams, K. (2017). Assessing the effectiveness of yoga as a complementary and alternative treatment for post-traumatic stress disorder: A review and synthesis. *The Journal of Alternative and Complementary Medicine*, 23(10), 747-755. <https://doi.org/10.1089/acm.2017.0036>
- Setlack, J., Brais, N., Keough, M., & Johnson, E. A. (2021). Workplace violence and psychopathology in paramedics and firefighters: Mediated by posttraumatic cognitions. *Canadian Journal of Behavioural Science/Revue canadienne des*

*sciences du comportement*, 53(3), 211. <https://doi.org/10.1037/cbs0000240>

- Sharma, M. (2014). Yoga as an alternative and complementary approach for stress management: a systematic review. *Journal of evidence-based complementary & alternative medicine*, 19(1), 59-67. <https://doi.org/10.1177/2156587213503344>
- Splevins, K., Cohen, K., Bowley, J., & Joseph, S. (2010). Theories of posttraumatic growth: Cross-cultural perspectives. *Journal of Loss and Trauma*, 15(3), 259-277. <https://doi.org/10.1080/15325020903382111>
- Stahl, N. A., & King, J. R. (2020). Expanding approaches for research: Understanding and using trustworthiness in qualitative research. *Journal of Developmental Education*, 44(1), 26-28. <https://doi.org/10.4135/9781529604399>
- Steele, E., Wood, D. S., J Usadi, E., & Applegarth, D. M. (2018). TRR's Warrior Camp: An intensive treatment program for combat trauma in active military and veterans of all eras. *Military medicine*, 183(suppl\_1), 403-407. <https://doi.org/10.1093/milmed/usx153>
- Sullivan, M. B., Erb, M., Schmalzl, L., Moonaz, S., Noggle Taylor, J., & Porges, S. W. (2018). Yoga therapy and polyvagal theory: The convergence of traditional wisdom and contemporary neuroscience for self-regulation and resilience. *Frontiers in Human Neuroscience*, 12. <https://doi.org/10.3389/fnhum.2018.00067>
- Taylor, J., McLean, L., Korner, A., Stratton, E., & Glozier, N. (2020). Mindfulness and yoga for psychological trauma: systematic review and meta-analysis. *Journal of Trauma & Dissociation*, 21(5), 536-573. <https://doi.org/10.1080/15299732.2020.1760167>



- Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma and transformation*. Sage.
- Tedeschi, R. G., & Calhoun, L. G. (2004). " Posttraumatic growth: conceptual foundations and empirical evidence". *Psychological inquiry*, 15(1), 1-18.  
[https://doi.org/10.1207/s15327965pli1501\\_01](https://doi.org/10.1207/s15327965pli1501_01)
- Tedeschi, R. G., Shakespeare-Finch, J., Taku, K., & Calhoun, L. G. (2018). *Posttraumatic growth: Theory, research, and applications*. New York, NY: Routledge.
- Tufford, L., & Newman, P. (2012). Bracketing in qualitative research. *Qualitative social work*, 11(1), 80-96. <https://doi.org/10.1177/1473325010368316>
- U.S. Bureau of Labor Statistics. (2020, February 7). *Injuries, Illnesses, and Fatalities*. Retrieved February 7, 2020, from <https://www.bls.gov/iif/home.htm>
- Van der Kolk, B. (2014). *The body keeps the score: Brain, mind, and body in the healing of trauma*. New York.
- West, J., Liang, B., & Spinazzola, J. (2017). Trauma Sensitive Yoga as a complementary treatment for posttraumatic stress disorder: A Qualitative Descriptive analysis. *International Journal of Stress Management*, 24(2), 173.  
<https://doi.org/10.1037/str0000040>
- Wheeler, M. S., Glass, C. R., Arnkoff, D. B., Sullivan, P., & Hull, A. (2018). The effect of mindfulness and acupuncture on psychological health in veterans: An exploratory study. *Mindfulness*, 9, 564-574. <https://doi.org/10.1007/s12671-017-0798-7>
- Williams, M., & Moser, T. (2019). The art of coding and thematic exploration in qualitative research. *International Management Review*, 15(1), 45-55.

<https://doi.org/10.4135/9781526441867.n4>

Younger, P., & Boddy, K. (2009). When is a search not a search? A comparison of searching themed complementary health database via EBSCOhost, OVID and DIALOG. *Health Information & Libraries Journal*, 26(2), 126–135.

<https://doi.org/10.1111/j.1471-1842.2008.00785.x>

Zacchaeus, E. A. (2020) Post-Traumatic Growth: A Positive Angle to Psychological Trauma. *International Journal of Science and Research*, 9(10), 1053-1061.

[https://doi.org/10.1163/9781848882393\\_015](https://doi.org/10.1163/9781848882393_015)

## Appendix: Structured Interview Questions

First responder yoga for posttraumatic stress, coping, and anxiety: A qualitative examination.

### **Research Questions**

RQ1: How do veterans and first responders who practice yoga for posttraumatic stress, anxiety, and coping describe their experiences with the intervention?

RQ2: How do these veterans and first responders perceive the effectiveness of yoga for symptom improvement, overall wellbeing, and work performance?

### **Interview Questions**

1. Tell me about your personal background starting from present day and working back to early life.
2. Tell me about why you decided to pursue your current career (or military service).
3. Tell me about your career starting with current duties and responsibilities and working back to the when you first started out.
4. Tell me about how past experiences have affected your emotional state over time (sadness, anxiety, fear, vicarious trauma, broken bones, illnesses, heart attack, depression; please don't recount the exact event, just your feelings and any residual impacts) from your most recent experience working back as far as you can remember or feel comfortable sharing.
5. Tell me about how your work experiences have influenced your perceptions of the world and relationships with others.

6. Tell me about your approaches to coping with work related impacts such as excessive stress, anxiety, physical injuries, and trauma exposures; again starting from present approaches and working back to the beginning of your career.
7. Explain how changing your coping practices has influenced your overall wellness.
8. Tell me about how your overall wellness impacts your work performance.
9. Tell me about the biggest challenges to maintain optimal wellness in your career.
10. Tell me about your yoga practice.
11. Tell me how you were introduced to yoga.
12. Tell me about any benefits you have experienced related to your yoga practice.
13. Tell me about any risks or harm you have experienced related to your yoga practice.
14. Tell me what, if any, impacts you believe yoga has on your overall wellbeing.
15. Tell me what, if any, impacts you believe yoga has on your relationships with others.
16. Tell me what, if any, impacts you believe yoga has on your work performance.
17. What, if any, influence has your yoga practice had on your satisfaction with life.
18. Tell me about any physical benefits you associate with your yoga practice.
19. Describe any barriers or stigmas you believe might limit yoga participation
20. Please share any additional insights you think are important to understand about the impacts of a consistent yoga practice on your work and or life experiences.