University of North Carolina Asheville
Journal of Undergraduate Research
Asheville, North Carolina
November 2020

A Pilot Study of Psychological Trauma's Manifestations in the Body: The Mediating Role of Interoception on Alexithymia, Hyperarousal, and Depressive Symptoms

Rosemary Wilson
Health and Wellness Promotion
The University of North Carolina Asheville
One University Heights
Asheville, North Carolina 28804 USA

Faculty Advisor: Dr. Laura Jones

Abstract

Mind-body practices such as yoga and mindfulness can be powerful adjunct treatments for psychological trauma, but much of the current literature examines these modalities without considering mediating variables or mechanisms by which these interventions lead to an alleviation of symptoms. The purpose of this study is to pilot test the use of assessments and explore relationships between variables related to experiences of psychological trauma, such as the type of trauma experienced, symptoms of posttraumatic stress, physical health symptoms following trauma, and experiences of body and emotional awareness, within a clinical sample of individuals currently seeking psychotherapy in relation to their trauma. Data is currently being collected via online survey disseminated to local psychotherapy practices with the request that they share the survey with their clients. The findings from this study will inform future research on the use of yoga as a complementary treatment to psychotherapy based on its effect on body and emotional awareness and their resulting effect on physical health and trauma symptoms.

1. Introduction

1.1 Psychological Trauma

Psychological trauma is frequently conceptualized simply as a disorder of the mind, and as such, many researchers fail to take into account the physical manifestations of trauma when examining efficacious treatments. More recent literature examines the use of bodywork practices such as yoga as an ancillary treatment for trauma.[1] However, none of the studies examine its efficacy in terms of the physical benefits of yoga practice and its effect on body and emotional awareness. Moreover, the impact of increased body and emotional awareness on trauma symptoms remains to be investigated.

Exposure to physical and psychological trauma can significantly impact the wellbeing of an individual. In their 2014 study, Jeter and Brannon showed that exposure to early childhood trauma can cause post-traumatic stress (PTS) symptoms that persist into adulthood.[2] Previous studies had only focused on the impact of physical trauma (i.e. resulting from injuries). However, in controlling for physical trauma and focusing solely on psychological trauma's impacts, the authors showed that childhood, peer, and intimate partner psychological trauma are linked to PTS symptoms in adult life.

Trauma exposed individuals are at increased risk for physical health problems.[3] The type of trauma one experiences influences physical health outcomes.[4] Goldsmith and colleagues highlighted the element of betrayal (i.e., traumatic events perpetrated by someone whom the victim knows) as an important factor in conceptualizing traumatic experiences. Specifically, they found that individuals who experienced traumatic events with an element of betrayal, reported more days sick and worse physical health outcomes overall. In a 2018 study, Guina and colleagues detailed

types of trauma exposure and their related symptomology. This study found that trauma type significantly predicts symptom severity.[5] These findings emphasize the importance of taking into account the types of trauma experienced and the number of traumatic events to which an individual was exposed when considering the physical and psychological consequences of trauma.[4]

Trauma exposure significantly and positively predicts re-experiencing, avoidance/numbing, and hyperarousal clusters of PTSD symptoms, as well as depressive symptoms and physical health symptoms.[3] Perez and colleagues found that hyperarousal and depressive symptoms have a significant impact on physical health symptoms (any symptom that might be addressed in a primary care setting), whereas re-experiencing and avoidance did not show a statistically significant impact on physical health symptoms. Over and above physical health outcomes frequently addressed in primary care settings, chronic pain may be linked to trauma exposure, as a physical symptom manifestation.[6] Trauma exposure was not found to have a direct effect on physical symptoms. Participants who reported at least one traumatic event reported significantly more physical health symptoms, as measured using symptoms frequently reported and addressed in outpatient clinical settings.[3] However, the PTSD symptom clusters and depressive symptoms mediated the relationship between trauma and physical health outcomes.[3] These findings highlight the need for effective treatment of hyperarousal and depressive symptoms as a means to address the physical health problems resulting from trauma exposure.

Goldsmith and colleagues documented strong associations between psychological difficulties and physical health complaints. Alexithymia, or a lack of emotional awareness and difficulty describing feelings, is associated with somatization of psychological disturbances, and may be one mechanism by which psychological symptoms influence physical health outcomes.[4] Alexithymia and traumatic stress symptoms may mediate high-betrayal trauma's impact on physical health symptoms.[4] However, additional research is needed to elucidate the exact relationship between psychological trauma and physical symptoms.

1.2 Treatments for Trauma

Traditional trauma treatments (e.g. trauma processing, insight-oriented therapy, exposure treatments) often fail to fully address the complicated symptom presentation of PTSD, especially somatic complaints such as loss of awareness of one's emotional and physical being in the present moment.[7] Trauma-processing treatments also are less effective for childhood trauma than adult-onset trauma.[7] Research suggests that teaching skills to regulate arousal is essential.[7] Use of mind-body practices to address somatic symptoms is just starting to be explored. It is posited that cognitive oriented therapy (COT) can be helpful, but without the incorporation of body-oriented therapy, COT alone is not enough.[7]

Body-oriented therapy, in a general sense, is an emerging complementary treatment for trauma.[8] Common body-oriented therapies include many practices originating from ancient China, India, and Tibet, such as yoga, tai chi, or qi gong and include the belief that thoughts and feelings impact health and can be healing in nature.[8] These ancient practices have given way to several techniques used today, for example guided relaxation, visual imagery, biofeedback, cognitive-behavioral therapies, and many others.[8] These practices are the topic of a growing body of research and have been discovered to have a few common themes. Body-oriented therapy fosters and is founded upon interoceptive awareness, personal agency, a relationship with a therapist that facilitates trust, and a transformative experience.[9] Participants in Price and colleagues' study reported that interoception improved their ability to interact with bodily sensations and established or reestablished links between body and emotion. The themes identified by their study indicated that an increased awareness of inner-body experience, or interoception, underlies the positive changes resulting from body-oriented therapy.[9]

Yoga is one of the ancient practices mentioned above that shows promising benefits for being used for facilitating body awareness. Much of the research surrounding yoga as a treatment for psychiatric disorders suggests that it has significant positive effects on managing symptoms of severe psychiatric disorders.[1] Of the several clinical and randomized controlled trials that have been conducted examining yoga as a treatment for several psychiatric disorders, there is scant research examining yoga for trauma specifically.[1] The growing body of evidence backing yoga as a medical treatment also has yet to examine the mechanisms that make it effective as a treatment for trauma.[1]

Trauma results in disconnection from the body, as evidenced by the symptom clusters that are physical in nature (e.g., hyperarousal, avoidance, depressive symptoms). In turn this can lead to increased expression of negative physical health outcomes.[3] Cultivating interoception helps heal trauma by reconnecting a person with their bodily sensations as well as teaching them to recognize ways in which difficult emotions are expressed by the body.[10] LaChiusa found that yoga practice facilitates interoception. The common themes of yoga practice that help heal trauma include connecting to the present moment, starting slowly with yoga practice, holding difficult emotions in specific sites, and healing the body to transform the psyche.[10]

Much of the previous literature examines yoga as a treatment for psychological trauma without considering mechanisms or mediating variables that may influence this connection. This study seeks to pilot test the efficacy of assessing the given variables together using a clinical sample of trauma survivors currently in psychotherapy to better inform their use together within a future intervention study examining the benefits of yoga in decreasing symptoms of posttraumatic stress following psychological trauma.

2. Methods

2.1 Participants

All participants are current or recent clients of psychotherapy practitioners in the Asheville, NC area. All participants are seeking care following exposure to a traumatic event. Anyone under the age of 18 is being excluded from participation in the study. If they are under the age of 18, parental consent would be required, and participants may not feel comfortable divulging the reasoning for their use of mental health services to parents to obtain consent.

2.2 Materials

Data is currently being collected via an online survey. There are six instruments within that survey.

2.2.1 demographics

An author-written demographics questionnaire is administered at the beginning of the assessment survey. The questionnaire assesses date of birth (to gather age), sex, gender, race, ethnicity, diagnosis if applicable, questions pertaining to history of participation in mind-body movement practices such as yoga, and employment status (employed full time, part time, unemployed, student).

2.2.2 brief betrayal trauma survey

To assess exposure to trauma and level of betrayal of those traumatic experiences, the Brief Betrayal Trauma Survey (BBTS) is administered next on the survey.[11] This questionnaire inquires about 11 specific categories of traumatic experiences (i.e. natural disasters, accidents, assaults) and includes a selection for any other form of trauma not specifically addressed. Each item can be separated based on level of betrayal, so high betrayal (HB) trauma and low betrayal (LB) trauma exposure can be calculated by summing the number of reported exposures of traumas relatively high or low in betrayal, respectively.

2.2.3 trauma symptom checklist

To measure traumatic symptoms experienced by the participants, the Trauma Symptom Checklist-40 (TSC-40) is administered next.[12] This questionnaire measures a range of traumatic stress symptoms, many of which are physical in nature, such as headaches, insomnia, weight loss, stomach problems, and feeling tense. The 40-item scale has six subscales: depression, anxiety, dissociation, sexual abuse trauma, sleep disturbance, and sexual problems. The instrument asks participants to rate the frequency of experiences of each symptom over the last two months using a 4-point scale ranging from 0 ("never") to 3 ("often"). Summing the points rated on each item that contribute to each subscale will yield subscale scores, and the total score (anywhere from 0 to 120) is computed by summing all items. This measure has established validity.[12]

2.2.4 pennebaker inventory of limbic languidness

As another way to gain insights to physical symptomology specifically, The Pennebaker Inventory of Limbic Languidness—time bound (PILL-*t*) is administered following the TSC-40.[13] The PILL-t is a 54-item scale that asks respondents to rate how often they have experienced common physical symptoms and sensations over the past month

with scores for each item ranging from 0 (*almost never*) to 5 (*almost daily*). On top of yielding a PILL Total Score by summing participants' rated numbers corresponding to each of these problems, this assessment also quantifies the number of visits in the past month to doctors or other health care professionals, the number of days respondents were sick in the past month, and the number of days in the past month activity was restricted due to illness.

2.2.5 toronto alexithymia scale

In order to quantify alexithymia, The Toronto Alexithymia Scale-20 (TAS-20) is administered.[14] This self-report scale contains 20 items, each rated using a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), five of which are negatively keyed. The assessment includes three subscales: difficulty describing feelings, difficulty identifying feelings, and externally-oriented thinking. The total alexithymia score is the sum of scores for all responses, while the score for each subscale factor is the sum of the responses to that subscale. Scores equal to or less than 51 mean non-alexithymia, and scores equal to or greater than 61 indicate alexithymia. Scores between 52 to 60 mean alexithymia is possible. This scale demonstrates good internal consistency (Cronbach's alpha = .81) and test-retest reliability (.77, $p<.01$).[14] The scale exhibits good convergent and concurrent validity.[14]

2.2.6 multidimensional assessment of interoceptive awareness

Finally, to assess body awareness, the Multidimensional Assessment of Interoceptive Awareness (MAIA) is administered. The MAIA is a self-report instrument developed to encompass all of the important concepts of interoception or body awareness.[15] This 32 item self-report measure contains the following 8 subscales: noticing, not distracting, not worrying, attention regulation, emotional awareness, self-regulation, body listening, and trusting. Each item is rated using a 6 point Likert scale from 0 ("never") to '5' ("always"). After summing the scores, a higher total score and subscale scores demonstrate higher levels of positive bodily awareness. The developed instrument is useful for measuring changes in body awareness over time, which is valuable for practitioners using and studying bodywork therapy. The scale demonstrates good internal consistency and reliability with alphas of 0.70, as well as incremental validity for multiple dimensions of the MAIA scale and validity across related constructs.[15]

2.3 Procedure

The researchers obtained approval for all research content and procedures from the university's Institutional Review Board. Following approval, the researchers advertised the study among local clinicians to derive a clinical sample from local psychotherapy practices. Sixty five facilities and practitioners were contacted and asked to invite their clients to participate in order to have a variety of participants from different counselors, services, and with different diagnoses. This included providing the practitioners with a description of the study and a link to the study website where a link to the informed consent and attached assessments is located. In this way, clinicians would not know which, if any, of their clients chose to participate and confidentiality is maintained.

The goal sample size is 100 participants. By recruiting from several practices, there is a better chance of having an even demographic spread. Hopefully males and females will be equally represented, with participants across a wide age range (18+ years old), and representing several races and ethnic groups.

When participants go to the study website, they see a link to the survey assessments. The informed consent is the first page of the assessment survey. They have an opportunity to read the informed consent, contact the study staff with any questions (email and phone number will be provided), and then click either "yes" or "no" to a question at the end asking whether they fully understand the informed consent and are willing to participate. If participants click "no" they will not be able to access the assessments and then will be directed to a page that thanks them for their consideration.

3. Discussion

3.1 Potential Implications

Data is still being collected with the hopes that the participant pool will become large enough to analyze the data in a meaningful way. The data from this study will result in valuable insights related to the interaction between body

awareness and symptoms of traumatic stress. Since these particular assessments have not been used together before, seeing how the collected data interacts will deepen understanding of the relationships between the variables they respectively measure.

3.1.1 research

A large body of research exists surrounding using yoga as a treatment for psychological trauma, but hardly any of that research examines the mechanisms by which it is effective. It is understood that yoga and other mind-body practices can help reduce symptom expressions and negative health outcomes of psychological trauma exposure, but we do not understand the mediating variables or how that relationship works. This pilot study will begin to inform the relationships between trauma symptomology and mediating variables such as body and emotional awareness, which will be valuable in forming a study with an intervention. Both the pilot study and future intervention study will give valuable insights to the mechanisms by which yoga and other body oriented therapies are effective in treating psychological disorders, especially those stemming from traumatic experiences.

3.1.2 trauma counseling

Traditional trauma counseling employs techniques that address the psychological side of trauma and do not focus much on the somatic symptoms. Learning how these variables interact will help inform trauma counselors on effective treatment practices to holistically address symptoms of their clients. When we understand the mechanisms by which yoga impacts the symptoms of psychological trauma, we will have evidence of another effective treatment for trauma-exposed individuals. The knowledge can also be implemented in general practice outpatient settings, further showing the need for holistic treatment of patients.

3.1.3 yoga therapy

The recently emerging field of yoga therapy continues to grow and gain traction, but research related to the field remains rather limited. Yoga can be a powerful tool for integrative health treatment. Yoga may increase body awareness, so understanding the extent of that relationship will help inform further research in the yoga therapy field.

3.2 Limitations

So far, this study has seen extremely limited response rates. This may indicate that the sampling procedures are lacking. It may be helpful to follow up with the practitioners, or reach out to some more. For the future study, it might be beneficial to consider a sampling practice that allows for broader eligibility so that more participants can be gathered.

4. Conclusion

This study will help inform a future intervention-based study. In this pilot study, the researchers are testing the use of these instruments together, as well as the study design. Further research should include a recruitment period with more follow-up for the practitioners who did not respond, or broader participant eligibility. Based on the results from the data analysis when it is complete, the researchers will have more insight into the relationship between body and emotional awareness and somatic symptoms of trauma exposure. This might aid in developing an appropriate intervention.

5. Acknowledgements

I would like to thank Dr. Jones for her endless support, patience, advice, and encouragement over the course of this research and beyond. I would also like to thank the local practitioners that shared the study with their clients and are open to working together for the future study.

6. References

1. Meyer, H. B., B.A., Katsman, A., B.A., Sones, A. C., Auerbach, D. E., Ames, D., M.D., & Rubin, Robert T,M.D., PhD. (2012). Yoga as an ancillary treatment for neurological and psychiatric disorders: A review. *The Journal of Neuropsychiatry and Clinical Neurosciences, 24*(2), 152-64. Retrieved from http://0-search.proquest.com.wncln.wncln.org/docview/1315542060?accountid=8388
2. Jeter, W. K., M.S., & Brannon, L. A., PhD. (2014). Moving beyond "sticks and stones": Chronic psychological trauma predicts posttraumatic stress symptoms. *Journal of Trauma & Dissociation, 15*(5), 548. Retrieved from http://0-search.proquest.com.wncln.wncln.org/docview/1612999357?accountid=8388
3. Perez, L. G., Abrams, M. P., Lopez-Martinez, A., & Asmundson, G. J. G. (2012). Trauma exposure and health: The role of depressive and hyperarousal symptoms. *Journal of Traumatic Stress, 25*(6), 641-648. doi:http://dx.doi.org/10.1002/jts.21762
4. Goldsmith, R. E., Freyd, J. J., & DePrince, A. P. (2012). Betrayal trauma: Associations with psychological and physical symptoms in young adults. *Journal of Interpersonal Violence, 27*(3), 547. doi:http://dx.doi.org/10.1177/0886260511421672
5. Guina, J., M.D., Nahhas, R. W., PhD., Sutton, P., M.D., & Farnsworth, S., M.D. (2018). The influence of trauma type and timing on PTSD symptoms. *Journal of Nervous and Mental Disease, 206*(1), 72. Retrieved from http://0-search.proquest.com.wncln.wncln.org/docview/1987407489?accountid=8388
6. Andersen, T. E., Lahav, Y., Ellegaard, H., & Manniche, C. (2017). A randomized controlled trial of brief somatic experiencing for chronic low back pain and comorbid post-traumatic stress disorder symptoms. *European Journal of Psychotraumatology, 8*(1), 1-9. doi:http://dx.doi.org/10.1080/20008198.2017.1331108
7. 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), 173–195. https://doi.org/10.1037/str0000040
8. Chaoul, M., & Cohen, L. (2010). RETHINKING YOGA AND THE APPLICATION OF YOGA IN MODERN MEDICINE. *CrossCurrents, 60*(2), 144-167. Retrieved from http://www.jstor.org/stable/24461555
9. Price, C., Krycka, K., Breitenbucher, T., & Brown, N. (2011). Perceived helpfulness and unfolding processes in body-oriented therapy practice. *Indo - Pacific Journal of Phenomenology, 11*(2), 1-15. Retrieved from http://0-search.proquest.com.wncln.wncln.org/docview/1318922100?accountid=8388
10. LaChiusa, I. C. (2016). The transformation of ashtanga yoga: Implicit memory, dreams, and consciousness for survivors of complex trauma. *NeuroQuantology*, *14*(2) doi:http://dx.doi.org/10.14704/nq.2016.14.2.941
11. Goldberg, L. R. & Freyd, J. J. (2006). Self-reports of potentially traumatic experiences in an adult community sample: Gender differences and test-retest stabilities of the items in a Brief Betrayal-Trauma Survey. *Journal of Trauma & Dissociation, 7*(3), 39-63.
12. Elliott, D., & Briere, J. (1992). Sexual abuse trauma among professional women: Validating the trauma symptom checklist-40 (TSC-40). *Child Abuse & Neglect*, *16*, 391-398.
13. Pennebaker, J. W. (1982). *The psychology of physical symptoms*. New York, NY: Springer-Verlag.
14. Bagby, R. M., Parker, J. D., & Taylor, G. J. (1994). The twenty-item Toronto Alexithymia Scale—I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research*, 38(1), 23-32.
15. Mehling, W. E., Price, C., Daubenmier, J. J., Acree, M., Bartmess, E., & Stewart, A. (2012). The multidimensional assessment of interoceptive awareness (MAIA).*PLoS One, 7*(11) doi:http://dx.doi.org/10.1371/journal.pone.0048230