

SCIENCE FACT OR SCIENCE FICTION: DO SEX AND GENDER MATTER IN POST-TRAUMATIC STRESS INJURY?

Portrayals of post-traumatic stress injury (PTSI) are often associated with male war veterans. However, you may be surprised to learn that twice as many women experience PTSI, even though men are more likely to live through potentially traumatic events¹. Transgender people are also more likely to experience symptoms associated with a PTSI than the general population². Why these differences exist is difficult to explain without research that incorporates both sex and gender. While some studies show observed and self-reported differences in the causes, experiences and treatment effects between men and women with a PTSI, more research is needed to develop personalized treatments.

“It’s important to take into account the intersectionality of gender, gender identity, socio-economic status, race, sexual orientation and social determinants of health that might influence the causes, stress-related symptoms and health-seeking practices in people with PTSI.”³

- Dr. Carmen Logie, Associate Professor in Social Work at the University of Toronto

A NOTE ON TERMINOLOGY

In recent years, advocates have begun pushing for a shift in language from the term ‘PTSD’ (post-traumatic stress disorder) to PTSI (post-traumatic stress injury)⁴. The reason for the change is stigma associated with the word “disorder”. The hope is that this change in language will help the public understand that, as with physical injuries, a person with a PTSI is not defined by the injury and they can recover⁴.

GAPS IN OUR KNOWLEDGE

Most pre-clinical research into the neurobiology of PTSI has been conducted in all-male samples. The same is true for clinical research into the stress response behind PTSI. Conversely, most clinical research on emotional vulnerability in PTSI has been done in all-female samples⁹. In addition, the reasons behind the high prevalence of PTSI in transgender

people are understudied². Data from clinical research is also largely based on self-report, making it less reliable and subject to variability due to gender norms⁹.

UNDERLYING CAUSES

Preclinical research indicates that sex (biological factors) may play a role in observed differences between males and females with a PTSI.

SEX

MALES

- Higher levels of arginine vasopressin or AVP, a hormone that raises blood pressure and stimulates the “fight or flight” response to stress
- AVP may be associated with men displaying more aggressive types of behaviours⁷

FEMALES

- Higher levels of oxytocin, a hormone that regulates or calms the “fight or flight” response to stress
- Oxytocin may contribute to females being more likely to seek social support in times of trauma⁷

Traditional gender roles can play a part in the types of events that lead to PTSIs.

GENDER

MEN

- More likely to be exposed to traumatic events in adolescence and young adulthood through incidents like combat, disasters, illness or general injuries¹

WOMEN

- More likely to acquire a PTSI due to sexual assault or childhood sexual abuse¹
- Trauma is also more likely to be recurrent, as in the case of domestic violence⁶

TRANSGENDER

- Transgender people often experience prejudice, discrimination or violence because of gender identity and expression, which can cause trauma²

EXPERIENCES AND BEHAVIOUR

Although men, women and transgender people with a PTSD show many similar reactions to trauma, their experiences post-trauma can also be drastically different.

MEN

- PTSDs stemming from childhood maltreatment often lead to conduct disorders and criminal offences⁷
- Tend to be more emotionally impulsive, which can lead to higher levels of alcohol use⁸

TRANSGENDER

- More likely to repress or avoid emotions associated with trauma²

WOMEN

- More likely to engage in self-blame, exaggerated negative beliefs, repetitive negative thinking and mentally re-experiencing the traumatic event^{9,5}.
- More likely to experience a chronic PTSD⁵
- Less likely to turn to alcohol use; but, when they do, more likely to drink excessively.⁹



TREATMENT

Given that the causes and experiences of PTSDs are different for men and women, it follows that treatment should also adapt to the sex and gender of an individual.

MEN

- Therapy less effective than among females; likely because of the way different genders are socialised to express emotion¹⁰
- More likely to pursue problem-focused solutions and avoidance strategies¹¹
- Propranolol, a drug that reduces blood pressure and heart rate, was found to reduce PTSD symptoms for boys aged 10-18¹²

WOMEN

- More likely to show emotion when coping with trauma and more likely to seek help from friends and family
- Emotion-focused strategies are more beneficial for women than men⁵
- Using propranolol was found to increase the severity of PTSD symptoms in girls¹²



Better treatment for PTSD requires a better understanding of the sex and gender differences in PTSD. It's also important to note that, while data might appear to show clear sex differences, identities are much more fluid than self-reported sex. And, other social factors work together to influence the different stresses people experience, which can lead to PTSD and influence access to care.

NEXT STEPS FOR RESEARCH

While research has pointed to differences in experience and treatment-seeking behaviour between men and women experiencing a PTSD, whether these differences stem from sex (biological traits) or gender (psycho-social characteristics) needs further study.

Pre-clinical and clinical studies must include both male and female participants and consider the implications of both sex and gender. Researchers should also be cautious when comparing data from single-sex studies derived from different contexts—military men versus women who have experienced sexual assault, for example.⁵

REFERENCES

1. Tolin, D.F. & Foa, E.B. (2008). Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. *Psychological Trauma: Theory, Research, Practice, and Policy*, 5(1), 37-85.
2. Reisner, S.L., White Hughto, J.M., Gamarel, K.E., Keuroghlian, A.S., Mizock, L. & Pachankis, J.E. (2016). Discriminatory Experiences Associated With Posttraumatic Stress Disorder Symptoms Among Transgender Adults. *Journal of Counseling Psychology*, 63(5), 509-519.
3. Logie, Carmen. Personal communication. (July 30, 2018).
4. PTSD vs PTSD. (2015). Global Post-Traumatic Stress Injury Foundation. Retrieved from <http://globalptsifoundation.org/ptsd-vs-ptsd>
5. Christiansen, D. & Elklit A. (2012). Sex differences in PTSD. *Post Traumatic Stress Disorders in a Global Context*, 113-142.
6. 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 and Dissociation*, 7(3), 39-63.
7. Klein, L.C. & Corwin, E.J. (2003). Seeing the unexpected: How sex differences in stress responses may provide a new perspective on the manifestation of psychiatric disorders. *Current Psychiatry Reports*, 4, 441-448.
8. De Bellis, M. D. & Keshavan, M. S. (2003). Sex differences in brain maturation in maltreatment-related pediatric posttraumatic stress disorder. *Neuroscience and Biobehavioral Reviews*, 27(1-2), 103-117.
9. Pineles, S. P., Arditte Hall, K. A. & Rasmusson, A. M. (2017). Gender and PTSD: different pathways to a similar phenotype. *Current Opinion in Psychology*, 14, 44-48.
10. Cason, D., Grubaugh, A., & Resick, P. (2002). Gender and PTSD treatment: Efficacy and effectiveness, in *Gender and PTSD*, Kimerling, R., Ouimette, P., & Wolfe, J., pp. 305-334, The Guilford Press, ISBN: 1-57230-783-8, NY.
11. Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review*, 6(1), 2-30.
12. Nugent, N. R., Brown, N. C. C., Crow, J. P., Browne, L., Ostrowski, S., & Delahanty, D. L. (2010). The efficacy of early propranolol administration at reducing PTSD symptoms in pediatric injury patients: A pilot study. *Journal of Traumatic Stress*, 23(2), 282-287.