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Post-Traumatic Stress Disorder: Identifying Potential Differences in Participant Response to CAPS-5 Life Events Checklist Questionnaire Based on Gender

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Abstract

Introduction: Post-traumatic stress disorder (PTSD) is a complicated and debilitating psychiatric condition that affects 1 in 3 people who have been exposed to, witnessed, or learned about a traumatic event. Females are almost 2-fold as likely to meet the criteria for PTSD and almost 4-fold as likely than males to develop chronic PTSD. In this pilot study, we examined Life Events Checklist Questionnaire responses from participants who were clinically diagnosed with PTSD to identify if there was a difference in response to checklist questions based on gender.

Materials and methods: Study participants (N = 39; n = 17 (43.6%) males; n = 22 (56.4%) females), with a PTSD diagnosis, were recruited in the US between January and June 2019 by PrecisionMed, California, USA. Study participants were matched for age, gender, and ethnicity. A CAPS-5 Life Events Checklist Questionnaire was applied at interview and symptom severity was calculated based on the sum of the participant responses.

Results: In total, N = 33 questions from the CAPS-5 Life Events Checklist Questionnaire were addressed to each of the study participants. All but one question was significantly different between males and females; namely, the inability to recall certain aspects of the traumatic event ($p < 0.05$) (chi square $\chi 2$). However, as the patient cohort size was limited (N = 39), we applied a post hoc Bonferroni ($\alpha = 0.05/33 = 0.0015$) to account for any potential bias in the results. Based on the post hoc analysis, we did not observe any differences in the participant response based on gender.

Conclusions: Although the literature identifies gender as a significant risk for PTSD, in this participant cohort, we failed to observe any differences in the subject response to the CAPS-5 Life Events Checklist Questionnaire. The only finding that was significant was that females were 3-times more likely to experience sexual abuse than males. However, it is likely that males are more resistant to report sexual abuse, as was noted in the case report forms.

Keywords

PTSD, Gender, CAPS-5, Screening, Life events checklist

Introduction

Post-traumatic stress disorder (PTSD) is a psychiatric condition that may develop following exposure to, witnessing, or learning about a traumatic event [1]. Pre-existing factors which may contribute to PTSD susceptibility include an underlying genetic predisposition, physical injury and associated pain (i.e., actual or threatened death, serious injury, or sexual violence), hyperreactive physiological responses to stress, gender, sleep disturbances (falling and staying asleep), and structural and functional brain abnormalities [2-5]. Symptoms may include flashbacks, nightmares, severe anxiety, panic attacks, as well as uncontrollable thoughts about the event (intrusive memories) [6].

PTSD can develop immediately, or it can occur weeks, months and sometimes years after the potential traumatic event (PTE). In general, PTSD has been estimated to affect almost 1 in 3 people who have experienced a PTE. However, it is still not clear why some people develop the condition and others do not [7].

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Sleep disturbances are a common presentation, occurring in almost 90% of all PTSD patients [8]. Self-medication, and alcohol abuse, contribute to increased insomnia and have significant negative consequences for individuals with pre-existing psychiatric conditions e.g., anxiety and depression, which are common comorbidities that are often associated with PTSD [9].

Fortunately, PTSD can be successfully treated, even when it develops years after the PTE e.g., antidepressants (i.e., paroxetine or sertraline) and/or psychological therapies (i.e., trauma-focused cognitive behavioural therapy (CBT) or movement desensitisation and reprocessing (EDMR)). However, treatment options will depend on the severity of the presenting symptoms and there is not one size fits all when it comes to treatment options [10].

For most people who have been exposed to a PTE, their reactions may include shock, fear, nervousness, anger, and even guilt [11]. These reactions are quite common, and in many people, they will self-resolve. However, in subjects that develop PTSD, these feelings continue and increase, significantly impacting their daily life. For example, subjects that experience PTSD > 1 month do not function as well as before the exposure to the PTE [12].

Gender is an identified risk factor for PTSD [13,14], and as such, females are twice as likely to develop PTSD than males [15]. One reason why females may be more at risk of PTSD, is that females are more likely to experience a sexual assault and/or child sexual abuse [16]. As a result, females are twice as likely to meet the criteria for PTSD and are also four times as likely than males to develop chronic PTSD.

Using the CAPS-5 Case Report Form - PTSD Screening (Life Events Checklist Questionnaire), we investigated the following; exposure type and patient score for: unwanted memories; unpleasant dreams; flashbacks; prolonged psychological distress; physical reactions; avoidance; difficulty remembering; negative beliefs; persistent, distorted cognitions; negative feelings; diminished interest; feeling of detachment; persistent inability to experience positive emotions; irritable behaviour; reckless and self-destructive behaviour; hypervigilance; exaggerated startle response; problems with concentration; sleep disturbances (falling and staying asleep); onset of symptoms; duration of symptoms; subjective distress; impairment in social functioning; impairment in occupational or other important areas of functioning; global validity (patient response); global severity (distress); global improvement (improvement in condition); depersonalization; and derealization; to identify potential differences in PTSD patient response based on gender.

Materials and Methods

Study participants

Study participants were recruited in the USA between January and June 2019 by PrecisionMed, California, USA. Participants were matched for age, gender and ethnicity. Inclusion criteria included a signed and approved written informed consent form, male or female ≥ 18 years of age, and subject is of any ethnic origin. Exclusion criteria included subjects < 18 years of age, evidence of neuropsychiatric disease, subject weighs < 45 kg, and pregnancy. The study conformed to all Data Use Agreements. Participant samples are deidentified and were publicly available and are thus exempt from the requirement of the Institutional Review Board (IRB) approval (Exempt Category 4). A CAPS-5 assessment was undertaken by a clinician and/or psychologist. CAPS-5 scores were available for all N = 39 individuals.

Psychological assessment

The CAPS-5 Life Events Checklist Questionnaire is applied at clinical interviews to assess risk of PTSD and associated psychiatric illness. The CAPS-5 total symptom severity score is then calculated by summing (∑) the response to questions that are put to each of the participants (0 = absent, 1 = mild/subthreshold, 2 = moderate/threshold, 3 = severe/markedly elevated, and 4 = extreme/incapacitating). A score of < 33 is often considered negative for PTSD. For one participant the ∑ was < 33 however, the clinical diagnoses recorded on the patient's notes by the clinician were PTSD. Additional notes and comments made by the subjects at interview were recorded on the CAPS-5 Life Events Checklist Questionnaire and included, but were not limited to, difficulty to forget and avoid memories of the event (flashbacks and unwanted memories, many associated with smell), alertness (loud noises), extreme guilt, disconnection, anxiety, depression, pain, abandonment, not being able to trust their own judgement (or others), helplessness, sad, angry (anger management issues), isolated, frustrated, cautious, suspicious, difficulty falling and staying asleep, and an inability to focus on the positive.

Clinical characteristics

Sociodemographic and clinical characteristics of the PTSD participants involved in the study, including behaviours (smoking (years) and alcohol use (Y/N)), BMI, pulse, blood pressure, comorbidities (including psychological e.g., depression, anxiety, panic disorder, ADD, suicide ideation), medications, substance abuse, and serum biomarker measurements, have been described previously [17].

Statistical analysis

Statistical analysis was performed using SPSS Statistics for Windows, Version 25 (IBM Corp, Armonk, New York). Categorical variables are presented as percentage (%) and were compared using a chi square (χ^2) test. A p value < 0.05 was considered significant. A *post hoc* Bonferroni was applied to minimise potential bias.

Results

Exposure type

Study participants were asked to describe the traumatic event that they considered triggered their PTSD. Subject responses were noted as either (a) Experienced; (b) Witnessed; (c) Learned about; (d) Exposed to adverse details, or combinations thereof. In addition, the PTSD participants were also asked if the trauma exposure type was (i) A threat to life; (ii) A serious physical injury; (iii) Sexual violence, or again, combinations thereof (Table 1).

Table 1: Exposure type

Factor	Male (n = 17)	Female (n = 21)	p value
Age	41.65 ± 10.59	42.14 ± 13.45	0.812
Life Threat	14/17 (82.5%)	18/21 (85.7%)	0.560
Serious Injury	15/16 (93.8%)	16/21 (76.2%)	0.206
Sexual Violence	3/16 (18.8%)	13/21 (61.9%)	0.018

PTSD participants were asked to complete a Life Events Checklist Questionnaire regarding their trauma exposure and whether they had witnessed, learned about, were exposed to adverse details, and whether the trauma was a threat to their life, serious physical injury, and/or sexual violence, or combinations thereof. Of note, was that females were > 3-fold more likely to suffer sexual violence. We noted that male participants in the study were reluctant to discuss, or disclose, many of the details related to sexual violence or child sex abuse that they had been exposed to.

CAPS-5 life events checklist questionnaire

Each participant in the study answered a CAPS-5 Life Events Checklist Questionnaire, undertaken by a qualified clinician or psychologist. In all cases, the psychiatric diagnosis was PTSD (behaviours, medications, comorbidities and other clinical parameters have been reported previously) [17]. A summary of the CAPS-5 Life Events Checklist questionnaire and results are detailed in Table 2.

CAPS-5 life events checklist questionnaire results

Applying a *post hoc* Bonferroni, based on the number of questions that were asked of the study participants in the CAPS-5 Life Events Checklist Questionnaire (n = 33), we assigned statistical significant based on the following equation; $\alpha = 0.05/33 = 0.0015$. Therefore, a significance less than $p < 0.0015$ was considered significant. As such, it was not unexpected that we did not observe any differences in the CAPS-5 Life Events Checklist Questionnaire response based on gender, for this small participant cohort.

Discussion

Post-traumatic stress disorder is a common psychiatric presentation that is normally associated with exposure to, witnessing, or learning about a traumatic event [18]. However, PTSD can be the result of other events, e.g., the working environment [19]; abusive co-workers [20], critical illness [21], and sexual harassment [22]; as noted in the Life Events Checklist Questionnaire.

PTEs that drive PTSD, or the perception of the trauma event, differ significantly between individuals e.g., one individual that is harassed at work may shrug it off however, another may suffer a psychiatric illness. The reason why one individual develops PTSD and another does not, is the subject of ongoing research [23]. However, individuals that are harbingers of underlying asymptomatic pathologies, such as a psychiatric illness, may be more at risk of PTSD following a PTE.

PTSD affects all socioeconomic demographics and an individual's social status is not guaranteed to be protective, albeit, subjects that have, or maintain a lower socioeconomic status, are more likely to be exposed to trauma events [24]. Therefore, it is unsurprising that this demographic is at higher risk of PTSD.

According to the National Centre for PTSD [25], females are twice as likely to experience PTSD than males (10% (10-12% lifetime prevalence) vs. 4% (5-6% lifetime prevalence), respectively) [26]. Reasons for this disparity suggest that males are more likely to encounter traumas such as physical assault, accidents, and see more death (combat). On the other hand, females are more likely to experience sexual assault and/or sexual abuse as a child [27]. Incidents reported by the National Sexual Violence Resource Centre suggest that 91% of rapes and sexual assault victims are women, and 9% are males [28]. However, this number may be significantly underreported, as many males are more resistant to report the sexual assault to their person. This reluctance to discuss sexual assault, if gender was male, was noted on the Life Events Checklist Questionnaire.

It has been suggested that females that experience PTSD are more likely to exhibit the following symptoms: easily startled (exaggerated startle response), have trouble feeling any emotion, avoid trauma reminders, have intrusive thoughts, are anxious, irritable, and feel numb. However, in direct contrast, males with PTSD are noted to have difficulty controlling their anger and regulating their mood, they constantly brace for further potential trauma, feel helpless, lonely, isolated, and ashamed. Furthermore, males are noted to be more likely to abuse alcohol, smoke more cigarettes, take more medications, and often withdraw from friends and family [15].

In this pilot study, we did not observe any significant differences in the answers to CAPS-5 Life Events Checklist Questionnaire based on gender, albeit, the number of participants involved in the study were only N = 39. However, our observations are aligned with findings reported by Hapke, et al. [29]. In their study, they stated that 'women do not have a higher vulnerability for PTSD'. They concluded that 'sexually-motivated violence and pre-existing anxiety disorders were the main reason for higher prevalence's of PTSD.'

One of the limitations of our study was that we were unaware if the participants involved had pre-existing psychiatric conditions prior to their PTSD diagnosis. Albeit, the participant report forms would suggest that several individuals sought help because of underlying health conditions, including psychiatric conditions, such as anxiety and depression. For all individuals who were diagnosed with PTSD, anxiety and/or depression was comorbid. Furthermore, physical and psychological comorbidities were recorded for all subjects, namely pain and sleep disturbances. These finding have been reported earlier [17].

However, the question remains that if the underlying comorbidities are significant contributors to risk, irrespective of gender, as suggested by Hapke, et al. [29] for a PTSD diagnosis, after a PTE, or if they are precipitated by the PTSD. This will be the subject of further investigation in a larger patient cohort.

Table 2: CAPS-5 life events checklist questionnaire

Life events checklist questionnaire	Male	Female	p value
Intrusive memories	15/17 (88.2%)	22/22 (100%)	0.184
Distressing dreams	16/17 (94.1%)	17/22 (77.3%)	0.206
Dissociate Reactions	11/17 (64.7%)	15/22 (68.2%)	1.000
Cued psychological distress	17/17 (100%)	22/22 (100%)	1.000
Cued psychological reactions	15/17 (88.2%)	20/22 (90.9%)	1.000
Avoidance of memories, thoughts and feelings	16/17 (94.1%)	19/22 (86.4%)	0.618
Avoidance of external reminders	14/17 (82.4%)	17/22 (77.3%)	1.000
Inability to recall aspects of the event	4/17 (23.5%)	13/22 (59.1%)	0.050
Exaggerated negative beliefs or expectations	15/17 (88.2%)	20/22 (90.9%)	1.000
Distorted cognitions leading to blame	11/17 (64.7%)	19/22 (86.4%)	0.142
Persistent negative emotional state	15/17 (88.2%)	22/22 (100%)	0.184
Diminished interest or participation in activities	13/17 (76.5%)	17/22 (77.3%)	1.000
Detachment or estrangement from others	16/17 (94.1%)	21/22 (95.5%)	1.000
Persistent inability to experience positive emotions	16/17 (94.1%)	19/22 (86.4%)	0.618
Irritable behaviour and angry outbursts	15/17 (88.2%)	21/22 (95.5%)	0.570
Reckless or self-destructive behaviour	3/17 (17.6%)	4/22 (18.2%)	1.000
Hypervigilance	14/17 (82.4%)	20/22 (90.9%)	0.636
Exaggerated startle response	14/17 (82.4%)	15/22 (68.2%)	0.464
Problems with concentration	15/17 (88.2%)	21/22 (95.5%)	0.570
Sleep disturbances	14/17 (82.4%)	21/22 (95.5%)	0.300
Duration of disturbance (> 1 month)	16/17 (94.1%)	22/22 (100%)	0.436
Subjective distress	17/17 (100%)	22/22 (100%)	1.000
Impairment in social functioning	17/17 (100%)	22/22 (100%)	1.000
Impairment in occupational functioning	14/17 (82.4%)	21/22 (95.5%)	0.300
Global validity	15/16 (93.8%)	21/22 (95.5%)	1.000
Global severity	16/16 (100%)	22/22 (100%)	1.000
Global improvement	16/16 (100%)	21/21 (100%)	1.000
Depersonalization	11/17 (64.7%)	11/22 (50.0%)	0.517
Derealization	9/17 (52.9%)	14/22 (63.6%)	0.531
PTSD with dissociative symptoms	11/17 (64.7%)	14/22 (63.6%)	1.000
PTSD with delayed onset	11/17 (64.7%)	13/22 (59.1%)	0.753
First degree relative with alcohol/substance abuse disorder	5/17 (29.4%)	6/22 (27.3%)	1.000
First degree relative with history of psychiatric illness	4/17 (23.5%)	12/22 (54.5%)	0.099

Categorical variables are presented as percentage (%) and were compared using a chi square (χ^2) test. A p value < 0.05 was considered significant.

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