Risk Factors for Posttraumatic Stress Disorder Following an Industrial Disaster in a Residential Area: A Note on the Origin of Observed Gender Differences

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ABSTRACT

Background: Studies indicate that differences in trait anxiety and trauma-related distress may mediate the gender differences observed in posttraumatic stress disorder (PTSD).

Objective: We examined the contributions of gender, trait anxiety, and trauma-related distress to the development of PTSD after an industrial disaster.

Methods: Three months after a massive explosion in a fireworks factory in Kolding, Denmark, in November 2004, residents in the surrounding area were asked to complete the Harvard Trauma Questionnaire, the General Health Questionnaire, and a questionnaire designed for the present study. Using multivariable logistic regression with PTSD as the dependent variable, we examined 4 explanatory models: (1) gender; (2) gender and trait anxiety; (3) gender, trait anxiety, and perceived danger; and (4) gender, trait anxiety, perceived danger, perceived hostility, feeling isolated, depersonalization, and behavioral self-blame.

Results: Fifty-one percent (N = 516; 265 women and 251 men) of the area residents participated in the study. The female-to-male ratio of PTSD was 2.4:1. Women experienced significantly more trait anxiety (P < 0.001), feelings of isolation (P < 0.005), and behavioral self-blame (P = 0.018), and less perceived danger (P = 0.034) than did men. In multivariable logistic regression analysis, gender alone predicted 3.7% of the variance in PTSD status (odds ratio [OR] = 2.40; 95% CI, 1.35–4.27; P < 0.005); however, in all other models, gender was not significant. The final model comprised trait anxiety (OR = 1.20; 95% CI, 1.11–1.30; P < 0.001), perceived danger (OR = 4.62; 95% CI, 2.24–9.50; P < 0.001), perceived hostility (OR = 5.21; 95% CI, 1.93–14.09; P < 0.001), perceived isolation (OR = 3.34; 95% CI, 1.55–7.16; P < 0.002), depersonalization (OR = 2.49; 95% CI, 1.42–4.37; P < 0.001), and behavioral self-blame (OR = 0.46; 95% CI, 0.24–0.86; P = 0.015), explaining 48.9% of the variance in PTSD severity.

Conclusion: This cross-sectional study found that gender was no longer associated with PTSD status when trait anxiety, perceived danger and hostility, feeling isolated, depersonalization, and behavioral self-blame were taken into account. (Gend Med. 2010;7:156–165) © 2010 Excerpta Medica Inc.

Key words: PTSD, gender differences, anxiety, industrial disaster.
INTRODUCTION

Posttraumatic stress disorder (PTSD) was first recognized in male war veterans, but subsequent studies have indicated that women are generally at higher risk of developing PTSD.\(^1\) It has been suggested that differences in the level of exposure\(^2\)–\(^3\) and type of trauma experienced by men and women may account for these gender differences in PTSD.\(^4\)\(^,\)\(^5\) A 2006 meta-analysis addressing these issues only partly supported this hypothesis: although women were found to be at greater risk of developing PTSD, they were not exposed to more traumas, but rather, they experienced different types of trauma than did men.\(^1\) However, a pertinent issue in this meta-analysis was the lack of methodologic stringency in studies of PTSD prevalence, for example, in sampling, in the use of the stressor criterion, and in the identification of the index event, resulting in a lack of conclusive evidence regarding gender differences.

Because trauma type can only partially explain gender differences in PTSD prevalence, other factors may help elucidate why women develop PTSD more often than do men. Generally, women exhibit different psychiatric symptom patterns compared with men; whereas women have greater levels of anxiety and depression, men have greater levels of aggressive behavior, substance abuse, and conduct problems.\(^6\) These findings suggest that preexisting psychological distress may account for the observed gender difference in PTSD prevalence.\(^1\) This premise is supported by a cross-sectional study of 5687 children exposed to a disaster, which found that trait anxiety was the single most important predictor of PTSD, as children who fulfilled the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition Revised* criteria for a PTSD diagnosis scored significantly higher on the Revised Children’s Manifest Anxiety Scale than did children without PTSD (mean [SD], 17.69 [5.89] vs 9.68 [5.99], respectively; \(F [1, 5620] = 460.13; P < 0.001\)).\(^7\) The premise was also supported by a random sample study of 1007 young adults, which found that both a family history of anxiety and a personal history of anxiety or affective disorder were significant predictors of PTSD, increasing the risk of PTSD 2.89 and 2.46 times, respectively.\(^8\) In contrast, a third, cross-sectional study using strong methodology found that neither major depression nor anxiety disorder predicted PTSD in 122 adult victims of motor vehicle accidents.\(^9\) Taken together, these studies suggest that it may not be emotional disorders per se, but more likely the trait level of emotions, such as anxiety, that may predispose an individual to developing PTSD.

There is also evidence to suggest that the observed gender differences in PTSD prevalence may be mediated by other trauma-related factors, such as the distress related to a trauma or the increased levels of PTSD symptoms in women.\(^3\)\(^,\)\(^4\) Frans et al\(^3\) studied 1824 adults in the general population and found that women reported higher levels of distress and, because distress is associated with a higher risk of PTSD, were also at increased risk of PTSD, with a 2:1 female-to-male ratio. In the previously mentioned study of motor vehicle accident victims, Fullerton et al\(^9\) found that although women did not report more overall reexperiencing symptoms than did men, they did report more distress in trauma-related situations and more physical reactions to trauma memories. They were also 4.7 times more likely than men to report avoidant symptoms and 3.8 times more likely to report increased arousal. This resulted in women being diagnosed with PTSD 4.39 times more often than were men. In addition, the investigators found that peritraumatic dissociation was associated with an increased risk of PTSD in women but not in men, because women who had experienced peritraumatic dissociation were 7.55 times more likely than their male counterparts to develop PTSD, suggesting a neurobiological difference in peritraumatic dissociation between men and women. Taken together, these findings suggest that women may be more vulnerable to PTSD, because their response to a traumatic experience more often involves factors that predispose them to PTSD. Therefore, focusing on other factors often associated with increased PTSD, but not yet examined in relation to gender differences, may enhance our understanding of the etiology of gender differences in PTSD. Such factors may comprise perceived danger, perceived hostility, feelings of isolation, depersonalization, and behavioral self-blame,
all of which have previously been shown to predict PTSD symptomatology.\textsuperscript{10–13}

The present study was undertaken in an attempt to assess the respective contributions of gender, trait anxiety, trauma-related distress, perceived danger and hostility, feelings of isolation, depersonalization, and behavioral self-blame to the development of PTSD after an industrial disaster.

\textbf{SUBJECTS AND METHODS}  

\textbf{Disaster}

In November 2004, an explosion occurred in a fireworks factory in a residential area of Kolding, Denmark. The explosion measured 2.2 on the Richter scale and resulted in damage to 355 homes, 176 of which were seriously damaged and 75 of which were destroyed. According to regional information, ~2000 people (1000 adults [aged \( \geq 18 \) years], 1000 children) were living in the evacuated area at the time of the explosion. The estimated cost of the damage was 100 million euros. Only one death and very few injuries occurred, because emergency services were able to evacuate most of the area residents before the factory explosion. However, many residents were unable to contact family members to ensure that they were safe. Thus, although most of the participants were not in direct danger from the explosion, the evacuation and the uncertainty that followed regarding the safety of family and friends were highly stressful. Approximately one third of the sample reported feeling that their life was in danger, and one third reported that they feared for the life of their loved ones. Therefore, we believe that for a substantial number of participants, the A1 and A2 criteria were fulfilled for a diagnosis of PTSD according to the \textit{Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)}.  

\textbf{Procedure}

Three months after the explosion, master's level psychology students working as research assistants approached the participants in their own homes by visiting every house in the immediately affected area (which covered \( \sim 1 \) square km of residential area adjacent to the fireworks factory), and invited all adults (~1000) in the household to participate in a survey. If the residents were not at home, a letter was left at the address, and those whose homes were destroyed and who were living elsewhere were approached by mail (new addresses were obtained from the postal service).

The study was conducted in accordance with Nordic ethical guidelines for psychologists. Participants who were at home when the research assistants visited were given oral information on the study's purpose. In those houses where the residents were not present, a letter describing the purpose of the study was included with the questionnaires. Residents were informed that they did not have to return the questionnaire if they did not wish to participate. Participants were instructed to fill out the questionnaires by themselves.

The questionnaire package included 2 standardized questionnaires as well as a questionnaire designed for the present study that assessed demographics, past-year life events, previous traumatic exposure, and disaster characteristics. The questionnaire package also included a number of open questions for qualitative analyses not relevant to the present study.

\textbf{Harvard Trauma Questionnaire}

The Harvard Trauma Questionnaire (HTQ) is a brief, reliable screening tool consisting of 31 items assessing the symptoms of PTSD.\textsuperscript{14} In the current version, 17 items correspond to the \textit{DSM-IV-TR} PTSD symptom criteria.\textsuperscript{15} All items are scored on a Likert scale of 1 = not at all to 4 = most of the time. The HTQ yields an overall PTSD symptomatology severity score as well as scores for the 3 core symptom groups of PTSD (intrusion, avoidance, and arousal). Furthermore, the questionnaire can be used to estimate the prevalence of full and subclinical PTSD diagnoses in a sample. A diagnosis of PTSD requires the presence of at least 1 reexperiencing symptom, 2 arousal symptoms, and 3 avoidance symptoms. A subclinical diagnosis is given when a participant misses the full diagnosis by just one avoidance or arousal symptom. A minimum score of 3 indicates individual symptom presence. The HTQ has good internal consistency, reliability, and criterion validity,\textsuperscript{14} and it has been validated in Danish.\textsuperscript{16}
**General Health Questionnaire**

The 30-item General Health Questionnaire (GHQ-30) is a psychiatric screening tool identifying patients with psychiatric disorders. Participants were asked to report symptoms experienced within the past 2 weeks. One of the subscales of the GHQ-30 measures trait anxiety using 8 items. These items are scored on a 4-point Likert scale ranging from 1 = never to 4 = always, and total scores range from 8 to 32. The GHQ has been tested and validated in different cultural contexts, including Denmark. Only the anxiety subscale was used in the present study.

**RESULTS**

A total of 516 residents (265 women and 251 men; 51% of the affected adult population) agreed to participate in the study. No information on possible differences between participants and nonparticipants was available.

**Sociodemographic and Psychological Characteristics**

Questions regarding age, marital status, education, and children were included in the questionnaire package. In addition, participants were asked whether or not at the time of the explosion they had perceived that their life was in danger. This variable was measured on a 7-point Likert scale ranging from “not at all” to “very much.” Items 27 (“Feel that I can’t trust anyone”), 30 (“Feel like I’ve been split into two and that one part of me is watching the other”), and 32 (“Blame myself for not doing something I could have done or for not doing enough”) from the HTQ were used to measure perceived hostility from others, depersonalization, and behavioral self-blame following the disaster. All 3 items were measured on a 4-point Likert scale ranging from “not at all” to “most of the time.” None of these measures were included in the HTQ total score used to measure PTSD severity or in any of the HTQ symptom subscales. Isolation from others was assessed by a single item (“Do you feel isolated from others?”) from the 26-item revised version of the Trauma Symptom Checklist (TSC-26). This item was measured on a 4-point Likert scale ranging from “no” to “very often.” No other items from the TSC-26 were included in the study.

**Statistical Analysis**

Gender differences on any of the sociodemographic or psychological measures were examined using t and χ² tests. The sample was stratified by PTSD status, and different models of possible PTSD predictors were then compared using multivariable logistic regression and the enter procedure. The first model consisted of gender alone; the second model consisted of gender and trait anxiety; the third model consisted of gender, trait anxiety, and perceived danger; and the final model consisted of gender, trait anxiety, perceived danger, perceived hostility, feeling isolated, depersonalization, and behavioral self-blame. The α was set at 0.05, and all analyses were performed using SPSS 13.0 for Windows (SPSS Inc., Chicago, Illinois). As shown in Table I, missing data were not a considerable problem in the study, and as a result, no specific statistical procedures for missing data were applied. The regression analysis was conducted with the 467 participants who had no missing data on the HTQ.

**RESULTS**

A total of 516 residents (265 women and 251 men; 51% of the affected adult population) agreed to participate in the study. No information on possible differences between participants and nonparticipants was available.

**Sociodemographic and Psychological Characteristics**

Sociodemographic and psychological characteristics are shown in Table II. Based on HTQ scores,
13% (n = 64) of the total sample were considered to have met the DSM-IV-TR criteria for PTSD. Significantly more women (n = 43; 18%) than men (n = 21; 9%) were estimated as fulfilling these criteria ($\chi^2 = 8.41; P < 0.005$). Additionally, women had higher levels of trait anxiety ($F = 14.44; P < 0.001$), perceived hostility ($F = 8.63; P < 0.005$), and feelings of isolation ($F = 8.63; P < 0.005$), and behavioral self-blame ($F = 5.64; P = 0.018$). Significantly more men than women reported having felt that their life was in danger at the time of the disaster ($F = 4.51; P = 0.034$). Women and men did not significantly differ from each other in relation to age, living arrangements, work status, number of children, or previous trauma exposure. Because the focus of the present study was on factors that may have an impact on the relationship between gender and PTSD, the nonsignificant variables were not included in any further analyses.

**Gender as a Predictor of Posttraumatic Stress Disorder**

Results of the multivariable logistic regression analysis comparing several models of PTSD predictors are shown in Table III. Because of the missing values on the HTQ, this analysis was conducted with 467 participants. We first examined the effect of gender on PTSD status and found that it accounted for only 3.7% of the variance, with women being 2.4 times more likely than men to experience PTSD. At the second step, we entered anxiety into the analysis as the only other pre-trauma variable in the model. High levels of anxiety significantly increased the risk of PTSD ($\text{OR} = 1.29; 95\% \text{CI}, 1.21–1.38; P < 0.001$), and the variance accounted for by the second model increased to 29.9%, although after controlling for trait anxiety, gender was no longer significantly associated with PTSD status ($\text{OR} = 1.77; 95\% \text{CI}, 0.94–3.34; P = \text{NS}$). At the third step, the only peritraumatic variable, perceived life threat ($\text{OR} = 3.79; 95\% \text{CI}, 2.01–7.14; P < 0.001$), was introduced. This increased the variance accounted for by the model to 35.5%. In the fourth and final step, we introduced the posttraumatic variables that were likely to influence PTSD status. Perceived hostility from others ($\text{OR} = 5.21; 95\% \text{CI}, 1.93–14.09; P < 0.001$), feeling isolated ($\text{OR} = 3.34; 95\% \text{CI}, 1.55–7.16; P < 0.002$), and depersonalization ($\text{OR} = 2.49; 95\% \text{CI}, 1.42–4.37; P < 0.001$) were all significantly and positively associated with the presence of a PTSD diagnosis. Behavioral self-blame was also significantly related to PTSD status, but unlike the other variables, self-blame was associated with a decreased risk of PTSD ($\text{OR} = 0.46; 95\% \text{CI}, 0.24–0.86; P = 0.015$). The addition of these
they were also more anxious and felt more isolated. Behavioral self-blame does not appear to add to women’s higher PTSD prevalence—although women scored significantly higher than men on this item, it was significantly but negatively associated with PTSD status. Perceived peritraumatic life danger was the only variable in the present study to be reported significantly more often by men than by women, although the difference was small. This variable was significant in the regression analysis when introduced at the final step, suggesting that its association with PTSD risk is independent of gender. Although we did not directly examine mediation effects, the results of our study suggest that observed gender differences in PTSD may be mediated by gender differences in emotional stress and trauma-related factors. This suggests that the role of gender in itself may not be as prominent in PTSD as previous research has indicated.

Generally, women have greater levels of trait anxiety and depression compared with men.\(^6\) In the present study, trait anxiety was independently related to PTSD status; hence, women would be expected to have an increased risk of PTSD, a con-

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**Table III.** Multivariable logistic regression analysis of various predictor models (n = 467).

<table>
<thead>
<tr>
<th>Predictor Model*</th>
<th>Odds Ratio (95% CI)</th>
<th>P</th>
<th>Explained Variance (cumulative), %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>2.40 (1.35–4.27)</td>
<td>&lt;0.005</td>
<td></td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>1.77 (0.94–3.34)</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>Trait anxiety</td>
<td>1.29 (1.21–1.38)</td>
<td>&lt;0.001</td>
<td>29.9</td>
</tr>
<tr>
<td>Model 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>1.56 (0.81–3.01)</td>
<td>0.18</td>
<td></td>
</tr>
<tr>
<td>Trait anxiety</td>
<td>1.29 (1.21–1.39)</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Perceived danger</td>
<td>3.79 (2.01–7.14)</td>
<td>&lt;0.001</td>
<td>35.5</td>
</tr>
<tr>
<td>Model 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>1.40 (0.67–2.91)</td>
<td>0.37</td>
<td></td>
</tr>
<tr>
<td>Trait anxiety</td>
<td>1.20 (1.11–1.30)</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Perceived danger</td>
<td>4.62 (2.24–9.50)</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Perceived hostility</td>
<td>5.21 (1.93–14.09)</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Feeling isolated</td>
<td>3.34 (1.55–7.16)</td>
<td>&lt;0.002</td>
<td></td>
</tr>
<tr>
<td>Depersonalization</td>
<td>2.49 (1.42–4.37)</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Behavioral self-blame</td>
<td>0.46 (0.24–0.86)</td>
<td>0.015</td>
<td>48.9</td>
</tr>
</tbody>
</table>

*Gender is only significant in the first model.
cept that was also supported by our findings (9% men vs 18% women). A previous study in a child population also found PTSD to be predicted by trait anxiety rather than gender alone, whereas a study examining depression and anxiety disorder found no significant impact of either disorder on PTSD status. The present study expands on these findings by examining the combined effect of gender and trait anxiety on PTSD status, and suggests that gender differences in emotional distress (ie, trait anxiety) may be mediating the observed gender differences found in adult PTSD prevalence.

Differences in types of trauma experienced and level of exposure have previously been suggested as mediating the relationship between gender and PTSD. However, in the present study, women and men exposed to a similar disaster (same type of trauma) and living in a similar residential area (approximately same level of exposure) still had a 2.4:1 ratio, respectively, of PTSD. The current results therefore support previous findings indicating that neither trauma type nor level of exposure may fully explain gender differences in PTSD.

The origin of gender differences may instead be closely related to a person’s subjective experience and evaluation of the trauma rather than more objective features such as type of trauma and level of exposure. In the present study, perceived danger was independently associated with an increased risk of PTSD, a finding consistent with a meta-analysis by Ozer et al showing that the weighted average correlation between perceived life threat and subsequent PTSD was \( r = 0.26 \). Taken together, this supports the premise outlined in stressor criterion A2, namely, that it is the subjective rather than the objective evaluation of a traumatic experience that determines whether a specific event constitutes a stressor.

Two factors that may be related to poor levels of social support are isolation and perceived hostility. Social support has been found to serve as a protective factor in relation to PTSD. Therefore, the association between isolation and perceived hostility and PTSD status may be explained by low levels of social support increasing PTSD symptomatology. It is interesting that women in this study felt significantly more isolated than did men. This is in contrast to other studies’ observations that women reported receiving more support from others than did men. It is possible that because women tend to seek more support, they are also more likely to feel isolated and experience others as hostile if they do not receive adequate levels of support. Moreover, women tend to report higher levels of neuroticism and negative affectivity than do men, a gender difference that was also previously documented in the present sample. Because of this, women may be more likely to feel lonely and isolated and to perceive others as being hostile.

Owing to the cross-sectional nature of the study, we cannot be certain that the association between PTSD, feeling isolated, and perceived hostility from others reflects that these 2 variables serve as risk factors for PTSD. Another possibility is that people with PTSD withdraw from social interaction and that this causes them to feel isolated. In addition, the family and friends of those experiencing PTSD may become impatient with them, and this may at least partly account for the association between PTSD status and perceived hostility. Longitudinal studies are needed to further examine gender differences in perceived hostility and isolation and their association with PTSD status.

Furthermore, we found that depersonalization was more prominent among those who experienced PTSD than those who did not. Dissociative experiences such as depersonalization have frequently been found to increase the risk of developing PTSD, and as such, our findings are in accord with those from previous studies. In the present study, although women did report slightly more depersonalization than did men, the difference was not significant. Women have been found to report higher levels of peritraumatic dissociation, and in the present sample, women reported higher levels of persistent dissociation than did men. Our failure to find a significant association between depersonalization and gender may be related to the fact that depersonalization was assessed by a single item. Therefore, future studies should further examine whether gender differences in dissociation may account for gender differences in the prevalence of PTSD.
The last factor associated with PTSD status was behavioral self-blame, and contrary to expectation, it exerted a buffering effect on PTSD. However, behavioral self-blame may indicate that a person assumes some responsibility for the event in question and therefore may believe that he or she will be able to avoid future traumatization by acting differently. Without behavioral self-blame, the individual may not be able to contemplate having personal control over what occurred and consequently may experience helplessness. Framed like this, behavioral self-blame then becomes associated with personal control and the belief that future traumatic events can be averted. This interpretation is consistent with research findings that perceived control over traumatic events may positively affect one’s ability to adapt and, in turn, may serve as a protective factor against the development of PTSD.23

Although we did not directly examine mediation in the present study, our results indicate that the observed gender differences in PTSD may be mediated by other modifiable factors such as trait anxiety and feelings of isolation. This suggests that gender differences in PTSD may not be a given, and that the increased risk of PTSD in women may be addressed by stratifying trauma intervention according to gender. That is, if women have higher levels of trait anxiety, feel more isolated, perceive others as being more hostile, experience dissociation (depersonalization) more often, and are less likely to exhibit behavioral self-blame, these gender-specific risk factors may be targeted through a gender-differentiated intervention after exposure to trauma. Acknowledging that males and females may have different needs in the aftermath of trauma may be important in terms of optimizing the interventions provided and consequently reducing the prevalence of PTSD.

One of the major strengths of the present study was the large data set consisting of 265 women and 251 men, ensuring adequate statistical power for the analyses that we have conducted. That being said, the results of our study should be interpreted with the following limitations in mind.

First, we used self-reports rather than clinical interviews, which are particularly important in relation to PTSD status, as a diagnosis based on self-report data is less valid than one based on information achieved in a clinical interview. However, gender differences may be more pronounced when administering clinical interviews compared with self-reports,1 suggesting that the findings of the present study are likely to be even more pronounced if replicated in a study using data from clinical interviews.

Second, there was no information regarding non-responders. However, the current results are consistent with general findings regarding gender differences in PTSD, which suggests that the generalizability of our findings to the whole population affected by the explosion may be acceptable. Research has suggested that gender differences in PTSD following interpersonal trauma may be even more pronounced than those following less personal types of trauma such as that examined in our study.29 This further suggests that the findings of the present study may not be generalizable to other trauma populations, especially populations affected by interpersonal violence.

Third, although the GHQ-30 anxiety subscale was used in this study as a measure of trait anxiety, scores are based on symptom reporting within the 2 weeks leading up to the study. As a result, it cannot be ruled out that responses reflect more state-like anxiety, in which case anxiety scores may be influenced by PTSD symptomatology and not just the other way around. Furthermore, a cross-sectional design does not readily allow for assigning cause and effect. Thus, the causality of the associations found in the present study is unknown.

That the variables examined in the present study can generally be divided into pre-, peri-, and posttraumatic factors supports the idea that the independent variables generally serve as risk factors for PTSD. However, longitudinal studies are needed to further examine the relationship between the variables examined herein and PTSD. Such studies should properly test for mediation to further illuminate the impact of gender on PTSD and either support or dismiss the hypothesis of this article: that the impact of gender on PTSD status is mediated by other factors such as trait anxiety as well as other pre- and posttraumatic variables.
CONCLUSIONS
In summary, the results of the present study indicated that following an industrial disaster in a residential area, women were at greater risk of developing PTSD compared with men. However, gender failed to account for any unique variance in PTSD status after trait anxiety, perceived danger, perceived hostility, feeling isolated, depersonalization, and behavioral self-blame were controlled for.

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