This paper examined and synthesized the (limited) available literature on the pre-traumatic predictors of PTSD, specifically targeting populations in which traumatic events are experienced frequently because of the requirements of their professions, i.e., firefighters, police, and military personnel. A total of 21 articles were included in the final literature review and were used to assess current available knowledge of the pre-traumatic traits of career-related PTSD and address potential gaps in the literature. The culmination of this research was used to create specific risk profiles for each of the high risk populations included in this review, firefighters, police, and military personnel. The research presented here discovered very little literature surrounding these high risk populations. Future research focusing on longitudinal prospective studies should be conducted on high risk populations so that training could better equip officers, firefighters, and military personnel to deal with PTEs, thus lowering the overall development of PTSD.

INTRODUCTION
At one point or another in their lifetime every individual experiences a PTE, but only 8.7% of people in the United States meet the DSM criteria for PTSD by the age of 75 (Medina, 2010).

• 44-47% of veterans and recently deployed soldiers develop PTSD (Medina, 2010).

• 22% of firefighters develop PTSD (Heinrichs et al., 2005).

• 7-19% of police officers develop PTSD (Mauguen et al., 2009).

These professional populations present a unique opportunity for researchers to examine pre-traumatic factors that may be associated with PTSD because researchers may be able to get baseline statistics before a PTE and follow up data shortly after one or multiple PTEs. However, very little such research has been performed.

METHODOLOGY
Each article must have met the following criteria:

1. The study centered on pre-traumatic factors of PTSD.
2. The study was conducted on a population that experiences frequent traumatic events related to their career, i.e., active duty military or veterans, firefighters, and police.
3. Participants were assessed before and after a period of time in which a traumatic event occurred.
4. The article was considered to be “recent” research published between within the last 10 years, and
5. The study must have been written in English.

RESULTS
• Total of 21 studies that met the above criteria.
• 4 articles exclusively involved firefighters.
• 5 articles involved police officers.
• 11 articles involved military personnel.
• Average age of participants ranged from 18 – 31 years old.
• All research was conducted on men.
• Majority being of Caucasian or white decent.

Table 1: Firefighter Characteristics

<table>
<thead>
<tr>
<th>Citation</th>
<th>Population</th>
<th>Mean Age (SD)</th>
<th>Trauma Exposed Sample Size</th>
<th>Baseline</th>
<th>Follow-Up Assessment Schedule</th>
<th>Primary Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bryant and Guthrie (2007)</td>
<td>Firefighters</td>
<td>36.3 ± 10.4</td>
<td>250</td>
<td>Pre- to active duty</td>
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<td>Higher levels of empathy operated of formation before predicted PTSD symptomatology.</td>
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<tr>
<td>Bryant et al. (2007)</td>
<td>Firefighters</td>
<td>26.4 ± 7.5</td>
<td>70</td>
<td>Pre- to active duty</td>
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<td>PTSD symptom predicts a likeliness in recruiting specific genes among populations.</td>
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<tr>
<td>Guthrie and Rademaker (2008)</td>
<td>Firefighters</td>
<td>27.2 ± 0.7</td>
<td>140</td>
<td>Pre- to active duty</td>
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<td>High-level biological arousal may be a reliable trait marker for predicting PTSD.</td>
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<tr>
<td>Heinrichs et al. (2009)</td>
<td>Firefighters</td>
<td>26.2 ± 3.8</td>
<td>308</td>
<td>While training at the academy</td>
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<td>While training at the academy, 15% PTSD cases were detected over 2.5 years.</td>
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</tbody>
</table>

Table 2: Police Characteristics

<table>
<thead>
<tr>
<th>Citation</th>
<th>Population</th>
<th>Mean Age (SD)</th>
<th>Trauma Exposed Sample Size</th>
<th>Baseline</th>
<th>Follow-Up Assessment Schedule</th>
<th>Primary Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erdle et al. (2010)</td>
<td>Police Officers</td>
<td>27.4 (5.9)</td>
<td>279</td>
<td>While training at the academy</td>
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<td>A history of substance abuse, psychotic symptoms, and for women anxiety disorders to first degree biological relatives increases the risk of PTSD.</td>
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<td>Guard and Guard (2008)</td>
<td>Police Officers</td>
<td>27.6 ± 0.5</td>
<td>140</td>
<td>Pre- to active duty</td>
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<td>High risk level of PTSD symptoms at 2 years.</td>
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<tr>
<td>MacFarlane et al. (2008)</td>
<td>Police Officers</td>
<td>27.4 ± 0.7</td>
<td>140</td>
<td>Pre- to active duty</td>
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<td>Stress work environment predicted PTSD symptomatology.</td>
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<td>Meffert et al. (2008)</td>
<td>Police Officers</td>
<td>27.4 ± 0.7</td>
<td>140</td>
<td>Pre- to active duty</td>
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<td></td>
<td>Type B personality predicts PTSD symptoms and made PTSD symptomatology.</td>
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<tr>
<td>Wright et al. (2012)</td>
<td>Police Officers</td>
<td>27.2 ± 4.4</td>
<td>235</td>
<td>While training at the academy</td>
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<td></td>
<td></td>
<td>Alters the social norm, was associated with lower symptoms of PTSD.</td>
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</tr>
</tbody>
</table>

REFERENCES


CONCLUSION

The high-risk profile for firefighters include individuals with higher levels of negative self-appraisal, difficulty recall memories surround a PTE, heightened biological arousal, high hostility, low self-efficacy, an inability to relax after a PTE, IQ levels and higher levels of depression (Bryant et al., 2007; Bryant & Guthrie, 2007b; Guthrie & Bryant, 2005; Heinrichs et al., 2005; Orr et al., 2012).

For police officers this high-risk group are officers who have a history of substance abuse, psychotic symptoms, and/or mood disorders, poorer work environment, are more apt to dissociation from PTEs, have higher baseline trait anger, and have a malevolent outlook on the world (Inslicht et al., 2010; Maguen et al., 2009; Maguen et al., 2008; Meffert et al., 2008; Yuan et al., 2011).

Lastly, the high-risk group for military personnel includes personnel who have poorer physical and mental health, higher levels of trait anger before deployment, Type D personality, nightmares before deployment, and low social functionality (LeardMann, 2009; Lommen et al., 2014; Rademaker et al. 2011; Sandweiss et al., 2011; van Liempt et al., 2013; van Zuiden et al., 2011; Vasterling et al., 2008; Wright et al., 2012).

FUTURE RESEARCH

Future research focusing on longitudinal prospective studies should be conducted on high risk populations so that training could better equip firefighters, firefighters, and military personnel to deal with PTEs, thus lowering the overall development of PTSD.

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Pre-traumatic Factors of Career-Related PTSD: A Systematic Review of the Literature