Association between traumatic experiences and physical health conditions in a nationally representative sample

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Collaborators

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Background

• Limited research on the association between trauma and mental illness

• Growing body of research on the association between physical health conditions and mental disorders including PTSD

• Preliminary research on the association of trauma and physical health conditions
Our Research Questions

1. Is there a cumulative linear effect of experiencing multiple traumatic events on the association to physical health conditions?

2. Is it the nature of the trauma experienced or the mental disorder that increases the susceptibility of physical health problems?
Methods - Sample

- National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)
- Wave 2 in 2004-2005 (n=34,653), response rate: 70.2%
- Age ≥20 years
- U.S. adult, non-institutionalized population
- Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version used to establish mental disorder diagnoses
<table>
<thead>
<tr>
<th>Trauma Groups (Lifetime)</th>
<th>Physical Health Conditions (Past-Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injurious</td>
<td>Cardiovascular Disease</td>
</tr>
<tr>
<td>Psychological</td>
<td>Arteriosclerosis/Hypertension</td>
</tr>
<tr>
<td>Combat</td>
<td>Gastrointestinal Disease</td>
</tr>
<tr>
<td>Witness</td>
<td>Diabetes</td>
</tr>
<tr>
<td>Natural disaster/terrorism</td>
<td>Arthritis</td>
</tr>
<tr>
<td></td>
<td>Obesity</td>
</tr>
</tbody>
</table>
Methods – Trauma Groups

- Injurious
  - Accident
  - Sexual assault
  - Physical attack
  - Physical abuse as child
  - Physical abuse by partner
  - Kidnapping/held hostage
  - Injured in terrorist attack

- Psychological
  - Neglect
  - Stalking
  - Threat with weapon

- Natural Disaster/Terrorism
  - Natural disaster (e.g. fire, hurricane)
  - Experience terrorism

- Combat
  - Active military combat
  - Peacekeeper/relief worker in war zone
  - Unarmed civilian in war/revolution/military group
  - Refugee

- Witness
  - Witness physical abuse
  - Witness terrorism
  - Witness trauma (e.g. see someone injured/killed, see a dead body)
  - Trauma of someone close (e.g. illness/accident/injury, death)
# Prevalence of Traumatic Experiences

<table>
<thead>
<tr>
<th>Traumatic Experience</th>
<th>n (weighted %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injurious Trauma</td>
<td>10,741 (30.68)</td>
</tr>
<tr>
<td>Psychological Trauma</td>
<td>6,316 (17.32)</td>
</tr>
<tr>
<td>Combat Trauma</td>
<td>2,441 (7.53)</td>
</tr>
<tr>
<td>Witness Trauma</td>
<td>24,282 (71.57)</td>
</tr>
<tr>
<td>Natural Disaster/Terrorism</td>
<td>5,518 (16.10)</td>
</tr>
</tbody>
</table>
Methods - Analyses

- Logistic regressions:
  - Number of traumatic experiences $\rightarrow$ assessed physical health conditions

- Logistic regressions:
  - Type of trauma $\rightarrow$ assessed physical health conditions
    - Model 1: adjusted for *sociodemographic variables*
    - Model 2: adjusted for *sociodemographics and Axis I and II disorders*
    - Model 3: adjusted for *sociodemographics, Axis I and II disorders, all other trauma groups*
Results - Number of Traumas

Table 2. Number of traumatic experiences predicting physical health conditions

<table>
<thead>
<tr>
<th>Physical Health Condition</th>
<th>Unadjusted Odds Ratio (95%CI)</th>
<th>AOR1 (95%CI)</th>
<th>AOR2 (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular Disease</td>
<td>1.12(1.10-1.14)***</td>
<td>1.13(1.11-1.15)***</td>
<td>1.09(1.07-1.11)***</td>
</tr>
<tr>
<td>Arteriosclerosis/Hypertension</td>
<td>1.04(1.02-1.05)***</td>
<td>1.04(1.03-1.06)***</td>
<td>1.02(1.01-1.04)**</td>
</tr>
<tr>
<td>Gastrointestinal Disease</td>
<td>1.13(1.11-1.16)***</td>
<td>1.15(1.12-1.17)***</td>
<td>1.09(1.07-1.12)***</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.03(1.01-1.05)**</td>
<td>1.04(1.02-1.06)***</td>
<td>1.02(1.00-1.05)</td>
</tr>
<tr>
<td>Arthritis</td>
<td>1.09(1.07-1.10)***</td>
<td>1.10(1.09-1.12)***</td>
<td>1.09(1.07-1.11)***</td>
</tr>
<tr>
<td>Obesity</td>
<td>1.05(1.04-1.06)***</td>
<td>1.09(1.02-1.16)***</td>
<td>1.03(1.01-1.04)***</td>
</tr>
</tbody>
</table>

Note. AOR1 = adjusted odds ratio; sex, race, marital status, education, income
AOR2 = adjusted odds ratio; sociodemographics, Axis I, Axis II, and all other assessed physical health conditions excluding the condition of interest.
## Results: Trauma → Condition

### Model 2

<table>
<thead>
<tr>
<th>Trauma Type</th>
<th>Significant Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Injurious</strong></td>
<td>All conditions (AOR 1.17-1.61)</td>
</tr>
<tr>
<td><strong>Psychological</strong></td>
<td>All conditions (AOR 1.16-1.41)</td>
</tr>
<tr>
<td><strong>Combat</strong></td>
<td>CVD and GI (AOR 1.27-1.30)</td>
</tr>
<tr>
<td></td>
<td>Negatively with obesity (AOR 0.87)</td>
</tr>
<tr>
<td><strong>Witnessing</strong></td>
<td>All conditions (AOR 1.25-1.53)</td>
</tr>
<tr>
<td><strong>Natural disaster/terrorism</strong></td>
<td>All conditions except obesity (AOR 1.15-1.42)</td>
</tr>
</tbody>
</table>

Adjusted for sociodemographics and any mood, anxiety, substance use and personality disorders.
# Results: Trauma → Condition Model 3

<table>
<thead>
<tr>
<th>Trauma Type</th>
<th>Significant Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injurious</td>
<td>All conditions (AOR 1.13-1.47)</td>
</tr>
<tr>
<td>Psychological</td>
<td>CVD, GI disease, diabetes, arthritis (AOR 1.15-1.22)</td>
</tr>
<tr>
<td>Combat</td>
<td>Negatively with obesity (AOR 0.84)</td>
</tr>
<tr>
<td>Witnessing</td>
<td>All conditions (AOR 1.22-1.89)</td>
</tr>
<tr>
<td>Natural disaster/terrorism</td>
<td>CVD, GI disease, arthritis (AOR 1.12-1.28)</td>
</tr>
</tbody>
</table>

Adjusted for sociodemographics, Axis I and II disorders and all other trauma groups
Conclusions

- Modest association between several types of trauma and physical health conditions, even when controlling for Axis I and II disorders (including PTSD)

- The impact of traumatic events on physical health may be independent of Axis I and II disorders

- There appears to be a cumulative effect of traumas on the odds of having all assessed physical health conditions
Limitations

• Self-reported physical health conditions and traumatic events

• Cross-sectional sample

• Certain populations (under 18, institutionalized) were not included in the sample, so results may not generalize to these groups
Physiological reactivity associated with stress response and PTSD

Some evidence that survivors of trauma even without PTSD have increased autonomic reactivity

Likely trauma itself is associated with biological changes
Healthy Warrior?

• Why is combat trauma NOT significantly associated with increased odds of physical conditions?
  • Haley’s (1998) “healthy warrior effect” suggests that chronically ill soldiers are selectively withheld from deployment
Clinical Implications

• Screening and treatment for individuals who do not fulfill criteria for a mental disorder but who have experienced trauma

• Clinicians should consider screening for trauma in those presenting with multiple somatic complaints
Acknowledgements

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Selected References


