The Center for Research and Outreach

Putting Research to Work
for Military Families

Focus:
Army

Mild Traumatic Brain Injury in U.S. Soldiers Returning From Iraq

Hoge, C. W., McGurk, D., Thomas, J. L., Cox, A. L., Engel, C. C., & Castro, C. A. (2008). Mild traumatic brain injury in U.S. soldiers returning from Iraq. *New England Journal of Medicine, 358*(20), 453-463. doi:10.1056/NEJMoa072972

SUMMARY: Soldiers who had been deployed to Iraq answered questions about injuries they sustained during deployment, their psychological health, and their physical health. Results indicate that 15% of Soldiers sustained injuries consistent with mild traumatic brain injury, and that these injuries are associated with higher odds of depression, posttraumatic stress disorder (PTSD), and poor physical health.

KEY FINDINGS:

- Fifteen percent of Soldiers reported injuries during deployment consistent with mild traumatic brain injury (e.g., loss of consciousness or altered mental state).
- Mild traumatic brain injury was strongly associated with PTSD symptoms. Forty-four percent of Soldiers who experienced loss of consciousness, and 27% of soldiers who experienced altered mental states reported symptoms consistent with PTSD.
- Experiencing loss of consciousness was associated with higher odds of major depression, and of poorer overall physical health; experiencing an altered mental state was associated with higher odds of PTSD.
- PTSD, depression, or both were associated with a variety of physical health problems after returning from deployment, including: stomach pain, chest pain, heart pounding, and sleep disturbance.

IMPLICATIONS FOR PROGRAMS:

Programs could:

- Offer classes about PTSD and other mental health concerns, including information about common warning signs, symptoms, coping tools, and sources of help
- Provide courses containing concrete information on the possible psychological and physical health implications of mild traumatic brain injury
- Offer workshops during reintegration to help families and Service members adjust to the Service member's return, especially when the deployment has included combat exposure

IMPLICATIONS FOR POLICIES:

Policies could:

- Recommend expanding efforts to educate practitioners who work with returning Service members about the role that psychological issues can have on overall physical health and well-being
- Support the development of a range of treatments for Service members and Veterans who have experienced a range of traumatic brain injuries
- Promote reintegration programs that include attention to assisting Service members' family in adjusting to the Service member's return

This product is the result of a partnership funded by the Department of Defense between the Office of Military Community and Family Policy and the USDA's National Institute of Food and Agriculture through a grant/cooperative agreement with The University of Minnesota.

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METHODS

- This study used self-report questionnaires that participants completed at two U.S. Army combat brigades, one Active and one Reserve (59% completion rate).
- Participants completed questionnaires about their experience with injuries during deployment (including nature of injury and intensity of combat experience, assessed with Combat Experience Scale), their physical health (assessed with the Patient Health Questionnaire), and their mental health (including major depressive disorder and PTSD, assessed with the Patient Health Questionnaire).
- Statistical analyses were used to determine associations between combat injuries (particularly traumatic brain injury), and mental health status.

PARTICIPANTS

- Two thousand seven hundred fourteen Army soldiers who had recently returned from deployment to Iraq completed surveys. Among them, 2,525 were included in analyses (149 were excluded for missing data, 40 excluded for unclear information about physical injuries sustained).
- Participants were predominantly male (96%), under age 30 (56%), and were a junior enlisted rank (48%). These demographics are similar to the Army's general pattern of demographics for those deployed to Iraq.
- No other demographic data were provided.

LIMITATIONS

- The cross-sectional design limits causal inferences.
- The self-report nature of the data introduces the possibility of recall bias.
- The exclusion of those with serious bodily injury could have produced underestimates of the impact of the relationships among these variables.

AVENUES FOR FUTURE RESEARCH

Future research could:

- Conduct additional longitudinal designs to test for changes across time in the associations between physical health, psychological health, and combat experiences
- Evaluate the associations between PTSD and physical health symptoms to determine how best to predict specific health problems based on an individual's diagnosis of PTSD
- Examine the extent to which length of time in military service impacts the relationship between PTSD and physical health outcomes

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