The Center for Research and Outreach

Putting Research to Work
for Military Families

Effects of Military Deployment on Cognitive Functioning

Vincent, A. S., Roebuck-Spencer, T., Lopez, M. S., Twillie, D. A., Logan, B. W., Grate, S. J., ... Gilliland, K. (2012). Effects of military deployment on cognitive functioning. *Military Medicine*, *177*(3), 248-255. doi:10.7205/MILMED-D-11-00156

SUMMARY: Active Duty Service members without traumatic brain injuries (TBI) were evaluated before and following deployment to Iraq or Afghanistan to evaluate the possibility of an association between deployment and measurable changes in cognitive functioning. Data gathered upon the Service members' return from deployment suggest that the general environmental stressors of deployment had minimal to no lasting effect on cognition.

KEY FINDINGS:

- There were minimal differences in Service members' cognitive functioning performance before and following deployment.
- Overall cognitive functioning performance improved from pre- to post-deployment. Specifically, improvement was observed on five of the seven tests of cognitive functioning.
- A very small percentage (less than 3%) of this sample showed meaningful decline in cognitive functioning following deployment.

IMPLICATIONS FOR PROGRAMS:

Programs could:

- Provide professionals who work with military families improved training on warning signs that suggest decline in cognitive functioning
- Host support groups for military spouses or partners in order to have a place where they can share their experiences and exchange resources related to Service members who have cognitive impairments
- Develop post-deployment workshops for Service members that enhance education, activities, and curriculum related to coping behaviors and dealing with TBI symptoms

IMPLICATIONS FOR POLICIES:

Policies could:

- Encourage the development and continuation of programs that promote resilience in Service members, their partners, and children
- Recommend training for community professionals to educate them about unique factors, including TBIs, that contribute to marital strain for military couples
- Recommend partnerships among military-based and community-based programs to help military families feel more comfortable participating in services and activities that are not on installations

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METHODS

- Data were obtained from the Automated Neuropsychological Assessment Metrics (ANAM), which contains Service members' pre- and post-deployment neurocognitive test information.
- Service members who self-reported a previous brain injury or TBI-related symptoms, had incomplete or inconsistent data, and testing data with less than a 90 day time interval were excluded from the sample.
- Data were comprised of results from tests that assessed variables such as mood, sleepiness, processing speed, motor reaction time, and memory.

PARTICIPANTS

- Participants consisted of 8,002 Active Duty Service Members; among the sample, 91% were males and average age was 26.5 years (SD = 6.4).
- Racial composition, Service members' rank, and service branches were not specified.
- The average time between pre-deployment and post-deployment testing was 396 days (SD = 78, range from 90 to 489 days).

LIMITATIONS

- No data were provided as to the average scores of the ANAM neurocognitive tests, so it is difficult to determine if this sample's scores are low, average, or high compared to other samples.
- Without follow-up the course of cognitive functioning over time is unknown.
- Using Service members' self-report of the presence of a medical condition may have lead to incorrect labeling of their symptoms, which was not accounted for in interpretation of the findings.

AVENUES FOR FUTURE RESEARCH

Future research could:

- Examine whether there is increased risk for cognitive decline in Service members with mild TBI during and after deployment
- Gather data from Service members' medical providers, spouses, and other family members about their cognitive functioning before and after deployment
- Utilize a longitudinal method to investigate cognitive functioning both during and immediately after deployment, as well as longer-term after homecoming

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