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M22. Pre-Deployment Anhedonia is a Risk Factor for Posttraumatic Psychopathology After Combat Trauma

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Background: Anhedonia, the diminished ability to experience pleasure, is an important dimensional entity linked to depression, schizophrenia and other emotional disorders. Alterations in circuits and cells underlying hedonia/reward sensitivity may be associated with risk for development of mood and anxiety disorders such as posttraumatic stress disorder (PTSD). Studies indicate that (1) low reward sensitivity in adolescence predicts later depression in adulthood and (2) remitted PTSD subjects continue to show deficient reward learning. Here we tested the hypothesis that anhedonia in early adulthood may be a risk factor for development of PTSD after trauma exposure.

Methods: The Marine Resiliency Studies (MRS) is a prospective longitudinal study of risk factors for combat-related stress disorders in Marines deployed to Afghanistan and Iraq. Participants underwent psychiatric symptom assessments (clinician-administered PTSD scale, CAPS) and completed self-report scales for anxiety, mood and substance use symptoms prior to deployment and again at 3 and 6 months after returning from deployment. The MRS battery assessed anhedonia via the Beck Depression Inventory (A-BDI). An exploratory factor analysis (EFA) with iterated-target rotation was performed on all 21 Beck Depression Inventory (BDI) items rated at pre-deployment ($n = 2600$). This EFA revealed a 3-factor structure, including an "anhedonia factor" A-BDI). The A-BDI combines the scores of item 4 (loss of pleasure), item 12 (loss of interest), and item 21 (loss of interest in sex). The 3 items composing the anhedonia factor were used to calculate the A-BDI We

then used logistic regression to examine if anhedonia at pre-deployment in non-clinical subjects (i.e. no moderate-severe depression or PTSD symptoms) predicted subsequent PTSD diagnosis (DSM-IV) and a zero-inflated negative binomial model to examine if anhedonia predicted change in PTSD symptoms after deployment. Participants with a PTSD or depression diagnosis at pre-deployment were removed before analysis, and analysis was restricted to subjects with follow up assessments at 6 months to quantify a change vector for PTS symptoms ($N = 1972$). Deployment trauma was included in the model by using a composite of the post-battle and combat experiences subscales of the deployment risk and resiliency index.

Results: Pre-deployment anhedonia significantly increased the likelihood of post deployment PTSD diagnosis as assessed by DSM-IV symptom via CAPS [Main effect of Pre-deployment Anhedonia $\beta = 0.21$, z value = 4.61, $p < 1e-05$; Main effect of Deployment trauma $\beta = 0.37$, z value = 12.784, $p < 1e-05$; trauma X anhedonia interaction was not significant]. In addition, anhedonia significantly predicted increases in CAPS scores from pre- to post-deployment.

Conclusions: These data support the hypothesis that anhedonia in early adulthood is associated with increased vulnerability for development of future pathology after trauma exposure. Future studies are needed to determine if anhedonia in early adulthood and PTSD share common underlying etiologies and mechanisms. Supported by 1I01BX002558, MR141217, P50 MH096889 and Veterans Affairs Center of Excellence for Stress and Mental Health.

Note: This poster is linked to Bolton et al. describing brain circuit changes underlying anhedonia-like phenotypes in adolescence. Please view poster W114, poster session III.

Keywords: PTSD, Anhedonia, Brain Development, Depression, Longitudinal Study

Disclosure: Nothing to Disclose.