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Suicides Among Military Personnel

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To the Editor

Ms LeardMann and colleagues¹ reported on 83 suicides among 151,560 participants of the MCS and found that suicide was not associated with deployment or combat. In particular, 58% of suicide deaths were among those with no deployments; the age- and sex-adjusted hazard ratio for number of deployments was not significant, and cumulative days deployed was negatively correlated with suicide risk. This study draws attention to depression, post-traumatic stress disorder, and alcohol problems as risk factors for suicide, but we believe the method of analysis was flawed in regards to deployment.

Our concerns center on the use of a Cox proportional hazard model with a time-dependent variable for deployment. Depending on the chosen form of the covariates, this model has great potential for bias and does not lead to prediction for individual experience, as does the Cox model with fixed effects.² In this study, the temporal ordering of deployment relative to assessment of other covariates provides opportunity for such bias.

While the MCS collects data on a participant's current status, deployment may have occurred before, concurrent, or after MCS assessment. In modeling, any deployment was a time-varying covariate based on dates between 2001 and 2008, or measured as cumulative days. It is plausible the deployment measures increase or hold constant in response to the military member's prior psychological status. Post-traumatic stress disorder or alcohol problems, for example, may encourage a member to transition out of service and no longer be eligible for deployment. Thus, deployment and other covariates are inextricably confounded and may lead to biased, even paradoxical, Cox model estimates. In the present study, deployment days appeared to have a protective effect. This type of selection operating on mental health and deployment, known as the 'healthy warrior effect', has been documented.³ There is a tendency of less-fit military personnel to attrition out of the military sooner, and after each deployment, leaving behind more fit personnel for further deployments. Thus, even if all baseline assessments occurred before any days of

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deployment, when selection processes are not accounted for in deployment studies, modeling may lead to inaccurate results.

Combat is associated with psychological injury.⁴ The present study documents that life stressors and poor mental health contribute to suicide risk. Because of modeling issues, it does not rule out that deployment factors also contribute to suicide risk. We suggest further unbiased, longitudinal analyses of negative outcomes associated with intense or prolonged combat exposure.⁵

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