The Association Between Receiving a Mental Health Diagnosis and First-Term Attrition (FTA) in U.S. Navy Sailors

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Abstract

- First-term attrition (FTA), defined as separation before completing an initial service obligation, imposes readiness and training costs on the U.S. Navy. This thesis tests whether documented mental health diagnoses are associated with FTA among first-term Sailors. Using the Person-Event Data Environment (PDE) administrative and medical records from 2014-2024, data were cleaned and consolidated into a person-level dataset of 469,823 active-duty junior enlisted (E01-E05) and junior officers (O01-O02). FTA was coded as separation prior to completion of the first obligation; ADSEP was summarized descriptively within the FTA subset. Analysis combined descriptive statistics with nested logistic regression models that refine mental health measures from an "all-inclusive" diagnostic category to broad categories and an individual diagnostic specification in a joint model. Linear probability models provide robustness checks. Results indicate heterogeneous associations: the elevated risk suggested by "any diagnosis" attenuates when diagnoses are disaggregated, and the strongest, most consistent associations with FTA are concentrated with substance abuse-related diagnoses. After accounting for diagnosis composition, most demographic and occupational differences diminish, while rank retains a strong gradient in FTA risk. These findings support diagnosis specific targeting, particularly for substance abuse-related conditions, when designing early retention interventions for first-term Sailors.

Methods

Diagnosis	Model 1	Model 2	Model 3	N
Total Population	**408,583**	**408,583**	**408,583**	**408,583**
Dx Coded Variables	1.30 [1.28, 1.33]	--	--	72,838
Mental Health Specific	--	0.97 [0.94, 0.99]	--	64,618
Substance Related Disorder	--	1.81 [1.76, 1.86]	--	13,970
Maladjustment Disorder	--	1.08 [0.93, 1.25]	1.06 [0.92, 1.24]	1,083
Suicide Related incident	--	1.10 [1.04, 1.17]	--	7,391
PTSD	--	--	0.96 [0.89, 1.03]	6,073
Depressive Disorder	--	--	1.00 [0.96, 1.04]	19,586
Bipolar Disorder	--	--	1.12 [0.94, 1.33]	840
Psychoses	--	--	1.61 [1.36, 1.91]	767
Mental Health (Other)	--	--	0.95 [0.92, 0.98]	41,559
Drug Related Disorder	--	--	1.46 [1.32, 1.61]	2,103
Alcohol Related Disorder	--	--	1.19 [1.14, 1.24]	13,040
Nicotine Use	--	--	1.94 [1.88, 2.00]	22,718
Suicide Ideation	--	--	1.07 [1.01, 1.14]	7,093
Self inflected injuries	--	--	1.00 [0.66, 1.49]	155

Note: *N = 469,823.* This includes the total FTA population with complete demographic and occupational data, regardless of whether ICD diagnostic codes were available.

- Large-Scale Longitudinal Dataset: Utilized a comprehensive person-level dataset from the Person-Event Data Environment (PDE), consolidating administrative and medical records for 469,823 active-duty junior Sailors and officers from 2014-2024
- Disaggregated Diagnostic Modeling: Employed nested logistic regression to refine mental health variables from a broad "Any Diagnosis" marker into specific ICD-10 categories
- Robustness and Specificity: Applied linear probability models (LPM) for robustness checks

Results & Impact

- The most significant predictor of FTA is substance abuse-related diagnoses (alcohol, drugs, and nicotine), which often mask latent mental health conditions
- While most community differences attenuate after controlling for mental health diagnoses, the Engineering/Hull community remains a persistent outlier for high attrition likely due to extreme physical stressors and rapid fleet entry
- As it pertains to substance abuse, shifting from "zero-tolerance" in first term Sailors to a rehabilitative framework could preserve high-value, technically trained assets and reduce the "sunk costs" of training

Future Research

- Standardized Data Integration: Future policy must bridge the gap between clinical history and administrative outcomes by standardizing how mental health context is recorded in separation paperwork, ensuring leadership can distinguish between misconduct and behavioral symptoms
- Proactive Economic Efficiency: The Navy should implement a formal cost-effectiveness analysis (CEA) to determine if a proactive rehabilitative framework offers a higher return on investment than the "sunk costs" associated with the current reactive zero-tolerance separation mode.

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