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The Association Between Receiving a Mental Health Diagnosis and First-Term Attrition (FTA) in U.S. Navy Sailors: A 10-Year Panel Study

March 2026

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Prepared for the Naval Postgraduate School, Monterey, CA 93943.

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ABSTRACT

First-term attrition (FTA)—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 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; administrative separation (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 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 conditions, when designing early retention interventions for first-term sailors.

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LIST OF ACRONYMS AND ABBREVIATIONS

AAG	Army Analytics Group
ADSEP	administrative separation
AES-256	advanced encryption standard 256-bit
AFMS	active federal military service
AFQT	Armed Forces Qualification Test
AHRPO	Army Human Research Protection Office
CI	confidence interval
CnD	condition not a disability
CWB	counterproductive work behavior
DES	disability evaluation system
DoD	Department of Defense
ETL	extract, transformation, and loading
FTA	first term attrition
HRO	high reliability organization
ICD-10	International Classification of Diseases, Tenth Revision
ISVC	involuntary separation code
JD-R	job demand-resources
JD-CS	job demand-control-support
LPM	linear progression model
MTF	military treatment facility
NJP	non-judicial punishment
OMH	occupational mental health
OR	odds ratio
OTH	other than honorable
PCS	permanent change of station
PDS	permanent duty station
PDE	Person-Event Data Environment

PII	personally identifiable information
PTSD	post-traumatic stress disorder
RFL	research facility laboratory
RQ	research question
SPD	separation program designator
TAP	transition assistance program
TBI	traumatic brain injury
TRICARE	Tri-Option Care

EXECUTIVE SUMMARY

This thesis evaluates how documented international classification of disease, tenth revision (ICD-10) mental health diagnoses are associated with early separation from the Navy during the initial contract period. First Term Attrition (FTA), defined as separation before completing an initial service obligation, imposes significant readiness and training costs on the U.S. Navy. The study focuses on first term Sailors and examines FTA as the primary outcome, with Administrative Separation (ADSEP) explored descriptively as an important subset of FTA. By testing whether specific mental health diagnoses are associated with FTA, this research aims to identify where the Navy's retention efforts can be more effectively targeted.

To evaluate these associations, this study utilized a comprehensive person-level dataset derived from the Person-Event Data Environment (PDE), encompassing administrative and medical records from 2014–2024. The final sample included 469,823 active-duty personnel, specifically targeting junior enlisted (E01-E05) and junior officers (O01-O02). The analytical framework employed nested logistic regression models, which allowed for a more refined set of analyses that showed unique FTA risk profiles for specific diagnoses (e.g., PTSD, substance abuse), which in turn improves upon previous work by Franchi (2025), which created a broad risk profile for pooled diagnoses (e.g., "any mental health diagnosis"). Linear Probability models were also utilized to ensure the robustness of these findings across different statistical assumptions.

The analysis reveals that the relationship between mental health diagnoses and early separation is highly heterogeneous and dependent on diagnostic specificity. Stated succinctly, a Sailor's FTA risk profile will vary widely based upon the specific mental health diagnosis he or she receives. While a broad "any diagnosis" marker initially suggests an elevated risk of FTA, this association attenuated significantly when diagnoses were disaggregated into specific diagnostic categories. The strongest and most consistent associations with FTA were concentrated within substance abuse-related diagnoses, which remained a primary driver of early attrition even after controlling for other diagnostic factors. This finding is not surprising, given the Navy's "zero-tolerance" policies regarding

illicit substance abuse, coupled prior research findings suggesting that nicotine addiction also increased a Sailor's risk for early attrition.

Further analysis showed that once the composition of these mental health diagnoses is accounted for, most demographic and occupational differences in attrition risk diminished. Stated differently, with few exceptions, socioeconomic and other demographic factors were not reliable predictors of FTA risk. However, the Engineering/Hull community remained a notable outlier, exhibiting a persistent and significantly higher risk of attrition that was not fully explained by clinical history alone. Not surprisingly, rank also retained a strong gradient in FTA risk, suggesting that more junior personnel face disproportionately higher risk of separation regardless of their clinical history.

Based on these findings, this thesis recommends that the Navy reexamine its zero-tolerance substance abuse policy for the first time offenses in first-term Sailors and instead consider placing a greater emphasis on offering commands a retention-through-rehabilitation option to commanders. While the immediate benefit of separating a Sailor for visible misconduct or substance-related triggers may support command efforts to maintain good order and discipline within the Navy, the cumulative manpower shortages and fiscal impact to the Navy are substantial. Indeed, a formal cost-effectiveness analysis is recommended to determine if the current zero-tolerance model is more costly than a rehabilitative framework that preserves technically trained assets. Specifically, policy efforts should target high-risk intersections, such as providing tailored support directly within the Engineering/Hull community and implementing more robust mentorship programs for E01-E03 personnel during their first 24 months of service. Finally, future research should integrate qualitative data from exit interviews and medical waiver records to better distinguish the "existed before service" conditions from those developed during the first term, ensuring policymakers have the necessary data to balance individual clinical needs and institutional operational readiness.

I. INTRODUCTION

The U.S. Navy's ability to project sea power and maintain global maritime superiority is fundamentally dependent on the readiness and retention of its personnel. As the Navy operates in an increasingly complex and contested security environment, experienced workforce remains to be its most critical asset. Consequently, the loss of personnel and its ability to retain highly trained individuals in their initial service obligation; also referred to as first term attrition (FTA), presents a significant challenge to unit continuity, manpower, and operational readiness.

Sailors' first term of service invokes a critical window for the institution. During this period, junior enlisted and officer Sailors experience a profound transition into the demands of the military environment (Franchi, 2024). Often these transitions are met with significant occupational stressors and environmental demands, compounded by a lack of familiar support systems, acting as a major milestone for the future outcome of the Sailor's career. When a Sailor separates early, the Navy substantially faces loss in financial investment made in recruitment, initial training, specialized technical education, and future compensation depending on the outcome of separation specifications.

While the Navy has recognized that mental health is a contributing factor influencing personnel readiness, there is a gap in identifying the granular visibility into how specific clinical conditions relate to individual separation outcomes. This thesis addresses this gap by examining the relationship between documented diagnostic codes and FTA, utilizing longitudinal panel data of administrative and medical encounter records. Additionally, this thesis estimates the association between specific diagnostic categories across international classification of disease, tenth revision (ICD-10) diagnostic framework and the likelihood of FTA. By distinguishing between broad mental health classifications, this study aims to provide evidence-based insights to support the Navy's shift toward more proactive policy recommendations.

A. PROBLEM STATEMENT

Recruitment and retention have been a persistent and complex challenge for the U.S. Navy. According to Sprang (2020), "early attrition is the most unexpected and volatile component of total attrition in the Navy" (p. 18). The loss of personnel is the loss of Navy's most critical asset, and continued loss of talent contributes to a major challenge for the Department of Defense, impacting unit continuity, manning, and operational readiness. Each instance of first-term attrition represents a significant sunk cost for the Navy. Recent Office of the Secretary of Defense (2023), recent data indicates that the average cost of recruiting a new service member is approximately $11,000, with an additional $35,000 required for initial entry training. This combined investment of $46,000 per Sailor covers only the transformation from civilian to enlisted service member and does not account for further specialized technical training required for complex ratings. Additionally, while *some* attrition is inevitable, early separation causes delays in training which impacts workforce supply, increases training costs and creates training inefficiencies for those who do continue in future progressions (Tait et al., 2022).

Research suggests that factors such as mental health and substance use are strongly associated with diminished productivity and early separation from continued service (Booth et al., 2002). However, current administrative separation mechanisms for managing FTA are often highly influenced by observable and measurable predictive behaviors. Consequently, substance-related incidents frequently serve as the primary visible catalyst for administrative action, potentially overshadowing subsurface mental health conditions that may co-occur with substance misuse. Accompanied by delays in intervention, often due to stigma or lack of proactive support, these factors further increase the risk of attrition, compounding on the Navy's operational readiness.

B. RESEARCH GAP

Current studies maintain a significant gap in understanding how specific mental health diagnoses influence FTA in the U.S. Navy. The majority of the existing literature treats "mental health" as a single entity, which can mask the important differences in how specific individual conditions, such as psychoses, depressive disorders, or substance use

disorders relate to attrition outcomes. Additionally, older studies often rely on outdated diagnostic frameworks that lack a targeted analysis of the modern force structure.

Few military research efforts analyze the specific ICD-10 diagnoses that are most associated with early separation while simultaneously accounting for rank and occupational context. This lack of granularity limits the Navy's ability to develop targeted intervention and policy solutions. This thesis aims to isolate the impact of different mental health diagnostic categories on FTA to inform more effective, proactive retention strategies. The primary method to achieve this goal is to analyze specific diagnosis types while holding demographic and occupational characteristics constant that are unique to the Navy's operational context.

C. PURPOSE AND RESEARCH QUESTIONS

The purpose of this thesis is to examine the relationship between mental diagnostic categories and FTA outcomes among first-term junior enlisted Sailors and junior officers by applying a structured multivariate quantitative framework. By utilizing a large-scale longitudinal panel dataset, this thesis evaluates patterns of FTA and identifies the influence of specific diagnosis and organizational factors that are most associated with early separation. Ultimately this thesis aims to understand the impacts of specific diagnostic categories to provide evidence-based policy recommendations. This research is guided by the following research questions derived from the NPS-25-N035B project sponsored by OPNAV N1. The initial four research questions (RQs 1–4) are detailed in Franchi (2025), this thesis further examines the following RQs:

- RQ5: What socio-demographic and organizational factors influence (+/-) FTA and ADSEP risk in first-term Sailors receiving outpatient mental health treatment?
- RQ6: To what extent do those socio-demographic and organizational factors influence (+/-) FTA risk?

To answer these questions, this thesis utilizes multivariate logistic regression to estimate the probability of FTA based on diagnostic conditions, demographic, and

occupational characteristics. This structured approach isolates the specific drivers of FTA, providing an empirical basis for targeted naval policy recommendations.

D. SCOPE

This thesis focuses on active duty E01-E05 junior enlisted Navy Sailors and O01 to O02 junior officers. The analysis utilizes a ten-year panel window spanning from 2014–2024. While FTA is the primary modeled outcome, this study also examines ADSEP descriptively to provide context on the mechanisms through which early attrition occurs however, as detailed in Chapter III, significant data quality constraints, specifically regarding the completeness of administrative data prevented a reliable multivariate analysis of ADSEP categories, consequently, these outcomes are presented through descriptive statistics only.

E. ORGANIZATION

This thesis is organized into five chapters that move from the strategic problem of FTA to data-driven policy recommendation. Chapter I has established the introduction, problem statement, and research questions within the context of the broader strategic context of Navy personnel readiness. Chapter II provides a review of the existing literature regarding military mental health and substance use, while also outlining the current policy frameworks that govern administrative separations. Chapter III details the methodological framework, including the data sources provided by the Army Analytics Group (AAG) and the construction of key variables within the Person-Event Data Environment (PDE). In Chapter IV, the results of the descriptive and multivariate regression are presented, highlighting the specific associations between ICD-10 diagnostic clusters and FTA. Finally, Chapter V interprets these findings by comparing them to established military research, acknowledging the limitations of the administrative data, and offering actionable policy recommendations to enhance future retention and operational readiness.

II. LITERATURE REVIEW

A. INTRODUCTION

Military personnel retention continues to be a recurring challenge across all services, as operational demands increase and experienced personnel approach retirement. Additionally, FTA remains high among new recruits, amplifying the problem of operational readiness and cost (Franchi, 2025). These trends threaten the DoD's ability to maintain operational effectiveness. Compounding these issues is the elevated risk of mental health challenges faced by service members due to the endemic stressors of military life including combat exposure, long deployments away from home, and restricted access to healthcare (Hoge et al., 2002).

Mental health is a critical factor influencing force readiness, safety, leadership performance, and attrition. Indeed, mental health readiness is a key component of force readiness, with implications not only for individual well-being but also for mission success (Sharp et al. 2015). Despite policy efforts to address this problem, progress has been limited. As early as 2002, research identified mental health disorders as the leading category of discharge diagnoses among men and the second among women (Hoge et al., 2002). These trends continue today as untreated conditions can lead to performance issues, disciplinary problems, and eventual separation (Heyman et al., 2022).

Among the different branches of the U.S. military, the Navy faces a unique challenge. Sailors in the surface warfare and submarine communities endure deployments in isolated and confined environments. These conditions amplify stress and reduce access to mental health care (Hosek et al., 2006). The Navy's pervasive warrior ethos discourages Sailors from admitting vulnerability or appearing non-deployable, reinforcing a culture of silence around mental health. These structural and cultural barriers are especially pronounced for Sailors serving at sea or stationed in remote locations.

This literature review aims to examine the cultural, structural, and geographical barriers that limit access to mental health care for enlisted Sailors in the Navy. However, before exploring these factors that limit access to care, it is critical to understand the

administrative framework through which Sailors are formally separated from service. The military's ADSEP process, including the "Condition Not a Disability" (CnD) classification, represents a key characteristic of which mental health issues interact with Navy personnel policy. This commander's tool is intended to preserve readiness, yet it can also exacerbate the Navy's FTA problem when misapplied. This commander's tool is intended to preserve readiness, yet it can also exacerbate the Navy's FTA problem when misapplied. As I describe in greater detail in Chapters III and VI, data quality limitations prevented an accurate analysis of the available ADSEP and CnD data. Nevertheless, a detailed overview of both are provided in this chapter because they describe pathways to early attrition.

B. ADMINISTRATIVE SEPARATION AND CONDITIONS NOT A DISABILITY

According to NAVPERS 15560D – MILPERSMAN 1900 Series, ADSEP is defined as a non-medical process used to separate service members due to misconduct, substandard performance, and other designated reasons. The ADSEP process is both a unit-level personnel and organizational culture shaping tool intended to assist commanders with upholding good order and discipline while preserving operational readiness. The governing regulation outlines reasons for administrative separation, the procedures for doing so, and the command's responsibilities. (U.S. Navy, n.d.).

The ADSEP process can also be applied to Sailors with mental health conditions if the command determines that the condition doesn't warrant disability processing. If the mental health conditions are accompanied by performance issues or secondary misconduct, ADSEP is often used to rapidly discharge Sailors from the Navy's rolls. In contrast, the Disability Evaluation System (DES) offers a medically governed process that may result in retirement (Department of Defense, 2014b), separation with severance, or return to full duty. Mental health conditions such as post-traumatic stress disorder (PTSD), traumatic brain injury (TBI), and severe mood or anxiety disorders are protected under DoDI 1332, which mandates DES processing for qualifying conditions. The choice between the two processes has significant implications for both the command's operational readiness and the service member's long-term well-being.

Commanders are often not clinically trained to be mental health evaluators and often cannot professionally distinguish between behavioral misconduct and underlying mental health diagnoses. As a result, decisions about whether to initiate a DES process or ADSEP are influenced by the commander's subjective interpretation, operational constraints, and the absence of embedded clinical input. Thus, a Sailor diagnosed with a recognized mental health condition may still be deemed unfit for continued service and separated under the CnD category even though he or she responds well to treatment and has limited side effects. MILPERSMAN 1910–120 outlines the CnD policy, allowing separation for conditions that do not qualify for disability retirement or compensation but still interfere with duty performance or deploy-ability.

The consequences of ADSEP are often significant. Unlike the DES process, which results in an official disability rating and enables VA documentation and benefits, ADSEP does not assess for compensability or long-term care needs of Sailors (Department of the Navy, 2013). Sailors processed under ADSEP, especially those processed under CnD, often receive a General or Other-than-Honorable (OTH) discharge, affecting access to benefits such as VA healthcare, G.I. Bill eligibility, and civilian employment, further disrupting future well-being (MyNavy HR, 2023; Department of Veterans Affairs, n.d.; United States Congress, n.d.). These decisions leave the Commander to consider a multitude of factors between the two processes. While the ADSEP may be faster, it can unintentionally penalize Sailors with mental health conditions if these decisions are made without full clinical context and expertise. This places an ethical burden on the commanders to balance the needs of the unit with the well-being and future outcomes of the Sailor.

Recent research noted a concerning trend in the use of CnD separation specifically among FTA among enlistees, particularly in operational communities where clinical support is limited (Franchi, 2025). Understanding how the ADSEP process is applied requires an examination of the stressors and operational demands that shape Sailors' performance, behavior, and well-being. These contextual conditions often surface maladaptive behaviors in Sailors that in turn prompt commanders to begin administrative punitive actions against Sailors, making it critical to explore how Navy life shapes both mental health outcomes and help-seeking behavior. Despite the Navy's efforts to articulate

ADSEP and CnD policies and processes, commanders have some latitude to apply their judgment throughout the administrative separation process, and nothing in the regulation precludes commanders from considering operational demands on the unit, other Navy personnel policies governing the conditions that must be met for the unit to qualify a replacement, or the accessibility of clinical support.

Feature	ADSEP	MEB/PEB (DES)
Purpose	Maintain good order/discipline or remove for non-medical reasons	Evaluate medical fitness and determine disability disposition
Initiated By	Commanding Officer	Medical Provider
Governing Regulation	MILPERSMAN 1900 Series	DoDI 1332.18, SECNAVINST 1850.4F
Process Owner	Administrative/legal	Medical and legal
Timeline	Often quicker	Often longer (esp. IDES)
Due Process	Limited (some cases may require board)	Full rights to legal representation and formal board (if requested)

Figure 1. Administrative Separation Processes

C. NAVY LIFE AND OPERATIONAL ENVIRONMENT

The unique challenges Sailors experience due to their austere environment and operational demands distinguishes the Navy from other service branches. The maritime nature of the mission places the Sailors in challenging physical environments, including extended periods aboard ships and submarines, along with service at remote overseas installations. These settings involve limited privacy, physically confined space, and isolation from external support systems, which contribute to cumulative stress (Bureau of Medicine and Surgery, 2012). The Navy's living arrangement in surface warfare

communities provide little personal space or privacy, especially among the junior enlisted Sailors. Prolonged exposure to this environment can heighten stress levels and strain interpersonal relationships, especially during an extended deployment (Bureau of Medicine and Surgery, 2012; GAO, 2016).

The culture within the Navy reinforces a mindset of resilience and self-reliance, often discouraging emotional vulnerability or early help-seeking behaviors (Sharp et al., 2015). The warrior ethos of "honor, courage, commitment" further amplifies the need to always remain "mission-ready," creating pressure to suppress or ignore emerging mental health symptoms. This is especially true in operational units where downtime is limited, and peer perception carries significant weight in the social structure (McGuffin et al., 2021; Campbell et al., 2023).

Sailor life is also characterized by a high operational tempo, involving unpredictable deployment schedules and extended work hours both at sea and ashore. Indeed, few Sailors enjoy predictable work schedules and the combination of irregular shifts and sustained operational tempo can interfere with rest cycles, medical appointments, and family reconnection, increasing stress and reducing access to preventative care or early intervention (Shattuck et al., 2019). Extended periods at sea and overseas installations often limit connectivity to outside resources. These conditions further reduce opportunities for personal downtime and access to support services, while amplifying feelings of isolation among crew members (GAO, 2016; McGuffin et al., 2021).

Taken together, the Navy's operational and cultural context has a cascading and deleterious effect on personnel retention. Chronic stress and poor work-life balance create under manning within the units, forcing remaining Sailors to assume multiple responsibilities outside of their primary role (Defense Health Agency, 2022). This operational readiness gap is especially common on smaller units or platforms, where junior enlisted Sailors carry disproportionate workload burdens. With increased responsibilities, coupled by the limited resource for stress relief and compounding fatigue, performance strain becomes normalized within the culture.

These combined structural and cultural pressures contribute to the development or emergence of mental health conditions that might otherwise remain manageable (Schmied et al., 2021). Understanding these realities is essential because they form the backdrop against which such issues develop, shaping both a Sailor's willingness to seek help and a leader's readiness to interpret behavioral changes as a medical or disciplinary problem. The next section explores how these stressors ultimately manifest into diagnosable conditions and the early warning symptoms often overlooked by both the individual Sailors and their leadership.

D. EMERGENCE OF MENTAL HEALTH CONDITIONS IN THE NAVY

It is rarely possible to trace the onset of a mental health condition to a single event or clearly defined timeline. Depending on the disorder, it may be impossible to attribute the cause solely to intrapersonal, interpersonal, or environmental factors because mental health disorders are generally viewed through the lens of equifinality, suggesting that there are multiple vectors – biological vulnerability, poor sleep, social stressors, operational trauma, or a combination thereof – that precipitate psychopathology (Cicchetti & Rogosch, 1996). When these stressors are not addressed through timely, preventive measures, they can escalate from acute, subclinical challenges into chronic clinical conditions that impact both the individual and overall operational readiness of the Navy. As outlined below, three prominent organizational behavior theories – the Occupational Mental Health model, the Job Demand-Resources model, and the Job Demands-Control-Support model effectively illustrate how organizational and leadership factors contribute to this decline.

The Occupational Mental Health (OMH) model explains how occupational demands, individual coping resources, and organizational support dynamically interact to determine whether stress fosters resilience or contributes to declining mental health (Adler et al., 2013). In the Navy, operational demands are often intensified by irregular work hours, extended deployments, and limited autonomy. The Job Demand-Resources (JD-R) framework further illustrates how high demands combined with limited access to medical resources, respite opportunities, and reliable social support increases the likelihood of adverse outcomes (Bakker & Demerouti, 2014).

In confined surface warfare communities, the social and professional network for most junior enlisted Sailors consists almost entirely of their peers and direct supervisors. This dynamic relationship magnifies the influence of leadership behavior and unit command climate. The Job Demands-Control-Support (JD-CS) model highlights how low decision-making control and inconsistent leadership support can intensify occupational stress, particularly among inexperienced junior enlisted Sailors (Portoghese et al., 2020). When combined, the OMH and JD-CS model ls suggest that cumulative job demands and limited resources eventually present a tipping point where the sailor either adapts successfully or experiences a decline in overall well-being. When the decline occurs, the effects ripple through the organization in the form of reduced retention, manpower shortfalls, counter-productive work behaviors, and increased workload burdens on remaining personnel, which in turn creates a self-reinforcing organizational spiral.

While many Sailors gain experience and adapt to the demands of Navy life through resilience, training, and peer support as they move up the ranks, a smaller subset struggles to adjust. This maladaptation can take many forms, including withdrawal from social connection, interpersonal conflicts, or substance abuse (Schmied et al., 2012). When these behaviors become internalized and normalized, they can progress into more severe mental health conditions such as anxiety disorders, depression, adjustment disorders, and substance abuse. According to the Congressional Research Service, between 2016 through 2020, more than 456,293 active duty servicemembers were diagnosed with at least one or more mental health disorders (Mendez, 2024). These diagnoses typically occurred within the first few years of service (Mendez, 2024), and enlisted personnel consistently showed higher rates compared to more senior ranks (Hoge et al., 2002).

Direct leadership often face their own operational demands and challenges while overseeing the well-being of junior enlisted subordinates. These operational readiness pressures can lead to premature judgements and misinterpretation of behavioral changes such as performance or disciplinary issues rather than indicators of mental health distress (McGuffin et al., 2021). The Navy has taken steps to combat this by assigning trained mental health professionals to certain platforms; however, overall DoD remains to lack a standard for timely follow-up appointments. Even if Sailors receive initial care, follow-up

visits can take weeks or months, disrupting treatment continuity and allowing symptoms to escalate (GAO, 2016).

The OHM framework is also descriptively applicable to the decline from resilience to diagnosable conditions, noting that while adaptation is usually common for the majority, a subset of Sailors require additional support for early recognition and consistent follow-ups. Combined with the Navy's unique structural challenges in providing mental health care, these factors further intensify the barriers to care faced by Sailors. This illustrates the tipping point where manageable stress becomes a diagnosable condition, which would have been mitigated with timely, effective intervention.

E. STRUCTURAL BARRIERS TO CARE

The Navy faces critical challenges in delivering mental health services due to the operational environment and its structural limitations. One of the persistent challenges within the Navy's structural barriers to mental health care is the shortage of qualified behavioral health professionals, particularly low-density specialists such as psychiatrists and licensed clinical psychologists, though it should also be noted that this particular problem is not unique to the military. Indeed, the United States currently faces a significant shortage in mental health providers, thereby making the mental health labor market highly competitive, (Phillips & Tucker, 2023), which in turn creates a contextual interaction that makes the military's ability to recruit and retain providers that much more difficult. The limitation of resources delays treatment and undermines the service's ability to maintain readiness through a preventive and responsive mental health support structure.

As early as 2016, the Government Accountability Office reported, "DoD staffing data showed that by the end of fiscal year 2015, all of the military services had a shortage of psychiatrists, with 127 positions authorized but not filled" (GAO, 2016), a shortage that has continued to sprain capacity (Hepner et al., 2023). Furthermore, the Department of Health and Human Services indicated that the national demand for behavioral health providers exceeded the available supply in 2025 (Mendez, 2024), and in some locations within the U.S., the shortfall exceeded 50 percent (Phillips & Tucker, 2023). These

problems significantly limit the individualized treatment capacity and increase the likelihood of delayed interventions.

Additionally, one challenge many Sailors face is being stationed in remote geographic locations. Many remote or underserved duty stations lack adequate psychiatric support capabilities due to local civilian shortages or limited coverage from mental treatment facilities (MTFs). For example, recent research estimated that 35 percent of tri-option care (TRICARE) beneficiaries live in communities with a shortage of psychiatrists from both the MTF and civilian sectors, and 6 percent had no psychiatrists available within a 30-minute drive (Bacolod et al., 2023).

Even in areas with robust mental health support within the civilian population, Sailors and family members using TRICARE medical insurance frequently encounter barriers to tap into local support because local civilian providers cannot be compelled to accept TRICARE. For example, a Sailor beginning therapy at an MTF in San Diego may encounter a complete provider change or treatment interruption when deployed to a forward-deployed destroyer, where mental health support is limited to telehealth or periodic ship visits. The DoD lacks standardized requirements for post-transfer follow-up, meaning that the Sailors often restart their referral process after a permanent change of station (PCS) or deployment (GAO, 2016). This further discourages help seeking, especially in operational communities where time away from mission is already difficult to arrange. Additionally, long wait time between initial and follow-up appointments are associated with reduced treatment adherence, particularly for behavioral health conditions (Hepner et al., 2023). Highlighting that these barriers limit the Navy's ability to implement early intervention strategies, forcing the leaders to become reactive, rather than preventive in their decision making.

The compounding effects of these structural barriers to care include provider shortages, geographic isolation, and follow-up delays form an interrelated barrier to prevent effective, early, and sustained intervention. This problem is further amplified when cultural stigma exists, further discouraging health seeking behavior. These systemic gaps can delay care to the point where symptoms worsen into performance or conduct issues. This interaction between structural obstacles and unit culture sets the stage for the

leadership and policy dynamics discussed in the next section, where command leadership discretion and stigma further influence whether a Sailor's case leads to retention, treatment, or administrative separation.

F. STIGMA AND COMMAND CLIMATE

1. Role of Stigma in Help Seeking

Broadly, the Navy culture is a complex blend of tradition, idiosyncratic approaches to leadership, and an intense focus on mission accomplishments. To reinforce this culture, leadership tends to emphasize the importance of the Navy's core values – honor, courage, and commitment – yet how leaders operationalize those core values will vary widely across commands. Likewise, while most commands have medical providers available to refer Sailors to mental health support, the individuals responsible ensuring that referred Sailors comply with medical provider guidance and established Navy medical policies are unit-level leaders who typically lack behavioral science expertise. Combined, these factors often create a tension between unit leaders and Sailors needing care because managing individual Sailor medical appointments, reporting changes in medical status, and following up with providers are often viewed as distractors that pull leaders' attention away from the mission. Thus, Sailors needing mental healthcare often cite stigma as a reason to avoid or delay seeking care (Acosta et al., 2014). Stigma is especially present in the military environment and can be understood in two key terms, which are anticipated and internalized stigma. Anticipated stigma is especially prevalent in the masculine military culture. Anticipated stigma being defined as the fear of being labeled, judged or discriminated against if one seeks help or goes to a mental health professional leave an impression that the act of seeking health will label weakness. Internalized stigma or sometimes referred to as self-stigma is when an individual adopts a societal negative view about mental health and applies them to themselves. Both stigmas act as a deterrent in the military, further discouraging mental health treatments.

The operational environment of the Navy Sailors requires interdependence amongst their peers; like other military branches, Sailors rarely do anything alone while serving in the Navy. These relationships are usually close, and the bond formed within the peer group

is both morally and mentally important. Anticipated stigma stems from the fear of being perceived negatively within these close relationships. Especially in the Navy culture where your duties and performance directly tie to teamwork and mission success, any sign of vulnerability can be viewed as weakness or a liability. As explained by Sharp et al. (2015), due to the military culture and this pressure to succeed, "personnel are faced with a choice between disclosure of health problems in order to access care and the potential negative effect upon their operational effectiveness and, thus, their careers" (Sharp et al., 2015 p.145). This dilemma is further complicated by the ambiguous guidelines and policies around mental health that leaves junior enlisted Sailors unsure whether seeking mental health help could cost them their security clearance, deployability status, or leadership trust.

Fear of stigmatization and not being able to communicate or further seek guidance could evolve into internalized stigma. This process happens when a Sailor begins to adopt and believe the very negative stereotypes associated with mental health care that deter help-seeking initially. "Self-stigmatization can lead to feelings of shame and inadequacy, which may affect an individual's self-worth and confidence to seek help" (Sharp et al., 2015 p.145). This internalized stigma could further develop other mental health conditions associated with isolation and feelings of helplessness. In this way, stigma not only deters help-seeking initially but may also worsen underlying conditions over time.

2. Policy Level Reinforcement and Leadership Climate

Although the Navy has made efforts to modernize its approach to mental health awareness and access, concerns about performance evaluations and career opportunities also deter Sailors from disclosing mental health challenges. Loosely defined training requirements and inconsistent policy updates further confuse Sailors about current guidance. In the Navy, policies that are ambiguous regarding the duty status of individuals who have sought mental health care or leave too much discretion in interpretation may create unintended stigma (Campbell et al. 2023; U.S. Navy, n.d.).

In large, compartmentalized organizations like the Navy, coordination of mental health policies is often slow and fragmented. For example, a DoD policy change on victim

advocacy may not be synchronized with security management protocols, creating information gaps for Sailors seeking mental health evaluations. Such gaps foster uncertainty about the career impact of seeking care, particularly in high-risk communities like submarines or nuclear ratings, where disclosure may be perceived as career-ending.

As previously alluded to, leaders across the Navy implement mental health policies idiosyncratically and junior Sailors often take cues from their immediate supervisors and senior enlisted leaders. If these leaders show skepticism toward mental health, Sailors are less likely to disclose problems which are an effect magnified when there is little social support within the unit (Britt et al., 2012). This is described as public stigma, where the attitudes of peers and leaders shape perceptions of mental health, and self-stigma, where these perceptions are internalized, reducing self-efficacy and willingness to seek treatment (Campbell et al. 2023). In mission-focused climates that prize emotional toughness, subtle actions and attitudes from leaders, such as downplaying mental health or dismissing concerns, can discourage help-seeking behaviors in followers. When unit leaders fail to foster a supportive environment – intentionally or not – they set the conditions for followers needing mental healthcare to stay silent or seek mental healthcare surreptitiously in an attempt to avoid personal and professional consequences.

Taken together, stigma operates at personal, cultural, and institutional levels, and impact of perceived or actual stigma is amplified when combined with the structural barriers described in Section V. While current Navy policies support Sailors seeking mental health care, anticipated and internalized stigma discourages them from taking advantage of already limited resources. Likewise, how unit leaders elect to emphasize or disparage the importance of seeking mental healthcare, coupled with how they adjudicate instances of Sailors within their command who have been diagnosed with mental health conditions (e.g., supporting treatment, retention decisions, and the manner in which the administrative separation process is applied to a case), in turn underscores how individuals considering seeking mental health support may be treated, which likely impacts their decision to seek treatment or not. Ultimately, stigma functions as an invisible filter on policy as it discourages disclosure and prompts self-censorship. This increases the likelihood that

untreated conditions will escalate into behaviors or performance issues that trigger the ADSEP process and ultimately resulting in an FTA outcome.

G. INTEGRATION OF BARRIERS LEAD TO MISAPPLICATION OF POLICY

1. Cultural Pressures and Stigma Interaction

The operational demands of the Navy require interdependency, trust among peers and leaders, and sustained performance within each unit, somewhat akin to Weick's (1987) conceptualization of a High Reliability Organization, or HRO. Sailors are often hyperaware that may be harshly judged by peers and leaders – and potentially retaliated against – should their performance or reliability degrade due to a medical condition, especially a mental health condition. Thus, though Navy policy clearly states that Sailors shall be afforded an opportunity to seek mental health support with fear of reprisal, the realities of small unit culture, close quarters working environments, and the latitude afforded to leaders may suppress intentions to seek care. Unfortunately, this policy-perception-behavior loop creates a paradox often missed by Sailors: Sailors may trade away their immediate need for mental health support because they believe that doing so will allow them to continue to serve in the Navy, yet delaying treatment may lead to an increase in severity of an emergent mental health disorder while also increasing the likelihood that degraded performance and counterproductive behaviors in turn make them a target for administrative separation (McGuffin et al., 2021).

2. Policy Ambiguity and the ADSEP vs. DES

As indicated previously, there are of course other staffing processes beyond ADSEP to independently evaluate a Sailor's ability to continue serving in the Navy when acute or chronic medical conditions arrive, the Navy DES. However, policy ambiguity and operational demands can and often do shape a leader's selection of ADSEP or DES. For example. in a high-stress operational context, leaders may see the DES as too administratively burdensome or slow, prompting a preference for the faster ADSEP route. Mental health conditions, particularly when linked to perceived performance or conduct issues, significantly increase the likelihood of separations outside of the medical channels

(Schmied, Highfill-McRoy, & Larson, 2012). Likewise, due to the shortage of mental health providers and operational demands, leaders may find themselves making life-altering decisions about a Sailor's future without close consultation of clinicians. Taken together, we would expect that Sailors working in fields that are more aligned with the Navy's operational mission (e.g., Sailors serving in organizations that frequently deploy) are at a much higher risk for an FTA outcome.

3. Geographic and Logistical Barriers

Though the Navy has made important technological strides to improve afloat mental healthcare, including establishing telehealth appointments via shipboard video conferencing via satellite, the Navy's operational context still serves as a barrier to care. These accessibility gaps likely erode the trust that Sailors seeking mental health support will be treated fairly, so we expect that Sailors serving in fields that often deploy are much less likely to seek out care (GAO, 2016; Schmied, Highfill-McRoy, & Larson, 2012).

4. Untreated Conditions and Overreliance on ADSEP

When mental health conditions are left untreated, Sailors often experience prolonged behavioral changes or performance issues that are commonly misinterpreted as intentional counterproductive work behaviors, or CWBs (Sharp et al., 2015). While some leaders may interpret a Sailor's poor behavior as a lack of motivation or conscientiousness, those behaviors – including social withdrawal or emotional outbursts – are also signs that a Sailor may be suffering from PTSD, depression, and/or anxiety. As described previously, minor infractions of Navy regulations by Sailors needing mental health support may become more serious over time should his or her untreated condition worsen. Further, as the seriousness of CWBs increase, unit commanders have less discretion to arrive at an outcome that is beneficial to both the Navy and the Sailor. For example, because the Navy is a hierarchical military organizations, mid-level Navy leaders may feel pressure to take action when senior leadership takes note of a particular care, which may include non-judicial punishment (NJP) and ADSEP.

When cultural stigma, policy ambiguity, lack of clinical expertise, logistical barriers, and overreliance on ADSEP channels intertwine, there is no simple explanation

for why misapplication of policy persists. These barriers not only limit access to timely, effective mental health care but also increase the likelihood that separation decisions are made with significant consequences. These dynamics contribute to elevated turnover and the loss of trained personnel. Sharp et al. (2015) and Clement et al. (2015). emphasize how persistent stigma perpetuates a cycle of silence and avoidance, while Schmied et al. (2012) highlights the link between mental health conditions and increased separation risk. The cumulative effect is a system that, despite formal policy protections, can unintentionally prioritize operational expediency over long-term force preservation, with decisions to initiate ADSEP often occurring under structural strain.

H. EMPIRICAL EXPECTATIONS

These previous sections outlined in this chapter explain how cultural stigma, policy ambiguity, lack of clinical expertise, geographic barriers, and overreliance on administrative separation channels interact to influence separation decisions for Sailors with mental health needs. Based upon the literature review provided here, I expect to find empirical support for the following statements:

- First-term Sailors who are diagnosed with a mental health condition are more likely to attrite before their first term expires than those without a mental health diagnosis.
- The concentration of first-term attrition will be among lower enlisted rates (E01-E03) rather than higher enlisted rates (E04-E05) or the junior officers (O01-O02).
- First-term Sailors with diagnosed mental health conditions serving in ratings typically aligned with the Navy's operational / deployed mission (e.g., Aviation, Surface Warfare, Submariner) are more likely to attrite before completing their contract than undiagnosed Sailors serving in the same ratings or Sailors serving in ratings that deploy less frequently.

- Among those first-term Sailors diagnosed with a mental health condition, the risk / likelihood of attrition will vary based upon the mental health condition.

These empirical expectations guide the analysis approach described in Chapter III and the results presented in Chapter IV.

I. CONCLUSION

This chapter examined the literature on mental health–seeking behavior in the military, with a specific focus on the Navy's enlisted population. Across the studies reviewed, several key barriers emerged such as geographic isolation, limited availability of licensed behavioral health providers, repeated deployments, policy ambiguity, and persistent stigma within the Navy's mission-focused culture. These factors interact to discourage early care, allowing treatable conditions to worsen and leaving commanders to make career-altering decisions without adequate clinical input.

When care is delayed or avoided, symptoms can escalate into performance or conduct issues that are often misinterpreted as misconduct. Without timely intervention, these cases are frequently resolved through punitive measures such as non-judicial punishment or administrative separation, resulting in both the loss of trained personnel and reduced mission capability. Leadership climate plays a decisive role in this process: supportive leaders can reduce stigma and encourage early intervention, while dismissive attitudes can cultivate silence and avoidance.

The relationship between mental health barriers and administrative outcomes is complex and deeply tied to institutional culture. While prior research addresses these issues broadly, little has focused on first-term enlisted Sailors facing separation. The framework developed in this chapter integrates cultural, structural, and operational factors into a set of hypotheses that will be tested in the following chapter. Chapter III outlines the research design, data sources, and analytical methods used to evaluate these relationships and address the gaps identified in existing literature.

III. METHODOLOGY

A. INTRODUCTION

This chapter outlines the methodological framework used to examine the relationship between mental health-seeking behavior and separation outcomes among first-term junior enlisted and junior officers. The current thesis builds upon previous work that examined the association between Sailor general mental health seeking behavior, Navy demographics (e.g., rank and professional community within the Navy), and subsequent FTA (Franchi, 2025). However, the current thesis extends that work by investigating the association between confirmed diagnoses of specific mental health problems and FTA. Additionally, this thesis examines ADSEP as a specific form of FTA descriptively, because the low prevalence of ADSEP within the analytic sample did not support meaningful multivariate estimation.

The study is guided by the following research questions from NPS-25-N035B project sponsored by OPNAV N1:

- RQ5: What socio-demographic and organizational factors influence (+/-) FTA and ADSEP risk in first-term Sailors receiving outpatient mental health treatment?
- RQ6: To what extent do those socio-demographic and organizational factors influence (+/-) FTA risk?

To investigate these questions, this thesis employs a retrospective observational design and applies a structured quantitative framework. The primary inferential models estimate associations between ICD-10 diagnosis based mental health indicators and FTA using logistic regression (reported as odds ratios), with linear probability models (LPM) used as robustness checks. The models examined socio-demographic and occupational characteristics among first-term junior Navy Sailors and officers. These quantitative methods evaluate patterns and associations of attrition across a large sample of Sailors serving between 2014 to 2024. Following a request for determination review, the activity described herein was categorized as “not human subject research” by the Naval

Postgraduate School's Institutional Review Board on May 16, 2025 (NPS-2025-0180-DD-N).

B. DATA SOURCES

The primary data for this project was provided by the Research Facility Laboratory (RFL) located in Monterey, California, under the Navy Admin Separation (NAVYADMINSEP) project. The RFL is an organization that operates within the AAG and provides Department of Defense researchers and leaders with access to the PDE (Vie et al., 2015). The PDE is a secure, cloud-based research platform which contains unclassified but sensitive records on military manpower, training, health, medical care, and service outcomes across the services (Vie et al., 2015). Most data stored within the PDE are updated via quarterly extracts provided by various Department of Defense systems of record, the authoritative sources for specific data managed by designated organizations tasked with collecting, storing, and using such data (e.g., Defense Manpower Data Center, Defense Health Agency).

The PDE was initially designed to consolidate, integrate, and provide data to the interested researchers within a secure cloud computing environment rather than distributing datasets externally, thereby reducing duplication, cost, and unnecessary security risks (Vie et al., 2013). Personally identifiable information (PII) protections are managed by the platform's multi-step encoding process: Social Security Numbers are transformed into a random 12-character alphanumeric keys, unit codes are scrambled, and birthdates are truncated to year or month-year formats, reducing the analysts' risk of identifying the research subjects (Vie et al., 2015).

Authorized researchers supporting the Department of Defense may access the PDE only through virtual desktops using the Advanced Encryption Standard 256-bit (AES-256) encryption. The PDE is closely monitored via a range of controls and includes a review approval process for exporting work product (Vie et al., 2013). All PDE projects are governed by the Army Human Research Protection Office (AHRPO) and must comply with strict standards from Health Insurance Portability and Accountability Act (HIPPA), the Privacy Act, and DoD/Arny human-subject's regulations, with medical data de-

identification aligned to safe harbor or expert determination standards (Vie et al., 2013; Vie et al., 2015). In sum, the PDE enables longitudinal, population-level analysis while protecting confidentiality and ensuring regulatory compliance for the researchers.

The population analyzed for this project consisted of active-duty E01 to E05 junior enlisted Navy Sailors and O01 and O02 junior officers with initial entries in the data set between 2014 to 2024. For officers, FTA was defined analogously as separation prior to completion of the initial service obligation following Active Federal Military Service (AFMS) base date. Following an extract transformation-loading (ETL) procedure performed by RFL staff, the data consisted of multiple panel entry of longitudinal administrative records where individuals are observed across multiple snapshots. This raw PDE extract was cleaned and reconstructed into an analysis-ready person level data set consisting of 469,823 unique individual Navy Sailors, later reduce to 408,583 in some analyses due to the exclusion of cases with missing values for critical control variables, such as demographic, occupational, and diagnosis variables.

C. VARIABLES

1. Dependent Variables

Given that the primary goal of this research was to determine the early attrition risk of FTA based upon Sailors being diagnosed with a mental health disorder or seeking mental health counseling. This research explores two related dependent variables.

Specifically, the superordinate dependent variable of interest is Sailor FTA. A Sailor is categorized as FTA if he or she fails to complete the initial period of obligated service. In the current thesis, FTA Sailors were coded as "1," while those who completed their initial obligation or were still actively serving at the end of the observation window were coded as "0." The Sailors initial AFMS base date, initial service obligation end date, and last observed snapshot dates were used to determine contract completion status.

The subordinate dependent variable of interest was ADSEP, a special category of FTA. In line with above, ADSEP was evaluated only among Sailors coded as FTA and those data associated with FTA Sailors were more closely scrutinized for additional data codes that suggested they were administratively separated, specifically those with germane

separation program designator (SPD) and involuntary separation (ISVC) codes. Here, ADSEP was binarily coded within the FTA subsample (1 = ADSEP; 0 = not ADSEP). Because ADSEP prevalence was low within the analytic sample, ADSEP is used descriptively in this thesis to document separation mechanisms and sample constraints, rather than as a primary multivariate modeled outcome. Likewise, in line with guidance from MILPERSMAN 1910, the SPD and ISVC codes were used to describe subcategories within ADSEP. Taken together, the dependent variable definitions set the conditions for analyses to differentiate between early attrition broadly, early attrition originating via the ADSEP process among FTA cases.

2. Independent Variables

To model the likelihood of early separation, this study incorporates independent variables capturing mental health status and diagnoses (See Table 1), demographic characteristics, and organizational context. Together, these independent variables provided a framework for testing how clinical, personal, and occupational factors shape the FTA and ADSEP outcomes.

Table 1. ICD-10 Diagnostic Coding Framework for Mental Health Variable

Variable Name	Diagnostic Category	ICD-10 Codes Included	Notes / Exclusions
any_icd	Diagnosis Variable	F01-F99	Binary variable created for model 1.
any_mental_ever	Mental Health Diagnosis	F01–F99	Excludes all substance-related disorders (F10–F19)
ptsd_ever	Post-Traumatic Stress Disorder (PTSD)	F43.1	—
depress_ever	Depressive Disorders	F32, F33	Includes Major Depressive Disorder
subuse_ever	Substance Use Disorders	F10–F19	Excludes tobacco use disorder (F17)
alcouse_ever	Alcohol Use Disorder	F10	Subset of subuse_ever
druguse_ever	Drug Use Disorders	F11–F16, F18–F19	Subset of subuse_ever
tobaccouse_ever	Nicotine Use	F17	Treated separately from other substance use
bipolar_ever	Bipolar Disorders	F31	Includes bipolar disorder with and without psychotic features
psychosis_ever	Psychotic Disorders	F20–F29	Schizophrenia spectrum and non-mood psychotic disorders
		F30.2	Mania with psychotic symptoms
		F31.5	Bipolar disorder with psychotic features
		F32.3, F33.3	Major depressive disorder with psychotic features
suicide_attempt_ever	Self-Inflicted Injuries	T14.91	Injury code indicating suicide attempt
suicide_ideation_ever	Suicidal Ideation	R45.851	Encounter coded for suicidal ideation

Note. Mental health diagnoses were identified using ICD-10 diagnostic codes recorded in administrative medical encounter data. Substance-related disorders (F10–F19) were excluded from the composite "any mental health" measure and modeled separately. Tobacco use disorder (F17) was treated as a distinct category and excluded from the substance use composite. Psychotic disorders include schizophrenia spectrum disorders as well as mood disorders with psychotic features. Suicide-related diagnoses were identified using both injury and symptom codes.

Mental health data were coded utilizing the ICD-10 diagnostic categories for the presence and type of conditions. Diagnostic indicators were derived from ICD-10 codes recorded in medical encounter data to ensure consistent measurement across the study period. Key mental health indicators used in this thesis are listed in Table 1. These data were used to determine if and to what degree Sailor mental health conditions are associated with early separation outcomes. Table 1 summarizes the ICD-10 codes used to construct each diagnosis indicator in the analytic dataset. Each indicator was coded as a binary variable reflecting whether a Sailor had at least one qualifying ICD-10 code during the observation window.

As outlined in Table 2, demographic data and Armed Forces Qualification Test (AFQT) scores were also incorporated as control variables throughout the analysis. These characteristics are included to account for baseline differences across Sailors that may independently influence FTA and separation risk. Thus, including these data leads to a more rigorous analysis by ensuring that observed associations between mental health diagnoses and separation outcomes are not confounded by pre-service and societal differences.

The Navy's unique service-related and occupational data act as proxies for the institutional context in which Sailors serve. These characteristics were captured by paygrade at last observation in the person level data and assignment to a broader occupational rating. Navy's ratings and each community reflect the differences in occupational demands and training pipelines across the operational Navy career fields and allows the research and analysis to evaluate whether the separation risks vary across the Sailor's specific job types. These measures are used in descriptive summaries and in multivariate regression models to estimate the association between ICD-10 diagnosis indicators and FTA.

D. ANALYTICAL METHODS

1. Descriptive Statistics

Descriptive statistics summarize the demographic, organizational, and clinical characteristics of the study population and provide a Navy-wide overview of separation

outcomes for the data and time used in this thesis. See Table 2. Descriptive comparisons are also used to document ADSEP prevalence and sample constraints within the FTA subsample. As a supplemental descriptive analysis, Table 10, section A in Appendix A, reports relative risk measures for key demographic groups by comparing subgroup FTA rates to the overall sample FTA rate, providing an interpretable benchmark for differences in attrition prevalence.

2. Regression Modeling

To analyze the relationships among the study variables, multivariate regression models were used to estimate the association between mental health characteristics and separation outcomes while controlling demographic and occupational factors. Logistic regression models were employed to examine the likelihood of FTA as a binary outcome, with results reported as odds ratios. Key independent variables include indicators for mental health diagnosis and diagnosis category, with demographic and occupational characteristics included as covariates.

LPM were estimated as robustness checks to evaluate whether the direction and relative magnitude of the primary findings are consistent across modeling approaches. Percentage point differences were reported in the LPM. ADSEP is summarized descriptively (within the FTA subsample) and is not modeled as a primary multivariate outcome in this thesis due to low prevalence and resulting limited statistical support for multivariate estimation.

All three model specifications include the same demographic and occupational characteristics. The specifications differ only in how mental health diagnostic information is parameterized. Model 1 includes a single binary indicator capturing whether a Sailor received and qualifying ICD-10 diagnosis during the observation window. Model 2 replaces this single indicator with mutually exclusive diagnosis groupings that distinguish broad categories of diagnostic composition (Mental health diagnosis, substance use disorder, maladjustment, and suicide related diagnosis). Model 3 further disaggregates these categories into specific diagnosis subsets, separating mood and trauma-related conditions (e.g., depressive disorders, PTSD, bipolar disorder, psychoses, and other mental

disorders), substance use subtypes (e.g., alcohol, drug, and nicotine use disorders), maladjustment, and suicide-related outcomes (e.g., suicidal ideation and self0inflicted injuries). To specifically address RQ6, the analysis utilizes a two-step modeling approach. First, a baseline model estimates the association between demographic and occupational characteristics and FTA. Second, an adjusted model incorporates the full mental health diagnostic composition (as defined in Model 3) to evaluate which characteristics maintain a significant independent association with FTA when mental health status is held constant.

For multivariate logistic regression, the reference category was selected based upon the largest sample size (*N*). This methodological choice ensures statistical stability by providing a robust baseline for comparison. In logit modeling, using the most frequent category as the anchor minimizes the variance of the intercept and prevents the inflation of standard errors that occur when comparing against a small or rare reference group. This approach ensures that the resulting Odds Ratios (OR) and their associated p-values are as precise and reliable as possible within the constraints of the sample (Hosmer et al., 2013).

3. Sensitivity and Robustness Checks

A series of sensitivity and robustness analyses were conducted where possible to determine the stability of results. Such tests are important because data creation, cleaning, transformation, and application of the data within statistical models are highly susceptible to subjective decisions and error. The primary robustness check re-estimated the main FTA specifications using LPM to assess whether the direction and relative magnitude of findings were consistent across modeling approaches.

In addition, descriptive sensitivity checks were used to confirm that ADSEP identification based on SPD and ISVC codes produced internally consistent classifications suitable for descriptive analysis. Given the low prevalence of ADSEP, ADSEP was evaluated descriptively rather than through multivariate modeling. These sensitivity and robustness checks increase the confidence that the results of the previous models are not driven by a coding decision or model specification error.

E. SUMMARY

This chapter described the primary data sources, variable cleaning and construction, and analytical methods used to examine the separation outcomes among first-term junior enlisted and officer Sailors. Using the panel administrative data, the study identified FTA and ADSEP (descriptively, within the FTA subsample) as the focal dependent variables, with mental health diagnosis, demographic characteristics and occupational context serving as key independent variables of this research.

The analytical approach combined descriptive statistics with multivariate regression models to evaluate the baseline associations between mental health characteristics and FTA, while accounting for demographic and occupational factors. Logistics regression models (odds ratios) and LPM (percentage point differences) were used to assess the robustness of the primary findings. ADSEP was summarized descriptively using SPD and ISVC codes due to low prevalence and limited support for multivariate estimation.

Together, these analytical methods provide a structured and rigorous framework for evaluating the relationship between mental health diagnosis and separation behavior during a Sailor's initial term of service. The results of these analyses are presented in Chapter IV.

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IV. RESULTS AND FINDINGS

A. INTRODUCTION

This chapter presents the results examining the relationship between mental health diagnoses and FTA as the primary outcome. As described in Chapter III, I used a large, paneled dataset consisting of quarterly extracts from multiple DoD administrative, medical, and operational sources obtained from the PDE and consolidated into analytic person-level data (N = 469,823). All analyses were conducted within the PDE environment using RStudio pro via AppStream. With data spanning January 2014 through December 2024.

I begin this chapter with a brief orientation of the study population relevant to this thesis, followed by the presentation of results addressing the primary research questions. The primary findings are based on a sequence of nested logistic regression models in which mental health diagnostic definitions are progressively refined while demographic and occupational characteristics are held constant. Additional analyses rely on stratified and alternative model specifications to evaluate how these associations vary across different demographics and occupational context. A summary of key demographic characteristics is provided in Table 2.

Table 2. Descriptive Characteristics of Sailors by FTA

Characteristic	Total Population	Non-FTA	FTA	Non-ADSEP	ADSEP
Full Sample	N = 469,823 (100%)	N = 366,859	N = 102,964	N = 959	N = 1503
Sex					
Female	107,324 (22.8%)	83,598 (22.8%)	23,726 (23.0%)	251 (22.6%)	303 (20.2%)
Male	362,499 (77.2%)	283,261 (77.2%)	79,238 (77.0%)	708 (73.8%)	1200 (79.8%)
Race / Ethnicity					
White	285,826 (60.8%)	224,786 (61.3%)	61,040 (59.3%)	625 (65.2%)	858 (57.1%)
Black	93,035 (19.8%)	73,337 (20.0%)	19,698 (19.1%)	142 (14.8%)	361 (24.0%)
Asian	31,577 (6.7%)	26,158 (7.1%)	5,419 (5.3%)	70 (7.3%)	54 (3.6%)
Amerindian	8,124 (1.7%)	5,628 (1.5%)	2,496 (2.4%)	19 (2.0%)	34 (2.3%)
Mixed	46,719 (9.9%)	35,413 (9.7%)	11,306 (11.0%)	93 (9.7%)	160 (10.6%)
Not Reported	4,542 (1.0%)	1,537 (0.4%)	3,005 (2.9%)	10 (1.0%)	36 (2.4%)
Age (years)					
≤17	865 (0.2%)	599 (0.2%)	266 (0.3%)	NA	1 (0.1%)
18–21	99,293 (21.1%)	70,914 (19.3%)	28,379 (27.6%)	123 (12.8%)	497 (33.1%)
22–25	165,078 (35.1%)	129,537 (35.3%)	35,541 (34.5%)	308 (32.1%)	658 (43.8%)
26–29	118,239 (25.2%)	94,732 (25.8%)	23,507 (22.8%)	174 (18.1%)	227 (15.1%)
30+	85,348 (18.4%)	71,077 (19.4%)	15,271 (14.8%)	354 (36.9%)	120 (8.0%)
Marital Status					
Never Married	274,466 (58.4%)	212,671 (58.0%)	61,795 (60.0%)	497 (51.8%)	883 (58.7%)
Married	177,633 (37.8%)	139,283 (38.0%)	38,350 (37.2%)	446 (46.5%)	484 (32.2%)
Divorced	16,248 (3.5%)	14,040 (3.8%)	2,208 (2.1%)	16 (1.7%)	23 (1.5%)
Other / Unknown	1,476 (0.3%)	865 (0.2%)	611 (0.6%)	NA	113 (7.5%)
Education Level					
< High School	4,542 (1.0%)	3,124 (0.9%)	1,418 (1.4%)	8 (0.8%)	20 (1.3%)
High School	400,106 (85.2%)	311,509 (84.9%)	88,597 (86.0%)	448 (46.7%)	1,388 (92.3%)
Some College	23,763 (5.1%)	19,212 (5.2%)	4,551 (4.4%)	30 (3.1%)	29 (1.9%)
Bachelor's	34,301 (7.3%)	26,919 (7.3%)	7,382 (7.2%)	231 (24.1%)	49 (3.3%)
Advanced Degree	2,878 (0.6%)	2,379 (0.6%)	499 (0.5%)	299 (10.39%)	2 (0.1%)
Not Reported	4,233 (0.9%)	3,716 (1.0%)	517 (0.5%)	170 (17.7%)	15 (1.0%)

Notes. Values are reported as *n (%)*. Percentages are calculated within columns and may not sum to 100 due to rounding. FTA indicates first-term attrition occurring prior to completion of the initial service obligation. ADSEP population is among the FTA = 1.

B. DEMOGRAPHIC ORIENTATON

As shown in Table 3, I categorized the data by 16 broad Navy ratings, along with two additional categories Trainee and Not Classified. Because FTA captures early separation from the Navy and includes medical discharges due to injury, it is reasonable to expect that communities with more physically demanding occupations or less structured occupational pathways may be overrepresented among FTA Sailors. Consistent with this expectation, Engineering/Hull, General Deck/Undesignated, and Not Classified communities exhibit higher representation in the FTA category relative to non-FTA Sailors. In contrast, Aviation, Medical, Administrative/Logistics, and Information Warfare/Intelligence communities are underrepresented among FTA Sailors, suggesting a potential protective pattern. To aid interpretation of these descriptive differences,

unadjusted FTA rates and relative risk measures by different communities are presented in Table 11, section A in Appendix A. These calculations are intended to provide magnitude context and do not account for demographic of occupational characteristics addressed in subsequent regression models. Collectively, these communities descriptive patterns provide an organizational context for the baseline and adjusted analysis that follow.

Table 3. Navy Rates Demographics

Community	Total Population	Non-FTA	FTA	Non-ADSEP	ADSEP
Aviation	94,002 (20.0%)	76,885 (21.0%)	17,117 (16.6%)	178 (18.6%)	313 (20.8%)
Surface Warfare	63,120 (13.4%)	50,128 (13.7%)	12,992 (12.6%)	131 (13.7%)	117 (11.8%)
Engineering / Hull	56,396 (12.0%)	40,772 (11.1%)	15,624 (15.2%)	71 (7.4%)	233 (15.5%)
General Deck / Undesignated	49,743 (10.6%)	38,525 (10.5%)	11,218 (10.9%)	105 (10.9%)	182 (12.1%)
Information Warfare / Intelligence	39,370 (8.4%)	31,326 (8.5%)	8,044 (7.8%)	57 (5.9%)	65 (4.3%)
Administrative / Logistics	38,500 (8.2%)	31,207 (8.5%)	7,293 (7.1%)	57 (5.9%)	117 (7.8%)
Medical	29,094 (6.2%)	25,130 (6.9%)	3,964 (3.8%)	199 (20.8%)	18 (1.2%)
Security / Law Enforcement	16,187 (3.4%)	12,813 (3.5%)	3,374 (3.3%)	40 (4.2%)	43 (2.9%)
Seabee / Construction	10,766 (2.3%)	9,075 (2.5%)	1,691 (1.6%)	16 (1.7%)	19 (1.3%)
Submarine	5,041 (1.1%)	4,300 (1.2%)	741 (0.7%)	25 (2.6%)	11 (0.7%)
Special Warfare	5,380 (1.1%)	4,181 (1.1%)	1,199 (1.2%)	10 (1.0%)	4 (0.3%)
Trainee	270 (0.1%)	170 (0.0%)	100 (0.1%)	2 (0.2%)	3 (0.2%)
Legal	539 (0.1%)	429 (0.1%)	110 (0.1%)	6 (0.6%)	NA
Religious / Chaplain	1,071 (0.2%)	797 (0.2%)	274 (0.3%)	1 (0.1%)	3 (0.2%)
Meteorology / Oceanography	1,518 (0.3%)	1,186 (0.3%)	332 (0.3%)	4 (0.4%)	4 (0.3%)
Music / Band	473 (0.1%)	403 (0.1%)	70 (0.1%)	NA	NA
Nuclear	441 (0.1%)	396 (0.1%)	45 (0.0%)	14 (1.5%)	NA
Not Classified	57,912 (12.3%)	39,136 (10.7%)	18,776 (18.2%)	43 (4.5%)	311 (20.7%)

Notes. Values are reported as *n (%)*. Percentages are calculated within columns. The total population reflects the analytic sample of enlisted Sailors with first-term attrition status defined (N = 469,823), consistent with Tables 3.1 and 3.2. Navy rates reflect primary occupational grouping at observation. Rank reflects pay grade at end of the service.

As shown in Table 4, I categorized the data by rank at last observation and then stratified by FTA status. Although E-5 Sailors comprise a substantial share of the overall population, FTA is disproportionately concentrated among junior enlisted ranks. Representation in the FTA category declines monotonically as rank increases, with E-1 through E-3 accounting for a larger share of FTA relative to their presence in the non-FTA population. In contrast, officer pay grades are underrepresented among FTA Sailors, indicating descriptively lower unadjusted FTA prevalence at higher ranks.

To aid interpretation of these descriptive patterns, unadjusted FTA rates and relative risk measures by rank are presented in Table 12, section A in Appendix A. These calculations illustrate the magnitude of rank-based difference in FTA prevalence but do not adjust for demographic or occupational characteristics, which are addressed in subsequent regression modeling. In addition to the ratings, these rank-based distributions highlight rank as key stratifying characteristics for the adjusted and stratified analyses that follow.

Table 4. Rank at Observation

Rank	Total Population	Non-FTA	FTA	Non-ADSEP	ADSEP
E-1	41,037 (8.7%)	26,588 (7.2%)	14,449 (14.0%)	5 (0.5%)	267 (17.8%)
E-2	25,784 (5.5%)	18,318 (5.0%)	7,466 (7.3%)	13 (1.4%)	246 (16.4%)
E-3	78,218 (16.6%)	57,238 (15.6%)	20,980 (20.4%)	142 (14.4%)	420 (27.9%)
E-4	102,264 (21.8%)	83,920 (22.9%)	18,344 (17.8%)	192 (20.0%)	292 (19.4%)
E-5	201,169 (42.8%)	162,215 (44.2%)	38,954 (37.8%)	122 (12.7%)	243 (16.2%)
O-1	5,254 (1.1%)	4,971 (1.4%)	283 (0.3%)	177 (18.5%)	10 (0.7%)
O-2	16,097 (3.4%)	13,609 (3.7%)	2,488 (2.4%)	308 (32.1%)	25 (1.7%)

Notes. Values are reported as *n (%)*. Percentages are calculated within columns. The total population reflects the analytic sample of enlisted Sailors with first-term attrition status defined (N = 469,823), consistent with Tables 1 and 2. Rank reflects pay grade at end of the service.

As shown in Table 5, the prevalence of documented mental health diagnoses is summarized by FTA. Sailors who experienced FTA exhibit a higher prevalence of any

documented mental health diagnoses compared to those who completed their first term of service. Substance-related disorders, including alcohol, drug, and nicotine use disorders, are notably more common among FTA Sailors than among non-FTA Sailors. Higher prevalence among FTA Sailors is also observed across several other diagnostic categories, including psychotic disorders and suicide-related indicators. Reflecting the complex comorbidity inherent in mental health, these diagnostic categories often overlap, meaning that a single Sailor may be represented in more than one group. Unadjusted FTA rates and relative risk measures by diagnostic category, presented in Table 13, section A in Appendix A, reflect considerable heterogeneity in FTA prevalence across conditions, with the highest rates observed among substance-related and select low-prevalence by high-severity diagnosis. These descriptive differences underscore the importance of distinguishing between broad mental health indicators and specific diagnostic subgroups and motivate the use of joint multivariate analyses presented in the following section.

Table 5. Mental Health Prevalence

Diagnosis Category	Total Population (N = 469,823)	Non-FTA (N = 366,859)	FTA (N = 102,964)	Non-ADSEP (N = 959)	ADSEP (N = 1,503)
DX Coded variable	85,238 (18.1%)	64,165 (17.5%)	21,073 (20.5%)	156 (16.3%)	375 (25.0%)
Mental Health Diagnosis	64,618 (13.8%0	50,072 (13.6%)	14,546 (14.1%)	135 (14.1%)	250 (16.6%)
├─ Depressive Disorders	19,586 (4.2%)	14,866 (4.1%)	4,720 (4.6%)	53 (5.5%)	86 (5.7%)
├─ PTSD	6,073 (1.3%)	4,744 (1.3%)	1,329 (1.3%)	30 (3.1%)	17 (1.1%)
├─ Psychotic Disorders	767 (0.2%)	468 (0.1%)	299 (0.3%)	3 (0.3%)	8 (0.5%)
├─ Bipolar Disorders	840 (0.2%)	582 (0.2%)	258 (0.3%)	4 (0.4%)	2 (0.1%)
├─ Other Mental Health	41,559 (8.8%)	32,503 (8.9%)	9,056 (8.8%)	64 (6.7%)	158 (10.5%)
Substance Use Disorders	32,454 (6.9%)	22,508 (6.1%)	9,946 (9.7%)	62 (6.5%)	196 (13.0%)
├─ Alcohol Use Disorder	13,040 (2.8%)	9,240 (2.5%)	3,800 (3.7%)	22 (2.3%)	96 (6.4%)
├─ Drug Use Disorder	2,103 (0.4%)	1,258 (0.3%)	845 (0.8%)	5 (0.5%)	53 (3.5%)
├─ Nicotine Use Disorder	22,718 (4.8%)	15,386 (4.2%)	7,332 (7.1%)	43 (4.5%)	131 (8.7%)
Adjustment Disorders (Maladjustment)	1,083 (0.2%)	761 (0.2%)	322 (0.3%)	2 (0.2%)	16 (1.1%)
Suicide-Related Diagnoses	7,391 (1.6%)	5,326 (1.5%)	2,065 (2.0%)	14 (1.5%)	73 (4.9%)
├─ Suicidal Ideation	7,236 (1.5%)	5,210 (1.4%)	2,026 (2.0%)	14 (1.5%)	72 (4.8%)
├─ Self inflected injuries	298 (0.1%)	205 (0.1%)	93 (0.1%)	1 (0.1%)	2 (0.1%)

Notes. Values are reported as *n (%)*. Percentages are calculated within columns using the analytic sample of enlisted Sailors with first-term attrition status defined (N = 469,823). Diagnoses are not mutually exclusive; individuals may appear in multiple categories.

Although ADSEP represents an important subset of FTA, the number of Sailors with classifiable ADSEP outcomes are substantially smaller than the overall FTA population. Accordingly, the primary analysis in this chapter focuses on FTA.

C. RESEARCH QUESTIONS

RQ6 examines the extent to which socio-demographic and organizational characteristics are associated with FTA after accounting for mental health diagnostic composition. This research question is fundamental for identifying which demographic and occupational characteristics remain associated with FTA when mental health status is held constant. As discussed in Chapter II, it is reasonable to expect that junior Sailors receiving

mental health treatment will exhibit a higher likelihood of FTA. Additionally, prior research suggests that the magnitude of this association varies across socio-demographic characteristics, rank, and occupational context (Adler & Castro, 2013).

To address the research question, I estimated a sequence of logistic regression models predicting FTA. All models include the same set of demographic and service-related controls previously described, while the specification of mental health variables is progressively refined across models. Model 1 includes a single indicator capturing whether a Sailor received any diagnosis. Model 2 replaces this indicator with broad diagnostic categories, including mental-health related disorders, substance-related disorders, maladjustment disorders, and suicide-related ICD diagnosis. Model 3 further disaggregates these categories into a fully joint specification capturing specific substance use, mental health, and suicide related diagnoses simultaneously. This type of modeling allows for a detailed assessment of socio-demographic and organizational characteristics association with FTA. Results from these models are presented in Table 5.

Table 6. Logistics Regression Predicting FTA

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. Odds ratios reported with 95% confidence intervals in brackets. Column (1) reports the estimate of any diagnosis. Column (2) reports four major subsections included in column 1 (3) further adjusts for mental health, substance abuse, maladjustment, and suicide related indicators. All models are controlled with the following: age, sex, marital status, education level, AFQT, race/ethnicity, rank, ratings.

Table 5 presents odds ratios from the logistic regression models predicting FTA across three models, in which demographic and occupational characteristics are held constant, and the specification of mental health diagnoses is progressively refined. In Model 1, the presence of any documented ICD-10 codes is associated with higher odds of FTA (OR = 1.30, 95% CI [1.28, 1.33]). However, this aggregate association attenuates as diagnostic categories are disaggregated in subsequent models. In Model 2, the mental health specific indicator exhibits an odds ratio near 1 (OR = 0.97, 95% CI [0.94, 0.99]), indicating that broad mental health classifications obscure substantial heterogeneity across the diagnostic subgroups.

Across Model 2 and 3, substance abuse-related disorders emerged as the strongest and most consistent predictive factors for FTA. In Model 2, substance-related disorders are associated with significantly higher odds of attrition (OR = 1.81, 95% CI [1.76, 1.86]). The high sample size of 13,970 further improves the statistical significance of the narrow CI. In the fully joint specification in Model 3, elevated odds persist across specific substance use categories, including drug-related disorders (OR = 1.46, 95% CI [1.32, 1.61]), alcohol-related disorders (OR = 1.19, 95% CI [1.14, 1.24]), and nicotine use disorders (OR = 1.94, 95% CI [1.88, 2.00]). These estimates are highly supported by the relatively large sample sizes, indicating that substance-related diagnoses contribute to both a statistically and practically significant link to person-level attrition risk.

Looking at the mental health related disorders, psychoses exhibit a large, estimated association with FTA in Model 3 (OR = 1.61, 95% CI [1.36, 1.91]), but this diagnosis is uncommon compared to the full analytic sample (N = 767). Accordingly, the magnitude of this estimate should be interpreted with caution, as low-prevalence conditions can disproportionately influence odds ratio calculations. Furthermore, Mood disorders such as depressive and bipolar disorders are associated with smaller and less precise effects with odds ratios portraying a close to unity in the fully joint model. These findings suggest that not all mental health conditions carry equivalent implications for early attrition.

Suicide-related diagnoses are associated with modest elevated odds ratio of FTA when examined as a combined category in Model 2, however the estimates attenuate and become less precise when suicidal ideation and self-inflicted injuries are examined separately in model 3. Given its episodic nature and low prevalence of these situations, suicide-related diagnoses are likely to reflect an acute clinical crisis rather than a singular or direct pathway to FTA.

Interpreting all the models together, these results demonstrate that the association between mental health diagnoses and FTA is highly heterogeneous and is driven predominantly by substance-related conditions rather than mental health diagnoses broadly defined. This distinction motivates subsequent analyses that examine socio-demographic and organizational factors associated with FTA while holding mental health diagnostic compositions constant. Additionally, as a robustness check, I also estimated linear

probability models for the same specifications in Table 5, reporting percentage-point differences in FTA; these results are presented in Table 14, section B in Appendix A and are used to assess the stability of the primary logit findings.

To address RQ6, I estimated a series of logistic regression models in which the full set of mental health variables identified in the joint specification in Table 5 (Model 3) are held constant, while attention is directed towards service-related and demographic predictors of FTA. Specifically, these models report odds ratios for demographics, different Navy ratings community, and rank characteristics, in conjunction with mental health diagnostic composition. This approach isolated the association between occupational and individual characteristics and FTA, independent of differences in underlying mental health diagnoses. Tables 6 through 8 present the results of these models for demographics, rates and community, and rank characteristics.

D. FINDINGS

1. By Demographics

Table 6 presents odds ratios for demographic characteristics predicting FTA, estimated from logistics regression models that hold mental health diagnostic composition constant. In the baseline specification, several demographic characteristics are associated with FTA, however many of these associations attenuate or lose statistical significance once mental health diagnoses are included in the adjusted model.

Age exhibits a strong baseline association FTA, with older age groups displaying substantially lower odds of attrition relative to the youngest cohort of Sailors. These differences largely attenuate in the adjusted model, suggesting that age-related variation in FTA is closely intertwined with underlying differences in mental health diagnostic composition. Educational attainment remains modestly associated with FTA net of mental health, with Sailors holding a high school diploma or some college exhibiting lower odds of attrition relative to those without a high school credential. Estimates for higher educational categories are imprecise, reflecting small sample sizes and resulting in limited statistical power to detect differences across these groups.

Marital status demonstrates limited independent association with FTA after adjustment, apart from divorced Sailors, who exhibit lower odds of attrition relative to never-married Sailors. Sex-based differences attenuate after accounting for mental health, with male Sailors exhibiting slightly lower odds of FTA in the adjusted model. Racial and ethnic differences observed in baseline estimates similarly attenuate and lose statistical significance once mental health diagnostic composition is held constant.

Taken together, these results suggest that many demographic disparities in FTA operate indirectly through differences in mental health diagnoses rather than exerting strong independent effects. In contrast to the pronounced heterogeneity observed for specific mental health conditions, demographic characteristics exhibit relatively modest conditional associations with FTA.

Table 7. Demographics Odds Ratio of FTA

Demographic	Category	N	Baseline	p-value	Adjusted	p-value
Age (years)	≤17 (ref)	17	1.00	—	1.00	—
	18–21	8,512	0.12 [0.02, 0.94]	0.044	0.00 [0.00, ∞]	0.982
	22–25	28,130	0.08 [0.01, 0.60]	0.014	0.00 [0.00, ∞]	0.981
	26–29	25,881	0.06 [0.01, 0.51]	0.009	0.00 [0.00, ∞]	0.981
	30+	22,698	0.06 [0.01, 0.45]	0.007	0.00 [0.00, ∞]	0.981
Education	< High School (ref)	1,271	1.00	—	1.00	—
	High School	71,653	0.65 [0.57, 0.74]	<0.001	0.61 [0.37, 0.99]	0.046
	Some College	6,105	0.67 [0.58, 0.78]	<0.001	0.56 [0.32, 0.98]	0.041
	Bachelor's	5,349	0.80 [0.69, 0.93]	0.003	0.90 [0.52, 1.58]	0.724
	Advanced Degree	523	0.80 [0.61, 1.04]	0.095	0.92 [0.33, 2.56]	0.870
	Not Reported	337	1.35 [0.96, 1.90]	0.087	1.47 [0.40, 5.38]	0.561
Marital Status	Never Married (ref)	37,463	1.00	—	1.00	—
	Married	42,054	0.98 [0.94, 1.01]	0.174	0.92 [0.79, 1.06]	0.226
	Divorced	5,591	0.59 [0.55, 0.65]	<0.001	0.45 [0.32, 0.63]	<0.001
	Other / Unknown	130	0.60 [0.36, 1.00]	0.052	0.49 [0.06, 3.95]	0.503
Sex	Female (ref)	28,328	1.00	—	1.00	—
	Male	56,910	1.20 [1.16, 1.25]	<0.001	0.86 [0.74, 0.99]	0.035
Race / Ethnicity	Amerindian (ref)	2,074	1.00	—	1.00	—
	Asian	4,914	0.51 [0.45, 0.58]	<0.001	0.77 [0.48, 1.23]	0.270
	Black	16,278	0.51 [0.46, 0.56]	<0.001	0.79 [0.53, 1.19]	0.256
	Mixed	10,557	0.61 [0.55, 0.68]	<0.001	1.04 [0.69, 1.56]	0.861
	White	50,671	0.54 [0.49, 0.60]	<0.001	0.83 [0.57, 1.22]	0.348

Note. Odds ratios (ORs) are estimated from logistic regression models predicting first-term attrition (FTA) among Sailors who received at least one mental health–related ICD diagnosis during their first term of service. Baseline models include socio-demographic and organizational controls. Adjusted models additionally control mental health diagnosis, including substance-related disorders, mood disorders, psychoses, post-traumatic stress disorder, and suicide-related encounters. Reference categories are shown in parentheses. Odds ratios greater than 1 indicate higher odds of FTA relative to the reference group; odds ratios less than 1 indicate lower odds. P-values are two-sided.

2. By Ratings

Table 7 presents odds ratios for Navy communities predicting FTA in the same baseline and adjusted model from above. In the baseline specification, several rates exhibit differences in the FTA risk relative to the Aviation reference group; however, many of these associations attenuate or lose statistical significance after accounting for mental health diagnosis in the adjusted model.

Engineering/Hull remains strongly associated with elevated FTA risk in both baseline and adjusted models. Sailors in the Engineering/Hull occupations exhibit significantly higher odds of attrition relative to Aviation (OR = 1.66, [130, 2.12]). In contrast, General Deck/ Undesignated Sailors exhibit substantially lower odds of FTA in the adjusted model (OR = 0.55, CI 95% [0.40, 0.74]), indicating that the elevated descriptive prevalence observed for this group is largely explained by underlying mental health diagnostic composition rather than independent occupational risk.

Several ratings that exhibit modest baseline differences are also observed in Administrative/Logistics, Information Warfare/Intelligence, Surface Warfare, and Security/Law Enforcement communities which these communities' statistical significance attenuate in the adjusted models. Medical occupations consistently exhibit lower odds of FTA in both the baseline and adjusted models, suggesting a modest but persistent protective association net of mental health. Estimates for smaller occupational communities, including Special Warfare, Submarine, Nuclear, and Trainee classifications, are characterized by wide confidence intervals, reflecting limited sample sizes and reducing analysis precision.

Overall, these results indicate that while occupational context contributes to variation in FTA risk, the differences observed across Navy communities are attenuated by differences in mental health diagnostic composition. Engineering/Hull community stands out as a notable exception, retaining a strong independent association with early attrition, whereas several other communities exhibit attenuation once mental health is accounted for. These findings reinforce the importance of distinguishing between descriptive

overrepresentation and conditional associations when evaluating organizational correlations of early attrition.

Table 8. Navy Community Odds Ratio of FTA

Community	Baseline	p-value	Adjusted OR	p-value
Aviation (ref)	1.00	—	1.00	—
Administrative / Logistics	1.07 [1.00, 1.15]	0.037	1.03 [0.79, 1.36]	0.810
Engineering / Hull	1.68 [1.59, 1.78]	<0.001	1.66 [1.30, 2.12]	<0.001
General Deck / Undesignated	0.91 [0.84, 0.98]	0.010	0.55 [0.40, 0.74]	<0.001
Information Warfare / Intel	1.07 [1.00, 1.15]	0.038	1.03 [0.78, 1.36]	0.835
Legal	1.27 [0.87, 1.86]	0.209	—	—
Medical	0.66 [0.61, 0.70]	<0.001	0.63 [0.49, 0.81]	<0.001
Meteorology / Oceanography	1.04 [0.78, 1.39]	0.776	0.92 [0.24, 3.47]	0.904
Music / Band	0.63 [0.37, 1.08]	0.091	1.00 [0.19, 5.33]	0.999
Nuclear	1.67 [0.43, 6.42]	0.459	—	—
Religious / Chaplain	1.49 [1.12, 1.99]	0.007	1.42 [0.47, 4.25]	0.533
Seabee / Construction	1.08 [0.96, 1.21]	0.186	1.03 [0.64, 1.65]	0.909
Security / Law Enforcement	1.09 [0.99, 1.19]	0.070	0.93 [0.61, 1.41]	0.730
Special Warfare	1.24 [0.98, 1.56]	0.077	0.21 [0.02, 1.93]	0.168
Submarine	0.96 [0.78, 1.18]	0.703	1.48 [0.58, 3.80]	0.411
Surface Warfare	1.20 [1.13, 1.28]	<0.001	1.22 [0.94, 1.57]	0.139
Trainee	2.05 [0.98, 4.29]	0.058	0.16 [0.01, 1.86]	0.144
Undesignated	1.05 [0.98, 1.14]	0.178	0.87 [0.64, 1.19]	0.388

Note. Odds ratios (ORs) are estimated from logistic regression models predicting first-term attrition (FTA) among Sailors who received at least one mental health–related ICD diagnosis during their first term of service. Baseline models include socio-demographic and organizational controls. Adjusted models additionally control mental health diagnosis, including substance-related disorders, mood disorders, psychoses, post-traumatic stress disorder, and suicide-related encounters. Reference categories are shown in parentheses. Odds ratios greater than 1 indicate higher odds of FTA relative to the reference group; odds ratios less than 1 indicate lower odds. P-values are two-sided.

3. By Rank

Table 8 shows a pronounced association between paygrade and FTA, with substantially lower odds of attrition observed at higher ranks relative to E01. Across all

specifications, the likelihood of early separation declines sharply as paygrade increases, indicating a strong and persistent rank gradient in FTA risk.

In the baseline model, all enlisted pay grades above E01 exhibit markedly lower odds of attrition, with the magnitude of the association increasing steadily with rank. Although these effects attenuate modestly once mental health diagnostic characteristics are accounted for in the adjusted model, the overall pattern remains intact. For example, E03 and E04 Sailors continue to exhibit significantly lower odds of FTA relative to E01 in the adjusted model E03 (OR = 0.51, [0.33, 0.77]); E04 (OR = 0.23, [0.15, 0.35]). Similarly, E05 Sailors experience substantially reduced odds of attrition after adjustment (OR = 0.18, [0.11, 0.28]).

Officer ranks display the lowest odds of FTA across all model specifications; however, estimates for officer ranks are characterized by wider confidence intervals due to smaller sample sizes, limiting statistical significance and interpretation. Despite this imprecision, the direction and magnitude of the coefficients remain consistent after accounting for mental health diagnostic composition. Taken together, these results suggest that rank captures structural and institutional factors associated with retention that extend beyond differences in mental health cases, with particularly strong and robust effects observed among the junior enlisted cohorts

Overall, these findings indicate that rank is one of the strongest independent correlations of FTA, net of demographic, occupational and mental health characteristics. The steep gradient observed across paygrades underscores the central role of institutional position and progression in shaping early attrition risk and represents the most pronounced association observed among the socio-demographic and organizational factors examined under RQ6.

Table 9. Rank Odds Ratio of FTA

Paygrade	Baseline	p-value	Adjusted OR	p-value
E01 (ref)	1.00	—	1.00	—
E02	0.39 [0.34, 0.44]	<0.001	0.62 [0.36, 1.08]	0.093
E03	0.25 [0.22, 0.28]	<0.001	0.51 [0.33, 0.77]	0.002
E04	0.12 [0.11, 0.14]	<0.001	0.23 [0.15, 0.35]	<0.001
E05	0.11 [0.10, 0.13]	<0.001	0.18 [0.11, 0.28]	<0.001
O01	0.02 [0.01, 0.04]	<0.001	0.09 [0.01, 0.99]	0.049
O02	0.06 [0.04, 0.08]	<0.001	0.05 [0.01, 0.32]	0.002

Note. Odds ratios (ORs) are estimated from logistic regression models predicting first-term attrition (FTA) among Sailors who received at least one mental health–related ICD diagnosis during their first term of service. Baseline models include socio-demographic and organizational controls. Adjusted models additionally control mental health diagnosis, including substance-related disorders, mood disorders, psychoses, post-traumatic stress disorder, and suicide-related encounters. Reference categories are shown in parentheses. Odds ratios greater than 1 indicate higher odds of FTA relative to the reference group; odds ratios less than 1 indicate lower odds. P-values are two-sided.

E. SUMMARY

This chapter examined the association between mental health diagnoses and FTA, as well as the extent to which socio-demographic and organizational factors are associated with early separation net of mental health diagnostic composition. Results from the logistic regression models demonstrate that the relationship between mental health and FTA is highly heterogeneous and driven primarily by substance related diagnoses rather than other mental health diagnoses. When mental health cases are held constant, demographic characteristics exhibit modest and often attenuated associations with FTA, while occupational differences are largely attenuated by mental health composition, with Engineering / Hull as a notable exception. In contrast, rank emerges as the strongest and most consistent correlation of FTA, exhibiting a pronounced gradient across paygrades that persists after accounting for demographic, occupational, and mental health characteristics. As outlined in Chapter V, the age and rank link to FTA is not at all surprising given that early career Sailors tend to be younger and of lower rank, and FTA is much more prevalent in this subpopulation.

V. DISCUSSION

A. INTRODUCTION

The results of the multivariate analysis in the previous chapter revealed a complex hierarchy of FTA that extends beyond the simple diagnostic labels. While the Navy has long recognized mental health as a contributing factor in personnel readiness, this thesis extended the scope beyond broad classifications to identify which specific diagnostic categories most accurately predicted early separation. The Navy's mission is to prepare combat-effective forces that support the application of sea power in defense of national interests, which relies heavily on the retention of its workforce. Consequently, the loss of enlisted personnel is the loss of the Navy's most critical asset, presenting a significant challenge to unit continuity, manning, and operational readiness.

This chapter interprets the findings derived from a decade of Navy administrative and medical data, examining a population of N=469,823 personnel. By comparing these results to existing military studies, this discussion highlights the convergence between current Navy data and established research regarding the impact of mental health and substance use disorders on attrition. In addition, this chapter summarizes the statistical observations into actionable interpretation for policymakers, offering a framework for future policy enforcement that balances individual clinical needs with institutional operational readiness requirements.

B. SUMMARY OF FINDINGS

The primary finding of this research is as follows:

> The association between mental health diagnoses and FTA is highly heterogeneous and driven predominantly by substance use disorders (alcohol, drug, nicotine use) rather than broad mental health classifications.

While the presence of any documented ICD-10 code showed an initially high association with elevated odds of attrition, this association attenuated as diagnostic categories were progressively refined in more complex joint models. It is important to note that these diagnostic findings are not mutually exclusive; the high comorbidity among

Sailors requires careful interpretation of how specific conditions may overlap to influence separation outcomes.

The noticeable higher odds of attrition presented for psychoses in the joint models must be interpreted with caution. Stated succinctly, While the statistical results presented here are accurate for this specific cohort, the low prevalence of the diagnosis makes the findings practically unreliable for forecasting. As these numbers are not sufficiently stable to guarantee consistency in future populations, it is recommended that they are not a strong indicator for necessary policy changes

Beyond ICD-10 diagnostic indicators, the most pronounced independent factor for attrition remained the institutional position of the service member. When mental health characteristics were held constant, junior ranks (specifically E01-E03) exhibited a persistent and steep rank gradient in attrition outcomes. This trend is expected given that lower-ranking personnel are disproportionately overrepresented in the attrition category, largely because they are still navigating the initial enculturation process. These Sailors have the least amount of time in the Navy and are often in their most vulnerable career phase, where the demands of adjusting to military life are highest and their support systems are still being developed. Additionally, the high attrition risk at these ranks likely reflect the structural challenges of the first-term transition rather than an inherent clinical deficiency in the individual Sailor.

Beyond Sailor's rank, occupational context revealed that the Engineering/Hull community alone retained a strong independent association with FTA, suggesting that unique environmental and structural factors drive early attrition regardless of a Sailor's mental health diagnostic composition. This finding could reflect the disparity in the training pipeline between communities; many Engineering ratings, such as Machinist's Mate or Gas Turbine Systems Technicians, typically undergo short 2–4 month schools compared to extended training found in the Aviation or Information Warfare communities. Shorter pipeline results in Engineering Sailors arriving at high demand operational sea commands much earlier in their first term, often while they are still in the high-risk paygrades identified.

Concurrently, the unique occupational stressors inherent to Engineering ratings likely serve as significant catalysts for attrition. Unlike the structured environments of Aviation maintenance or administrative roles, Engineering personnel work is among the most physically taxing conditions on a vessel, often characterized by extreme heat, constant high-decibel noise, and labor-intensive maintenance works. Further to this, these Sailors are often physically isolated, which can limit their access to broader command support networks and exacerbate the fatigue associated with long working hours. These factors likely elevate the attrition risk as an institutional "stress multiplier" where rapid entry into a demanding physical environment occurs before the junior Sailor has indoctrinated to the Navy culture.

Current Navy policy dictates that substance use, specifically illicit drug use is a zero-tolerance event while alcohol related incidents, such as driving under the influence (DUI), often result in significant career setbacks. The results of this thesis suggest that substance related disorders may serve as the primary visible catalyst for administrative action, potentially overshadowing underlying mental health conditions that frequently precede or co-occur with substance misuse. Additionally, it is essential to recognize that substance abuse, to include nicotine, often signals that an individual is seeking a coping mechanism. While not always indicative of a mental health disorder, these behaviors suggest that the individual may be struggling to adjust to the rigors of life in the Navy. In summary, while alcohol or drug incidents are frequently recorded as the primary administrative reason for separation, they may be a symptomatic catalyst of deeper, less visible psychological factors that are not as easily observable in administrative data.

As mentioned previously, due to the high comorbidity among mental health problems, individuals in this sample often appeared in multiple categories rather than being defined by a singular clinical event. In this context, substance use has the potential to function as a maladaptive coping mechanism for untreated or subclinical mental health conditions. The visible consequences of substance misuse could be administrative or performance related and be the "final link" in a chain of stressors that leads to FTA, rather than the root cause. This suggests that while substance-related diagnoses are the strongest

statistical predictors of attrition, they likely represent the point at which a Sailor's struggle becomes visible to the command, triggering a definitive administrative response.

C. METHODOLOGICAL DIVERGENCE AND VARIABLE CREATION

While this study builds upon the foundational project (NPS-25-NO35B) established by Franchi (2025), significant differences in the observed rates of FTA and occupational distributions emerged. Franchi reported a notably higher FTA rate, exceeding 30%, whereas the current findings place the Navy FTA at approximately 21% which is aligned to the 20% attrition benchmark reported by RAND (2020). This divergence is likely attributable to the refined logic used in this thesis to define "true" attrition versus contractual completion.

Specifically, by utilizing a proxy of Armed Forces Military Service (AFMS) base date and initial service obligation dates, this research was able to differentiate between Sailors who failed to complete their term and those whose presence simply ended within the observation window. Further incorporating a "still serving" logic in which excludes individuals whose last observation was near the panel cutoff of March 31, 2024, this study avoided the risk of classifying ongoing service members as early attritors. This methodological adjustment provides a more conservative representation of behavioral attrition as it relates to institutional readiness.

The divergence in occupational findings between this thesis and Franchi (2025) is also visible in the handling of the Navy's broader ratings variable. Specifically, the handling of the training pipeline and the categorization of "Undesignated" personnel. While Franchi (2025) utilized a "Trainee" category derived from a combination of ratings and available permanent duty station (PDS) arrival dates, the current thesis maintained the specific Navy ratings as independent communities in accordance with MILPERSMAN standards. This methodological choice was necessary due to the inconsistencies and significant missingness within the PDS arrival date variables in the current dataset, which precluded the use of PDS as a reliable filter for fleet entry. Rather than risk misclassifying personnel as trainees based on incomplete markers, this analysis opted to preserve rating

specific identities and treat "Undesignated" and "NA" entries as distinct groups. This approach provides a stable view of attrition across established career paths.

Beyond the occupational factors, the clinical depth of this study was enhanced by the availability of ICD-10 diagnostic codes, a critical variable that was not accessible during the Franchi (2025) analysis. While the earlier work provided a vital organizational overview of attrition using broader administrative categories, the inclusion of specific diagnosis allowed for a detailed examination of clinical predictors, such as distinction between mental health and substance related disorders.

D. CURRENT FINDINGS VIS A VIS PEER REVIEWED RESEARCH

The findings of this thesis are largely consistent with previous military research, particularly the association between observable substance-related incidents and administrative separation. This alignment is most evident when viewed through the "occupational burden" framework proposed by Hoge et al. (2005), which indicates that the occupational impact of mental disorders is mediated by a variety of behavioral problems including misconduct and alcohol/drug related problems. As Hoge et al. (2005) observed, while mental health may be the subsurface driver, the official conduit for military exit is frequently recorded as alcohol rehabilitation failure or misconduct, creating a "visible" metric in personnel data that may mask the root clinical cause.

Similarly, the work of Gray et al. (2021) suggests that the prominence of substance issues, which often visible to the Navy only after Sailors seek voluntary treatment, are command-directed to receive treatment, and/or are facing an investigation due to a substance abuse-related event, accelerates a "negative" separation before the service member can address the underlying mental health comorbid factors. This accelerated timeline is reflected in the high statistical significance of substance use disorders identified in this thesis. This likely relates to what Gray et al. (2021) describes regarding the lack of "immortal time" for treatment where many Sailors are processed for separation so quickly after a substance incident that they are not given the adequate time to engage in a clinical treatment plan.

These results converge with the findings of Highfill-McRoy et al. (2012), which identified substance abuse and personality disorders as one of the strongest predictors of a Marine often "not recommended" for re-enlistment, serving as a primary catalyst for involuntary separation compared to those who re-enlisted. This provides a context for the steep rank gradient I found in my results, where E05 personnel had significantly lower odds of attrition compared to the E01-E03 population.

Finally, while this thesis research acknowledges the high degree of comorbidity between substance use and mental health, the data also aligns with the independent effect observed by Vest et al. (2024). Specifically, this thesis found that while an initial broad diagnosis variable showed a high association with FTA, subsequent joint models revealed that substance related disorders remained as the primary driver even when other mental health characteristics were held constant. This reinforces the conclusion that substance misuse is not a subset of a symptom of other mental health conditions, but a distinct and primary factor in separation status that persists regardless of another clinical symptom.

E. RECOMMENDATIONS

1. Data Quality

The accuracy of these findings and the capacity to make informed policy decisions are largely dependent on data quality. Consequently, this thesis has identified several critical limitations regarding the current state of administrative records. Primary constraint involves the analysis of ADSEP, as the limited separation data resulted in low prevalence of classifiable ADSEP outcomes within the analytic sample. Specifically, SPD and ISVC variable were limited and classifiable ADSEP could only be evaluated descriptively rather than via more precise multivariate regression models. Finally, administrative data often lacks specific qualitative information regarding a Sailor's personal motivation for separation or the exact circumstances surrounding FTA outcome.

While the large, person-level dataset (N = 469,823) provides a robust overview of Navy attrition patterns, several limitations must be considered. Primarily, the analysis relied on ICD-10 codes recorded within the military health system, which may not wholistically capture Sailors who sought assistance from outside providers or non-

traditional support services, such as religious counselors. Furthermore, individuals facing mental health might avoid treatment altogether due to concerns regarding stigmatization and peer interactions, potentially leading to an underestimation of true prevalence of mental health conditions.

2. Recommended Research

To address these limitations and build a more complete dataset, future research should move beyond purely FTA markers to include qualitative and process-oriented variables. Qualitative separation data could integrate data from transition assistance program (TAP) surveys or command exit interviews. This could provide insight into Sailor's personal motivations for separation and help determine if job stress is intensifying the clinical symptoms.

Furthermore, acquisition of variables related to specific separation outcome and standardizing how mental health context is recorded in ADSEP paperwork would ensure that policymakers have more complete data when determining if the benefit of a separation outweighs the loss of force strength. Finally, acquiring medical waiver submissions would benefit the research by identifying "existed before service" conditions versus new onset conditions developed during the first term. This distinction is critical in identifying the independent effect of the military environment on clinical markers.

3. Policy Recommendations

The primary policy recommendation derived from this research is the critical need for the Navy to evaluate the costs and effectiveness of shifting from a "zero tolerance" model as it pertains to substance abuse to a rehabilitative model for some ranks and rates. While the immediate administrative benefit of separating a Sailor for a visible misconduct or substance related triggers are definitive, the cumulative loss to force strength and fiscal readiness is substantial (Gray et al., 2022). A proactive policy approach requires a formal cost-effectiveness analysis to determine if the current "zero-tolerance" or rapid separation model is more costly than a rehabilitative framework that preserves technically trained assets (Gray et al., 2022). Given that replacing a single first-term Sailor involves substantial recruitment, training, and specialized education costs, the Navy should consider whether

the price of both outpatient and intensive clinical intervention to treat substance abuse offers a higher return on investment than the constant drain of early attrition (Highfill-McRoy et al., 2012).

The data in this thesis suggests that these policy efforts should be focused toward the most high-risk institutional intersections, specifically for junior enlisted personnel in high-stress operational communities. Because the Engineering/Hull community exhibited a persistent independent risk for attrition even when diagnosis characteristics were held constant, the Navy should evaluate the benefits of tailored mental health providers directly within these ratings to mitigate occupational stressors before they manifest into a visible trigger. Additionally, since the highest risk for attrition occurs between the E01-E03 paygrades, the Navy could benefit from a mentorship and support resource within the first 18 to 24 months of service to flatten the steep rank gradient observed in Chapter IV.

Finally, to understand the gap between clinical needs and administrative outcomes, command policy should move toward an integrated tracking system that explicitly recognizes the high degree of comorbidity between substance misuse and underlying mental health conditions. By encouraging early identification through primary care settings and providing confidential treatment options, the Navy can intervene before a maladaptive coping mechanism result in a career-ending visible incident (Gray et al., 2022). Ultimately, standardizing how clinical context is recorded in separation paperwork will ensure that future policymakers have the necessary data to determine if the benefit of an individual separation truly outweighs the overall loss to the Navy's continuity and operational readiness.

F. CONCLUSION

This thesis suggests that FTA in the Navy is a multi-layered challenge where diagnostic, demographic, and occupational factors converge to influence a Sailor's likelihood of completing their initial service term. The primary finding of this thesis is that substance related disorders serve as the most consistent visible predictor of attrition, and it implies that the current administrative framework is highly sensitive to observable behavioral triggers. In response to this sensitivity, this may potentially overshadow latent

mental health comorbid conditions. While the administrative response to these visible incidents is often immediate, the persistent independent risk found in specific communities like Engineering and Hull, as well as the steep risk gradient among junior ranks, suggest that attrition is not solely a clinical issue but an environmental aspect.

Conclusively, the results imply that a "Healthy Sailor Effect" may be at work, where those who navigate the initial stressors of service without manifesting visible behavioral markers are significantly more likely to successfully complete their initial term of service and persist into senior leadership (Highfill-McRoy et al., 2012). By shifting Navy policy away from "zero tolerance" towards a rehabilitative framework, the Navy may be better aligned to preserve its most valuable assets. A proactive policy approach that integrates qualitative data and standardized reporting will allow the Navy to move beyond reactive separations and toward a more stable, combat-effective force capable of future sustained operational readiness.

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APPENDIX A. RELATIVE RISK TABLES

A. RELATIVE RISK

Table 10. Relative Risk of Demographics

Characteristic	Total N	FTA N	FTA Rate (%)	Relative Risk vs Overall
Sex				
Female	107,324	23,726	22.1	1.01
Male	362,499	79,238	21.9	1.00
Race / Ethnicity				
White	285,826	61,040	21.4	0.98
Black	93,035	19,698	21.2	0.97
Asian	31,577	5,419	17.2	0.79
Amerindian	8,124	2,496	**30.7**	**1.40**
Mixed	46,719	11,306	24.2	1.11
Not Reported	4,542	3,005	**66.2**	**3.02**
Age (Years)				
≤17	865	266	**30.8**	**1.41**
18–21	99,293	28,379	**28.6**	**1.31**
22–25	165,078	35,541	21.5	0.98
26–29	118,239	23,507	19.9	0.91
30+	85,348	15,271	17.9	0.82
Marital Status				
Never Married	274,466	61,795	22.5	1.03
Married	177,633	38,350	21.6	0.99
Divorced	16,248	2,208	13.6	0.62
Other / Unknown	1,476	611	**41.4**	**1.89**
Education Level				
< High School	4,542	1,418	**31.2**	**1.43**
High School	400,106	88,597	22.1	1.01
Some College	23,763	4,551	19.2	0.88
Bachelor's	34,301	7,382	21.5	0.98
Advanced Degree	2,878	499	17.3	0.79
Not Reported	4,233	517	12.2	0.56

Note. Overall FTA rate was calculated by the Total N of the data sample to those Sailors who received an FTA binary code of 1. (102,964 ÷ 469,823). Computing each community's FTA rate came from $FTA\ Rate_{Community} = FTA_{Community} \div Total_{Community}$ and further relative risk vs. Overall was calculated as $Relative\ Risk\ vs\ Overall = FTA\ Rate_{Community} \div Overall\ FTA\ rate$.

Table 11. Relative Risk of Navy Communities

Community	Total N	FTA N	FTA Rate (%)	Relative Risk vs Overall	Risk Category
Trainee	270	100	**37.0**	1.69	**High**
Not Classified	57,912	18,776	**32.4**	1.48	**High**
Engineering / Hull	56,396	15,624	**27.7**	1.26	**High**
Religious / Chaplain	1,071	274	**25.6**	1.17	**High**
General Deck / Undesignated	49,743	11,218	**22.6**	1.03	**High**
Special Warfare	5,380	1,199	22.3	1.02	Near Avg
Meteorology / Oceanography	1,518	332	21.9	1.00	Avg
Security / Law Enforcement	16,187	3,374	20.8	0.95	Low
Surface Warfare	63,120	12,992	20.6	0.94	Low
Information Warfare / Intelligence	39,370	8,044	20.4	0.93	Low
Legal	539	110	20.4	0.93	Low
Administrative / Logistics	38,500	7,293	18.9	0.86	Low
Aviation	94,002	17,117	18.2	0.83	Low
Seabee / Construction	10,766	1,691	15.7	0.72	Low
Music / Band	473	70	14.8	0.68	Low
Submarine	5,041	741	14.7	0.67	Low
Medical	29,094	3,964	13.6	0.62	Low
Nuclear	441	45	**10.2**	0.47	**Lowest**

Note. Overall FTA rate was calculated by the Total N of the data sample to those Sailors who received an FTA binary code of 1. (102,964 ÷ 469,823). Computing each community's FTA rate came from $FTA\ Rate_{Community} = FTA_{Community} \div Total_{Community}$ and further relative risk vs. Overall was calculated as $Relative\ Risk\ vs\ Overall = FTA\ Rate_{Community} \div Overall\ FTA\ rate$.

Table 12. Relative Risk of Rank

Rank	Total N	FTA N	FTA Rate (%)	Relative Risk vs Overall	Risk Category
E-1	41,037	14,449	35.2	1.61	**High**
E-2	25,784	7,466	29.0	1.32	**High**
E-3	78,218	20,980	26.8	1.22	**High**
E-4	102,264	18,344	17.9	0.82	Low
E-5	201,169	38,954	19.4	0.89	Low
O-2	16,097	2,488	15.5	0.71	Low
O-1	5,254	283	5.4	0.25	**Lowest**

Note. Overall FTA rate was calculated by the Total N of the data sample to those Sailors who received an FTA binary code of 1. (102,964 ÷ 469,823). Computing each community's FTA rate came from $FTA\ Rate_{Community} = FTA_{Community} \div Total_{Community}$ and further relative risk vs. Overall was calculated as $Relative\ Risk\ vs\ Overall = FTA\ Rate_{Community} \div Overall\ FTA\ rate$.

Table 13. Relative Risk of Diagnosis

Diagnosis Category	Total N	FTA N	FTA Rate (%)	Relative Risk vs Overall
Diagnosis	85,238	21,073	24.7	1.13
Mental Health Diagnosis	64,618	14,546	22.5	1.03
├─ Depressive Disorders	19,586	4,720	24.1	1.10
├─ PTSD	6,073	1,329	21.9	1.00
├─ Psychotic Disorders	767	299	**39.0**	**1.78†**
├─ Bipolar Disorders	840	258	**30.7**	**1.40†**
└─ Other Mental Health	41,559	9,056	21.8	1.00
Substance Use Disorders	32,454	9,946	**30.6**	**1.40**
├─ Alcohol Use Disorder	13,040	3,800	29.1	1.33
├─ Drug Use Disorder	2,103	845	**40.2**	**1.84†**
└─ Nicotine Use	22,718	7,332	**32.3**	**1.47**
Adjustment Disorders (Maladjustment)	1,083	322	**29.7**	**1.36†**
Suicide-Related Diagnoses	7,391	2,065	**27.9**	**1.27**
├─ Suicidal Ideation	7,236	2,026	28.0	1.28
└─ Self-Inflicted Injuries	298	93	**31.2**	**1.43†**

Note. Overall FTA rate was calculated by the Total N of the data sample to those Sailors who received an FTA binary code of 1. (102,964 ÷ 469,823). Computing each community's FTA rate came from $FTA\ Rate_{Community} = FTA_{Community} \div Total_{Community}$ and further relative risk vs. Overall was calculated as $Relative\ Risk\ vs\ Overall = FTA\ Rate_{Community} \div Overall\ FTA\ rate$.

B. ROBUSTNESS CHECK

Table 14. Linear Probability Model (LPM) in FTA

Diagnosis	Model 1 PP (95% CI)	Model 2 PP (95% CI)	Model 3 PP (95% CI)	N
Total Population	**408,583**	**408,583**	**408,583**	**408,583**
Dx Coded Variables	4.28 (3.97, 4.60)	--	--	72,838
Mental Health Specific	--	-0.49 (-0.87, -0.12)	--	64,618
Substance Related Disorder	--	10.36 (9.88, 10.83)	--	13,970
Maladjustment Disorder	--	1.72 (-0.79, 4.22)	1.41 (-1.09, 3.92)	1,083
Suicide Related Diagnosis	--	1.87 (0.87, 2.87)	--	7,391
PTSD	--	--	-0. 72 (-1.80, 0.36)	6,073
Depressive Disorder	--	--	0.01 (-0.64, 0.66)	19,586
Bipolar Disorder	--	--	2.03 (-0.82, 4.89)	840
Psychoses	--	--	9.37 (6.36, 12.39)	767
Mental Health (Other)	--	--	-0.75 (-1.19, -0.32)	41,559
Drug Related Disorder	--	--	8.24 (6.40, 10.08)	2,103
Alcohol Related Disorder	--	--	3.20 (2.45, 3.95)	13,040
Nicotine Use	--	--	11.74 (11.17, 12.30)	22,718
Suicide Ideation	--	--	1.41 (0.37, 2.45)	7,093
Self inflected injuries			-0.11 (-6.59, 6.37)	155

Note. Percentage-point (PP) effects are derived from linear probability models predicting FTA. Model 1 includes a binary indicator for any mental health diagnosis; Model 2 includes broad diagnostic categories; Model 3 includes specific mental health conditions. All models adjust for socio-demographic and organizational controls. Estimates represent percentage-point changes in FTA probability relative to Sailors without the specified diagnosis. 95% confidence intervals are shown in parenthesis.

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