



NAVAL POSTGRADUATE SCHOOL

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THESIS

**AN ANALYSIS OF FACTORS AFFECTING THE
RETENTION DESIRES OF SPOUSES OF U.S. NAVY
JUNIOR ENLISTED PERSONNEL**

by

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June 2005

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SPOUSES OF U.S. NAVY JUNIOR ENLISTED PERSONNEL**

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This thesis examines factors that influence the retention desires of spouses of US Navy junior enlisted personnel. Data were obtained from the *1999 Survey of Spouses of Active Duty Personnel* on spouses who resided with the military member, whose significant other was in paygrades E1 to E4, and had between 9 months and 4 years of active duty service. Logistic regression is utilized to measure the influence of various demographic, military, and attitudinal variables on spouse's desire that the significant other stay on active duty. Significant positive influences include: spouse a member of a race/ethnic group other than White, Hispanic, or Black; service member an E4 rather than E-1 to E-3; and spouse perceives own education opportunities and healthcare benefits better in military life than in civilian world. Significant negative influences include: spouse is male; service member on sea duty; and number of PCS moves. Further research is recommended to identify policy changes that would influence spouses to more strongly desire that their significant other remain on active duty.

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I. INTRODUCTION

A. BACKGROUND

Historically, the US Navy has had little reason to consider the wishes or desires of sailors' family members when evaluating what influenced servicemembers to continue their military service. This was largely because, prior to the establishment of the All Volunteer Force (AVF) in 1973, a large majority of Navy personnel were single with no dependents. In fact, this was a period when acquiring a dependent of any type was highly frowned upon. However, as an increasing percentage of both officer and enlisted personnel enter the role of family provider, it turns out that the retention decision is much more complex than it was in the past. With respect to peacetime deployment lengths, the Chief of Naval Operations (CNO), Admiral Vern Clark, recently stated, "You have to keep a healthy rotation because people have lives." "Sailors enlist, but families reenlist, and we haven't forgotten that." [Ref. 2]

Almost all levels of leadership in the Navy now realize the importance of spousal and family influence on the military member's retention decision. It is difficult, however, to pinpoint exactly how important the views of spouses and children are when the member ultimately makes the decision whether to remain on active duty. Even with this uncertainty, it has become common belief by policy makers and researchers that family members are actively involved when career choices are being made by sailors. This view was revealed by the former Chief of Naval Personnel (CNP), Vice Admiral Ryan, who directs all personnel policies for officers, enlisted, and their

families. He stated, "The leadership of the Navy is focused on improving the lives of our Sailors (officer and enlisted) and their families." "Retention is a family issue and we need to focus on retaining families." [Ref. 3] The enlisted community also has similar thoughts as conveyed by Pacific Fleet Master Chief Manuel Rodriguez. "Over the years, the Navy has placed significant importance on the value of the Navy family." "Retention begins at home. After all, they hold 51 percent of the [career retention] vote." [Ref. 16]

If these views are truly accurate, it would be beneficial to determine what influences spouses when they discuss preferences about their significant other's continuation on active duty. According to Orthner, very little research attention was devoted to military families and no retention prediction models included family variables prior to the mid-1970's. [Ref.14] Today with strong evidence and the perception that families indeed do impact the retention decision of Navy personnel, further research is required to determine what factors influence the spouse's desire that the significant other stay on active duty.

B. PURPOSE

The goal of this research is to determine what factors influence the responses of junior enlisted US Navy spouses when asked if they think their spouse should remain on active duty. It attempts to explain the reasoning behind spouses' responses utilizing variables obtained from the *1999 Survey of Spouses of Active Duty Personnel*. The objective is to gain insight regarding spouses' desires for their active duty significant other to continue military service. The purpose of this thesis is to identify the

factors that influence the retention desires of spouses of junior Navy enlisted personnel. The results could then be used to assess the impact of future programs that affect Navy families as a whole.

Logistic regression analysis is used to identify monetary and non-monetary variables that aid in explaining retention desires of spouses and to answer the following research questions:

1. What factors influence the retention desires of spouses of US Navy Junior Enlisted Personnel?

2. How do the spouse's demographics affect the desire that the significant other stay on active duty?

3. How does the military experience of the active duty member affect the significant other's desire that he or she stay on active duty?

4. How do differences in economic attributes such as financial condition and amount of debt of the family affect the desire of the spouse that the significant other stay on active duty?

5. How do differences in satisfaction with external attributes such as work opportunities, education opportunities, childcare difficulties, and perception of healthcare affect the desire of spouses that the significant other stay on active duty?

Once these questions are explored and analyzed, policy makers and senior Navy leadership will have a larger set of detailed information to draw upon when making key policy decisions relating to enlisted retention and, particularly, how spouses and families influence the retention decision.

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II. LITERATURE REVIEW

A. SPOUSES INFLUENCE ON MILITARY CAREER DECISIONS

Many may wish to believe that career choices are solely made on the basis of the preferences of the individual directly involved in the decision itself. In reality, the decision process is often much more complex, especially if a spouse or family member will be directly affected by the outcome. In a previously published literature review on factors affecting retention, Rose M. Etheridge refers to several studies that strongly suggest that there is a "positive relationship between spouse opinion and the member's decision to reenlist." She adds that "when the spouse is supportive of the member's remaining in the military, reenlistment is more likely than if the spouse is not supportive." [Ref. 6]

One of the most significant demographic changes in the active duty military since 1973 has been an increase in servicemembers with family members. Department of Defense (DOD) studies cite statistics showing the percentage of enlisted personnel who were married increased from approximately 40 percent of the force in 1973 to approximately 50 percent in 1977. After a slight decrease from 1977 to 1980, the marriage rate increased through the mid-1990s. Between 1980 and 2000, at least half of the active duty force consisted of married servicemembers. Other DOD data also indicate that servicemembers today have increased family responsibilities. The percentage of servicemembers with children increased from 43 percent to 45 percent between 1990 and 2000. [Ref. 7] As military members increasingly find themselves with family

obligations, research into what influences their spouses' desire that they remain on active duty should be expanded.

When determining what influences spouses' opinions toward the retention of the significant other, their own employment and educational opportunities tend to be a major contributor. In today's society, a large percentage of families find both the husband and wife in the workforce to support the rising cost of maintaining a household. In 1999, 55 percent of enlisted spouses were employed in the civilian labor force, while 8 percent were unemployed and seeking work. According to a March 2001 study conducted for DOD, working spouses of military servicemembers contribute up to 40 percent of the family's income and earn an average of 24 to 30 percent less than their civilian counterparts. [Ref. 7]

A Rand 2004 study utilized regression models and propensity analysis to develop a thorough assessment of military spouses of all services. They also conducted interviews of enlisted and officer's spouses from all branches of the service and determined that successful retention of the active duty force depends in large part on the extent to which servicemembers and their spouses are satisfied with the military lifestyle. Prior research suggests both that the most satisfied military families are those with an employed spouse and that the influence of military spouses on service member retention decisions has increased with the proportion of military spouses working outside the home. [Ref. 11]

Another Rand study in 2002 utilized a sample of active duty married male members from all services and performed regression analysis to support the hypothesis that the decision by a member to stay in, or leave, the military

takes into account his wife's career prospects and career aspirations in addition to his own. Wives who believe their career opportunities to be greater outside the military will influence members to leave the military, other things being equal. In particular, wives with a stronger interest in the labor market will influence their husbands to leave the military if they believe labor market opportunities are greater outside the military. In addition, of the wives remaining with the military, those with a weaker attachment to the labor force tend to withdraw from it. [Ref. 13]

Spouse educational opportunities are often cited as a determinant of overall satisfaction with military life. This, in turn, is correlated with a spouse's desire that the significant other stay on active duty. This area is more difficult to analyze because overall satisfaction is based on a combination of many factors including family support programs, housing quality, number of moves, active duty member's work demand, time away from home, and numerous others. However, education level is usually directly and positively related to work opportunities and income, and therefore is an important consideration to take into account. [Ref. 11]

The same 2004 study by the Rand Corporation [Ref. 11] indicates that among 1,100 military spouses interviewed, many reported a negative impact on their education due to military life. Almost half of the spouses believed that their educational opportunities had suffered due to frequent moves and service member absence. Due to relocations, it is difficult to complete a single course of study in one area which often leads to repeating courses when credits obtained from one institution do not transfer

to another. Additionally, the inflexibility and unpredictability of the military member's work schedule makes it difficult for the spouse to pursue an education. Unable to rely on the active duty member to provide child care at night or on weekends places an excessive financial burden on the family due to the cost of schooling and additional outside child care. [Ref. 11]

B. FAMILY FACTORS AFFECTING RETENTION IN THE MILITARY

Currently, family members outnumber the total number of personnel on active duty. With the trend continuing toward a higher proportion of family members, family related factors will play a larger role in the desire of the spouse that the significant other stay on active duty. These include, but are not limited to, satisfaction with childcare, the perception of available healthcare, and the overall condition of the family's financial situation.

A 1999 survey found that junior enlisted, when compared to senior enlisted, are less satisfied with military life, more likely to think the military is not a good place to raise children and tend to blame the military for their marital dissatisfaction and financial problems. [Ref. 19] Also, of 23,162 married spouses of active duty servicemembers in paygrades E1 through E5 who responded to *The 1997 Survey of Spouses of Enlisted Personnel*, 80 percent reported that finding affordable child care was a problem. This difficulty with childcare is also often related to securing worthwhile employment, and as mentioned earlier, strongly influences family satisfaction with the military and spouse desire for the servicemember to remain on active duty. [Ref. 5]

Another study by Rand in 1992 [Ref. 21] included interviews with key staff personnel responsible for child

care policy at the DoD level, Child Development Center (CDC) staff, and several Junior Enlisted Navy spouses. They stated that some respondents argued that child care serves retention goals. Despite the lack of a direct empirical link between child care availability and retention, a number of respondents believed the relationship was there. Since retention is associated with family well-being, and spouse employment increases family well-being, child care availability promotes family well-being by facilitating spouse employment, according to proponents of this view.

The connection between child care and retention seemed very evident to one Navy enlisted spouse who was interviewed. She considers child care a key service that permits her husband to remain in the Navy. Given her husband's salary, she needs to bring in an income. Without the low-cost child care provided by the CDC to her three young children, she said, "it would make no economic sense for me to work." Her view was echoed by the Head of Child Development Services on that base. She noted that child care is one more benefit that helps retention. "The Navy wants to keep the cream of the crop and needs to keep them," she said. Subsidized child care is a form of compensation for families who have or expect to have children. For these families, child care increases the income stream relative to most civilian alternatives. Since increased income is associated with increased retention, child care almost certainly increases retention, but the size of the effect is unclear. [Ref. 21]

Active duty and family member benefits have traditionally played a major role in the retention of personnel. A 2003 report by the Defense Advisory Committee

on Women in the Services (DACOWITS) [Ref. 4] conducted focus groups with enlisted personnel and their family members. They found the number one tangible reason to stay in the military to be benefits. Benefits had more influence on retention than career development opportunities, job stability and security, job characteristics, and even pay. All ranks of active duty members, and their family members, identified benefits (such as healthcare, retirement pay, and commissary/exchange privileges) as the key factor for remaining in the military. [Ref. 4]

Another study also supports the finding that benefits are influential in the retention decision. The U.S. General Accounting Office (GAO) analyzed responses from *The 1999 Survey of Active Duty Members* [Ref. 7] and found that family medical care was among the top reasons for considering staying in the military. Basic pay was reported to be the most important reason to stay, followed by job security, retirement pay, job enjoyment, and medical care for families. Together, those five factors accounted for 57 percent of all responses.

The financial condition of a military family may also influence retention desires of the spouse and intentions of the military member. Some service members, like many civilians, experience difficulties in managing their personal finances. They tend to marry and have children at younger ages than does the civilian population and they also tend to have a more traditional household structure, with the spouse working only part time or not at all. Because of this, it is possible that the greater financial and family responsibilities military members have for their age puts them at increased risk for financial problems. If

such hardships exit, they might bode problems for member morale and retention that should be addressed by DoD policies. [Ref. 20]

Military wives report difficulty in finding jobs, let alone well-paying jobs, and junior military families have difficulty managing their finances and making ends meet. [Ref. 12] Moreover, it is widely assumed that the job and career opportunities available to a military spouse affect the family's willingness to stay in the military. [Ref. 13] Because of these findings and the interrelationships between satisfaction with military life, spouse employment, and family well-being, financial condition of the family must also be taken into consideration when determining what factors influence the spouse's desire that the significant other stay on active duty.

C. FAMILY FACTORS AFFECTING TURNOVER IN THE CIVILIAN COMMUNITY

Turnover is the term most often utilized within the civilian employment arena that defines the measurement of the ratio of the number of workers that had to be replaced in a given time period to the average number of workers in the firm or organization. The process may be initiated by the employee when quitting or the employer when firing an individual worker. While the results of turnover are not always necessarily negative in nature, there are usually substantial costs involved with recruiting, hiring, and training of replacement personnel.

Many studies have been conducted that attempt to explain the reasoning behind the occurrence of turnover in the workplace. Often, the focus has been on job and economic factors in predicting job morale, performance, and commitment. [Ref. 14] What little research has been done

on the social aspects of turnover indicates that family factors play an important role in explaining individuals' work attitudes and behaviors. [Ref. 18]

Rothausen [Ref. 17] conducted meta-analysis to determine how individuals' family lives impact job satisfaction and intention to quit. Although these studies were performed utilizing data gathered from civilian respondents, military members and their spouses and family members are influenced by the same general categories of factors as their civilian counterparts.

D. SUMMARY

Over the past 30 years the military has witnessed a dramatic change in the makeup of its forces with respect to additional family members involved when retention decisions are made. With such a large percentage of active duty personnel being married and having children, policymakers have had to consider what additional non-traditional factors influence the retention decision. Both civilian and military research has recently been conducted to determine what these factors are and how influential they are on turnover. This thesis is designed to further examine demographic characteristics, rank and experience characteristics, and economic and external attributes, and attitudes that influence the spouse's desire that the significant other stay on active duty.

III. DATA AND METHODOLOGY

A. OVERVIEW

This chapter provides a description of the data set and methodology utilized in this statistical analysis to examine what factors affect the retention desires of spouses of Junior Navy Enlisted personnel. It also explains limitations of the data and how each variable was constructed to later be used in a regression analysis. This chapter also provides basic descriptive statistics and presents a preliminary analysis of the dependent variable and each of the independent variables.

B. DATA SET AND LIMITATIONS

The data for this study originates from the *1999 Department of Defense Survey of Spouses of Active Duty Personnel*. Active Duty Surveys (ADS) sponsored by the Office of the Assistant Secretary of Defense (OASD) have been conducted on military members since 1969. Not until 1978, however, were spouses included in the survey process. This survey was conducted between November 1999 and April 2000 and the sampling was completely independent of the sampling of active duty members conducted the same year. These surveys are designed to provide relevant information on the military life cycle to assist policymakers in their decision making process. [Ref. 5]

The data set was obtained by administering a survey of 112 questions to 38,901 spouses of servicemembers from all military branches (including Reservists on active duty). The population consisted of spouses of servicemembers below the rank of admiral or general, with at least 9 months of active duty service at the time of survey mailings. The

questionnaire gathered information on demographics, current location, spouse's military assignment, military life, programs and services, employment, family information, and economic issues. Of the surveys sent out, a total of 16,103 were returned and available for analysis. [Ref. 5]

For confidentiality reasons, the data available for analysis was intentionally limited. A substantial number of respondents were eliminated to ensure no one individual spouse could be identified due to a particular combination of responses (such as male, Hispanic, 4 children ages 2-5 years old, with a deployed spouse). Subgroups were also constructed for the category of paygrade. Once collapsed, paygrade groups became E1-E3, E4, E5-E6, and E7-E9. This grouping limits the final interpretation of variables to a set of paygrades and therefore loses some of its explanatory power.

This thesis analyzes spouses of US Navy junior enlisted personnel. For this study, junior enlisted personnel are defined as those in the ranks of E1 through E4 who have between 9 months and 4 years of active duty service. Additionally, only spouses who are currently married, live with the active duty member, and answered the question about whether they think their spouse should stay on or leave active duty were used in this study. With those restrictions, the original data set was reduced to 408 spouses available for analysis.

C. VARIABLE DESCRIPTION AND EXPLANATION

The dependent variable for this analysis is STAY. It is a binary variable that equals 1 if the spouse thinks his or her significant other should stay on active duty and equals 0 if not. Independent variables include

demographic, rank, and experience characteristics along with economic and external attributes. Details of the construction of these variables are presented in Table 1.

Table 1. Variable Descriptions

Variable Description	Variable Name	Range
Dependent Variable		
Whether spouse thinks significant other should stay on active duty	STAY	=1 if stay =0 if otherwise
Independent Variables		
<u>Gender</u>		
Male	Male	=1 if male =0 if otherwise
Female	Female	=1 if female =0 if otherwise
<u>Race/Ethnic</u>		
White	White	=1 if White =0 if otherwise
African American	Black	=1 if Black =0 if otherwise
Hispanic	Hispanic	=1 if Hispanic =0 if otherwise
Other Race/Ethnicity	Race_Other	=1 if Other =0 if otherwise
<u>Family Status</u>		
Have child or children	Child	=1 if have child =0 if otherwise

Variable Descriptions cont.

Variable Description	Variable Name	Range
Independent Variable		
<u>Military Rank</u>		
E1-E3	E1_E3	=1 if E1-E3 =0 if otherwise
E4	E4	=1 if E4 =0 if otherwise
<u>Duty Type</u>		
Assigned to ship	Ship	=1 if on ship =0 if otherwise
<u>PCS</u>		
Number of PCS moves	PCS	=response from 0 to 5 PCS moves
<u>Financial</u>		
Financial Condition	Fin_Secure	=1 if financially secure =0 if otherwise
<u>Debt</u>		
Amount of Debt	Debt7500	=1 if debt is \$7500 or less =0 if otherwise
	Debt15000	=1 if debt is between \$7500 and \$15000 =0 if otherwise
	DebtGRTR15000	=1 if debt is above \$15000 =0 if otherwise

Variable Descriptions cont.

Variable Description	Variable Name	Range
Independent Variable		
<u>Employment</u>		
Working	Working	=1 if working =0 if otherwise
Employment opportunities	Sat_Employ	=1 if perceived employment opportunities are better in military life compared to civilian world =0 if perceived employment opportunities are better in civilian world compared to military life =3 no perceived difference
<u>Education</u>		
Education opportunities	Sat_Educ	=1 if perceived education opportunities are better in military life compared to civilian world =0 if otherwise

Variable Descriptions cont.

Variable Description	Variable Name	Range
Independent Variable		
<u>Healthcare</u>		
Healthcare benefits	Sat_Health	=1 if perceived healthcare benefits are better in military life compared to civilian world =0 if otherwise
<u>Childcare</u>		
Affordable childcare	Afford_Child	=1 if finding affordable childcare is a problem =0 if otherwise

Source: Author

This model contains 17 variables, including the dependent variable. Independent variables selected to assist in analyzing the retention desires of spouses of US Navy junior enlisted personnel include: gender, race/ethnicity, family status, military rank of servicemember, duty type, number of PCS moves, financial condition, debt, opportunities for employment, education, and healthcare, and difficulty finding affordable childcare. Table 2 below displays descriptive statistics for each independent variable.

Table 2. Descriptive Statistics

Variable	Frequency	Percentage
<u>Gender</u>		
Male	41	7.06
Female	540	92.94
<u>Race/Ethnic</u>		
White	354	64.13
African American	67	11.78
Hispanic	66	11.60
Other Race/Ethnicity	68	11.95
<u>Family Status</u>		
Have child or children	339	58.96
No children	236	41.04
<u>Military Rank</u>		
E1-E3	174	30.85
E4	390	69.15
<u>Duty Type</u>		
Assigned to ship	290	51.06
Assigned to shore	278	48.94

Descriptive Statistics cont.

Variable	Frequency	Percentage
<u>PCS Moves</u>		
0 PCS moves	247	42.66
1 PCS move	195	33.68
2 PCS moves	90	15.54
3 PCS moves	39	6.74
4 PCS moves	5	0.86
5 PCS moves	2	0.35
<u>Financial Condition</u>		
Financially secure	166	28.82
Financially insecure	410	71.18
<u>Debt</u>		
Debt \$7500 or less	426	75.53
Debt between \$7501 and \$15000	77	13.25
Debt above \$15001	46	7.92
<u>Employment</u>		
Working	230	40.42
Not working	339	59.58
Employment opportunities in military life better than in civilian world	40	7.46
Employment opportunities in civilian world better than in military life	282	52.61
No difference	214	39.93

Descriptive Statistics cont.

Variable	Frequency	Percentage
<u>Education</u>		
Education opportunities in military life better than in civilian world	131	25.59
Education opportunities in civilian world better than in military life	381	74.41
<u>Healthcare</u>		
Healthcare benefits in military life better than in civilian world	415	75.18
Healthcare benefits in civilian world better than in military life	137	24.82
<u>Childcare</u>		
Finding affordable childcare is a problem	160	2.92
Finding affordable childcare is not a problem	413	72.08

Source: Author

As shown in Table 2, a substantial percentage of spouse respondents are female (92.9%), white (64.1%), have a child or children (58.9%), and are married to a

servicemember in the rank of E4 (69.2%). Additionally, 71.2% consider their family's financial condition to be insecure. Employment opportunities are largely perceived as negative or no substantial difference between military life and the civilian world, as indicated by only 7.5% of the spouses indicating they feel their employment opportunities are better in military life than in the civilian world. Opportunities for education in military life are also strongly perceived as negative. About 74.4% of spouses feel their education opportunities in the civilian world are better than in military life. Healthcare benefits, however, are strongly perceived positive as evidenced by 75.2% of spouses feel their healthcare benefits in military life are better than in the civilian world.

Next, Table 3 displays the results of a preliminary analysis of the percentage of spouses in each category who desire that their significant other stay on or leave active duty.

Table 3. Preliminary Analysis

Variable	% Stay	% Leave
<u>Gender</u>		
Male	20.00	80.00
Female	43.32	56.68
<u>Race/Ethnic</u>		
White	39.55	60.45
African American	46.97	53.03
Hispanic	41.54	58.46
Other Race/Ethnicity	52.24	47.76

Preliminary Analysis cont.

Variable	% Stay	% Leave
<u>Family Status</u>		
Have child or children	43.49	56.51
No children	38.64	61.36
<u>Military Rank</u>		
E1-E3	40.23	59.77
E4	42.31	57.69
<u>Duty Type</u>		
Assigned to ship	38.75	61.25
Assigned to shore	45.42	54.58
<u>PCS Moves</u>		
0 PCS moves	42.86	57.14
1 PCS move	40.51	59.49
2 PCS moves	50.00	50.00
3 PCS moves	25.64	74.36
4 PCS moves	0.00	100.00
5 PCS moves	50.00	50.00
<u>Financial Condition</u>		
Financially secure	40.00	60.00
Financially insecure	42.64	57.36

Preliminary Analysis cont.

Variable	% Stay	% Leave
<u>Debt</u>		
Debt \$7500 or less	44.84	55.16
Debt between \$7501 and \$15000	34.21	65.79
Debt above \$15001	33.33	66.67
<u>Employment</u>		
Working	40.17	59.83
Not working	43.03	56.97
Employment opportunities in military life better than in civilian world	64.10	35.90
Employment opportunities in civilian world better than in military life	32.71	67.29
No difference	47.66	52.34
<u>Education</u>		
Education opportunities in military life better than in civilian world	53.85	46.15
Education opportunities in civilian world better than in military life	35.34	64.66

Preliminary Analysis cont.

Variable	% Stay	% Leave
<u>Healthcare</u>		
Healthcare benefits in military life better than in civilian world	47.58	52.42
Healthcare benefits in civilian world better than in military life	23.14	76.86
<u>Childcare</u>		
Finding affordable childcare is a problem	43.40	56.60
Finding affordable childcare is not a problem	40.30	59.70

Source: Author

The combined results of Table 2 and Table 3 offer a preview of the attributes that most strongly influence the spouse's desire that his or her significant other remain on active duty. Nearly 92.5% of spouses indicated they feel their employment opportunities are better in the civilian world or are no different than in military life. In addition, of those spouses who perceive that their employment opportunities are better in the civilian world, 67.3% feel their significant other should leave active duty. This represents a considerable portion of the sample who feels their employment opportunities are being hindered by military life. This may lead to their desire to pursue

employment purely in the civilian market without any military interference. Almost 64.1% of the spouses who indicated their employment opportunities in military life are better than in the civilian world wanted their significant other to remain on active duty. However, only 7.5% of the overall sample viewed military employment opportunities as being better.

Education and healthcare also appear to play a large role in the retention desires of spouses. Of the 74.4% of spouses who indicated their education opportunities are better in the civilian world, 64.7% desire that their significant other leave active duty. Although a majority of spouses (75.2%) feel their healthcare benefits are better in military life, of those who do not, 76.9% desire that their significant other leave active duty. Lastly, debt of the family reveals a trend regarding the retention desires of spouses. As debt increases from \$7,500 and below to greater than \$15,000, spouses increasingly desire that their significant other leave active duty.

D. METHODOLOGY

The method chosen to analyze data in this study is logistic regression. This method will be utilized because the dependent variable, 'STAY', is binary. A spouse desiring his or her significant other to stay on active duty has a value on this measure that equals 1, while those who wish their significant other to leave have a value of 0. The binary logistic model will provide the probability that a spouse of a junior enlisted sailor will desire that their significant other stay on active duty, given the values of the explanatory variables.

The probability (P) of a spouse desiring their significant other to remain on active duty is as follows:

P (Stay) = $1/1+e^{-(B_0X_0 + B_1X_1 + B_kX_k)}$ where B_i is the value of the estimated parameter, X_i is the value of the explanatory variable, and k denotes the number of explanatory variables for each individual.

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IV. MODEL ESTIMATION

A. MODEL SPECIFICATION

The theoretical model was developed by utilizing prior research in the literature review and also from experience of the author.

STAY = F(MALE, BLACK, HISPANIC, RACE_OTHER, CHILD, E4, SHIP, PCS, FIN_SECURE, DEBT15000, DEBTGRTR15000, WORKING, SAT_EMPLOY, SAT_EDUC, SAT_HEALTH, AFFORD_CHILD).

B. HYPOTHESIZED EFFECTS OF EXPLANATORY VARIABLES

Table 4 below summarizes each of the explanatory variables and their expected signs.

Table 4. Variables and Expected Signs

Variable	Expected Sign
<u>Gender</u>	
Male (MALE)	-
<u>Race/Ethnic</u>	
African American (BLACK)	+
Hispanic (HISPANIC)	+
Other Race/Ethnicity (RACE_OTHER)	+
<u>Family Status</u>	
Have child or children (CHILD)	+
<u>Military Rank</u>	
E4 (E4)	+

Variables and Expected Signs cont.

Variable	Expected Sign
<u>Duty Type</u>	
Assigned to ship (SHIP)	-
<u>PCS Moves</u>	
PCS moves	-
<u>Financial Condition</u>	
Financially secure (FIN_SECURE)	+
<u>Debt</u>	
Debt between \$7501 (DEBT15000) and \$15000	-
Debt above \$15001 (DEBTGRTR15000)	-
<u>Employment</u>	
Working (WORKING)	+
Employment opportunities in military life better than in civilian world (SAT_EMPLOY)	+
<u>Education</u>	
Education opportunities in military life better than in civilian world (SAT_EDUC)	+
<u>Healthcare</u>	
Healthcare benefits in military life better than in civilian world (SAT_HEALTH)	+

Variables and Expected Signs cont.

Variable	Expected Sign
<u>Childcare</u>	
Finding affordable childcare is a problem (AFFORD_CHILD)	-

Source: Author

Independent variables and an explanation of their hypothesized effects on the dependent variable, STAY, are presented below.

1. Gender

Separation from family members is inherent in the Navy. Etheridge (1989) argues that a female servicemember's overnight absence from her family is more strongly associated with decreased spouse career support than a male servicemember's absence. Therefore, it is expected that male spouses will have less desire that their significant other remain on active duty than the base case (female).

2. Race/Ethnic

Race/ethnic group was divided into four categories: African American, Hispanic, other race, and White (the base case). It is believed that active duty minorities feel they have greater opportunities in the military than in the civilian sector. It is assumed that this view is shared by the spouse of the servicemember, and therefore, it is hypothesized that minority group membership will have a positive effect on STAY compared to the base case (white).

3. Family Status

Since only spouses who are currently married and living with the servicemember are included in this study, having a family is defined as having a child or children. Health benefits and stability tend to influence retention desires of personnel with children. Because of this, it is expected that spouses with a child or children would be more likely to desire their significant other to remain on active duty compared to the base case (no children) since health benefits and job security are assured in the military.

4. Military Rank

Only two paygrade groups were available for analysis of junior personnel since the original data was merged and collapsed for confidentiality. For this study, only two subgroups were used: E1-E3 (the base case) and E4. It is expected that that being a spouse of an E4 would be positively related to the desire to have the servicemember remain on active duty compared to the base case (E1-E3). This is believed because, as a spouse becomes more accustomed with military life, he or she discovers the many military family programs, facilities, and services available to them. Also, the spouse of an E4 has a greater likelihood of having a child or children, and so the family benefits of the military are more deeply realized by the spouse of an E4 than by the spouse of a more junior sailor.

5. Duty Type

The base case for duty type is a servicemember assigned to shore duty. Individuals assigned to duty onboard ship are much more likely to experience extended periods away from their homeport and families. For most families, frequent or prolonged absences provide

dissatisfaction. Because of this, it is expected that spouses with significant others stationed onboard ship would have experienced a negative effect on their desire that the servicemember stay on active duty. In general, a sailor does not experience their first sea duty tour until they are an E3, therefore correlation with the rank variables could pose a problem. Correlation between these variables, however, was low (.02) and did not seem to present a serious problem.

6. PCS Moves

Moving relatively often is typical in the Naval service. It is an experience most servicemembers and spouses expect to occur at some time during their service. Many individuals look forward to the prospect of traveling to a new destination, however, the more frequent moves become, the more unstable families begin to feel. It is hypothesized that compared to the base case (a spouse who has experienced the mean number of PCS moves (.93)), the more moves a spouse encounters, the less likely he or she will be to desire that the significant other remain on active duty. While PCS moves tend to increase with length of service, correlation between PCS moves and the rank variables was low (.07) and was not an issue for concern.

7. Financial Condition

The financial well-being of a family often determines the level of stress experienced by individual members. Generally, an occupation that provides sufficient income also places less strain on the family as a whole. It is expected that spouses who report that their family is financially secure will be more likely to desire that their significant other remain on active duty.

8. Debt

Debt was divided into three categories for this analysis: Less than \$7,500 of debt (base case), \$7,500 to \$15,000 of debt, and debt greater than \$15,000. A family's debt is related to their financial condition. It is hypothesized that the greater the debt, the more likely the spouse will desire that his or her significant other leave active duty to secure a job with a better financial position.

9. Employment

A working spouse is expected to be more satisfied overall compared to the base case (not working) since he or she is contributing to the financial security of his or her family. Similarly, a spouse who feels positively about his or her job prospects will also believe he or she can add to the economic well-being of the family. For this reason, it is predicted that working spouses and those who feel their employment opportunities in military life are better than those in the civilian world will have a stronger desire that their significant other remain on active duty.

10. Education

Attainment of education is often correlated with the ability to secure a better, higher paying job. Therefore, as stated above, a positive relationship is expected between spouses who feel their education opportunities in military life are better than those in the civilian world and the desire they have that their significant other remain on active duty.

11. Healthcare

Healthcare is an area that has been researched fairly extensively regarding its effect on retention intentions. GAO (2000) found that family medical care is one of the top

reasons personnel consider staying in the military. It is hypothesized that spouses who feel their healthcare benefits in military life are better than in the civilian world will be more likely to desire that their significant other remain on active duty.

12. Childcare

The ability to obtain affordable childcare is frequently related to the effort a spouse puts forth to gain employment. If childcare costs are too high, it is not worth spending time away from home to bring in little or no additional income. It is therefore hypothesized that if finding affordable childcare is a problem, the spouse will be more likely to desire that the significant other leave active duty.

C. MODEL RESULTS

The final restricted model for this study contained 408 observations. Utilizing literature review and personal experience, 15 independent variables were analyzed to determine their predictive ability on the dependent variable STAY. Of the explanatory variables, 7 were statistically significant at the .10 level.

The following table specifies the overall frequency of the categories of the response variable, STAY, and shows the percentage of all respondents who desire his or her significant other to remain on or leave active duty.

Table 5. Response Profile

STAY	Total Frequency	Percent
1	164	40.2
0	244	59.8

Source: Author

1. Model Goodness of Fit

The following tables display how well the model predicts the likelihood that a spouse of a US Navy junior enlisted sailor will desire that his or her significant other remain on active duty.

Table 6. Model Fit Statistics for STAY Model

	Intercept only	Intercept and Covariates	
-2 Log L	549.820	500.641	
R-Square	0.1136	Max-rescaled R-Square	0.1534
	Chi-Square	DF	Pr > Chi-Square
Likelihood Ratio	49.1784	16	<.0001

Source: Author

The results of Table 6 indicate that the model STAY is significantly better, at the .01 level, than a model with only the intercept. The R-Square values (generalized = .1136 and max-re-scaled = .1534) indicate the limited predictive ability of the model. This is not uncommon, however, in models of this design.

2. Classification Table

The classification table below displays the predictive power of the model for STAY in terms of percentage correctly classified by the model. As shown previously in Table 5, 164 or 40.2% of respondents desired that their

significant other remain on active duty (STAY = 1). Using this proportion as the classification criteria, Table 7 shows that the model predicts 60.8% of the observations correctly.

Table 7. Classification Table

Classification Table									
	Correct		Incorrect			Percentage			
Prob Level	Event	Non - Event	Event	Non - Event	Correct	Sensi-tivity	Speci-ficity	False Pos	False Neg
0.40	106	142	102	58	60.8	64.6	58.2	49.0	29.0
0.50	61	188	56	103	61.0	37.2	77.0	47.9	35.4

Source: Author

3. Parameter Estimates

Table 8 contains the parameter estimates for the logistic regression model for STAY. Table 9 contains the results of several restricted model tests for the joint significance of groups of variables.

Table 8. Logistic Regression Parameter Estimates

Variable	Estimate	Standard Error	P-Value
MALE***	-1.4233	0.5549	0.0103
BLACK	0.5449	0.3470	0.1164
HISPANIC	0.0320	0.3532	0.9279
RACE_OTHER**	0.7454	0.3619	0.0394
CHILD	0.0979	0.2683	0.7151
E4**	0.5238	0.2419	0.0303
SHIP*	-0.4188	0.2255	0.0632
PCS**	-0.2154	0.1107	0.0517
FIN_SECURE	-0.0088	0.2549	0.9725
DEBT15000	-0.1033	0.3320	0.7557
DEBTGRTR15000	-0.1710	0.4098	0.6765
WORKING	0.1212	0.2346	0.6055
SAT_EMPLOY	0.0860	0.0770	0.2642
SAT_EDUC**	0.5631	0.2560	0.0279
SAT_HEALTH***	0.9938	0.2817	0.0004
AFFORD_CHILD	-0.0290	0.2940	0.9213

* Significant at the ten percent level
 ** Significant at the five percent level
 *** Significant at the one percent level

Source: Author

Table 9. Joint Significance Tests

Variables	Chi-Square	DF	Pr > ChiSq
Black, Hispanic, and Race_Other	5.9594	3	0.1136
Child, Afford_Child	0.1397	2	0.9325
Fin_Secure, Debt15000, and DebtGRTR15000	0.2416	3	0.9706
Working, Sat_Employ	1.7017	2	0.4270
Sat_Employ, Sat_Educ	6.4619	2	0.0395
Sat_Employ, Sat_Educ, and Sat_Health	21.9154	3	<.0001
Sat_Employ, Afford_Child	1.3137	2	.5185

Source: Author

a. Signs as Expected

All of the statistically significant variables have the hypothesized sign. Additionally, only one variable (FIN_SECURE) has the opposite sign of what was expected and it is statistically insignificant. The unexpected sign could be explained by reasoning that a spouse in a financially insecure family may desire his or her significant other to leave active duty in search of a more profitable career rather than remain in the military to ensure a steady source of income exists.

b. Significance

Of the 16 independent variables in the model, 7 are found to be statistically significant. MALE and SAT_HEALTH are significant at the .01 level, RACE_OTHER, E4, PCS, and SAT_EDUC are significant at the .05 level, and SHIP is significant at the .10 level. Although 9 of the

independent variables remain insignificant, literature and personal experience support their relevance and thus they were included in the model.

Several combinations of variables were also tested to determine if they were jointly significant in explaining STAY. The joint effect of SAT_EMPLOY and SAT_EDUC were investigated to evaluate the combined roles of these two important aspects of economic opportunity. Table 9 shows that these two variables were significant in explaining the dependent variable. SAT_EMPLOY and SAT_EDUC also had significant explanatory power regarding STAY when tested individually. The satisfaction variables in the group SAT_EMPLOY, SAT_EDUC, and SAT_HEALTH were also investigated to determine their influence on STAY. Table 9 shows that these three variables were strongly significant in explaining the retention desires of spouses. Although, BLACK, HISPANIC, and RACE_OTHER proved jointly insignificant, a borderline $Pr > ChiSq$ value demonstrates that they have some explanatory power for the dependent variable.

4. Partial Effects Interpretation

The parameter estimates in Table 8 provide some understanding of how the independent variables explain the dependent variable. It is also important, however, to determine how changes in the independent variables influence the dependent variable. To obtain meaningful partial effects for a logistic regression model, it is useful to show the effect each independent variable has on the typical or base case individual's probability of desiring the significant other to stay on active duty, when

that variable is changed by one unit, holding all other independent variables constant.

The base case for this model is female, white, has no children, is the spouse of an E1-E3, has a spouse on shore duty, has experienced the average number of PCS moves, feels financially insecure, has family debt of \$7500 or less, is not working, perceives that her employment and education opportunities are better in the civilian world, perceives that her healthcare benefits are better in military life, and feels that finding affordable childcare is a problem.

Table 10. Partial Effects

Variable Base Case	Prediction 0.1793	Partial Effect
MALE***	0.0500	-0.1293
BLACK	0.2737	0.0944
HISPANIC	0.1841	0.0048
RACE_OTHER**	0.3153	0.1360
CHILD	0.1942	0.0149
E4**	0.2695	0.0902
SHIP*	0.1257	-0.0536
PCS**	0.1517	-0.0276
FIN_SECURE	0.1780	-0.0013
DEBT15000	0.1646	-0.0147
DEBTGRTR15000	0.1555	-0.0238
WORKING	0.1979	0.0186
SAT_EMPLOY	0.1923	0.0130
SAT_EDUC**	0.2773	0.0980
SAT_HEALTH***	0.3712	0.1919
AFFORD_CHILD	0.1751	-0.0042

* Significant at the ten percent level
 ** Significant at the five percent level
 *** Significant at the one percent level

Source: Author

MALE is significant at the .01 level and has a negative influence on STAY. The probability of a male spouse desiring his significant other remain on active duty is 12.9% lower than for the base case female, ceteris paribus. Spouses who perceive that their healthcare benefits are better in military life than in the civilian world (SAT_HEALTH) are also significantly more likely to favor their significant other staying in the military at the .01 level. The probability that they desire the significant other remain on active duty is 19.2% higher than for the base case, ceteris paribus.

RACE_OTHER, E4, PCS, and SAT_EDUC are all significant at the .05 level. Of these variables, only PCS has a negative effect on STAY. Being of a race other than the base case White, Black, or Hispanic indicates a 13.6% higher probability that the spouse will desire his or her significant other remain on active duty compared to a white respondent, ceteris paribus. The spouse of an E4 has a 9% higher probability to desire his or her significant other remain on active duty compared to the spouse of an E1-E3, ceteris paribus. Compared to the base case spouse who has experienced the mean number of moves (.93), an additional PCS move causes a 2.8% decreased likelihood that the spouse desires the significant other remain on active duty, ceteris paribus. Additionally, spouses who perceive that their education opportunities are better in military life (SAT_EDUC) are 9.8% more likely to desire their significant other remain on active duty, ceteris paribus. The spouse of a sailor serving onboard ship is also significant at the .10 level. Compared to the spouse of a sailor assigned to

shore duty, these spouses are 5.4% less likely to desire their significant other remain on active duty, *ceteris paribus*.

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V. CONCLUSIONS AND RECOMMENDATIONS

Unlike most studies in the area of military retention, the focus of this study was to analyze the factors that influence the retention desires of spouses of US Navy Junior Enlisted Personnel. Data for this thesis were obtained from the *1999 Survey of Spouses of Active Duty Personnel*. Based on the retention literature and personal experience, several explanatory variables were created to investigate their ability to accurately predict a spouse's desire that his or her significant other remain on active duty. Logistic regression was utilized to estimate the model since the dependent variable, STAY, was dichotomous.

The data for this study were restricted to those spouses who physically resided with the military member, whose significant other was enlisted in paygrades E1 to E4, and had between 9 months and 4 years of active duty service. Also, numerous respondents were excluded from the sample for confidentiality purposes. With these restrictions in place, 408 spouses were available for analysis from the original data set.

A. CONCLUSIONS

The following table provides a brief description of each variable utilized in the research model. A complete description of the variables can be found in Table 1.

Table 11. Summarized Variable Description

Variable Name	Variable Description
Dependent Variable	
STAY	Whether spouse thinks significant other should stay on active duty
Independent Variables	
Male	Male
Black	African American
Hispanic	Hispanic
Race_Other	Other Race/Ethnicity
Child	Have child or children
E4	E4
Ship	Assigned to ship
PCS	Number of PCS moves
Fin_Secure	Financial Condition
Debt15000	Family debt is between \$7501 and \$15000
DebtGRTR15000	Family debt is above \$15001
Working	Currently working
Sat_Employ	Perceived employment opportunities are better in military life compared to civilian world
Sat_Educ	Perceived education opportunities are better in military life compared to civilian world
Sat_Health	Perceived healthcare benefits are better in military life compared to civilian world
Afford_Child	Finding affordable childcare is a problem

Source: Author

The factors found significant in explaining the retention desires of spouses of US Navy Junior Enlisted Personnel were: MALE, RACE_OTHER, E4, SHIP, PCS, SAT_EDUC, and SAT_HEALTH. Additionally, joint significance in explaining STAY was found for the following groups of variables: SAT_EMPLOY, SAT_EDUC and SAT_EMPLOY, SAT_EDUC, SAT_HEALTH.

Although male spouses represented a small fraction of those in the sample (7.1%), the probability of a male spouse desiring his significant other remain on active duty was 12.9% lower than for the base case female spouse. This provides some evidence that recruiting more females may lead to lower overall retention of first term sailors.

The demographic characteristic most closely related to the dependent variable STAY was RACE_OTHER. It proved to be significant and the spouses in that category had a 13.6% higher probability that they would desire their significant other remain on active duty compared to a white respondent. This finding supports the view that many minorities believe the military provides greater opportunities for them than the civilian sector. Also, it is assumed the spouse shares the feeling that military life offers a more equitable workplace than does the civilian world.

The variable E4 was also significant in the model. Compared to the spouse of an E1-E3, the spouse of an E4 had a 9% higher probability of desiring that the significant other remain on active duty. This supports the hypothesis that the spouse of a more senior sailor has a stronger realization of the many family benefits the military has to offer.

The saying "Sailors belong on ships and ships belong at sea" is often heard in the Navy community. This mindset, however, does not appear to be echoed by spouses of sailors. The variable SHIP, representing the spouse of a sailor serving onboard ship, is significant. This spouse, compared to the spouse of a sailor assigned to shore duty, was 5.4% less likely to desire that the significant other remain on active duty.

PCS moves also affect spouses and family members of active duty personnel. The variable PCS was significant in the model and its effect on retention desires of spouses was compared to the mean number of PCS moves (.93) spouses had experienced. An additional PCS move caused a 2.8% decrease in the likelihood that the spouse desired the significant other remain on active duty.

Generally, due to recruit and initial training, a sailor is not assigned to sea duty until they attain the rank of E3. Also, PCS moves tend to increase with additional years of service. For these reasons, correlation of sea duty and PCS moves with rank could pose a potential problem. This, however, was not the case as correlation proved to be low between both the rank variables and PCS moves and between the rank variables and assignment to a ship.

Satisfaction with education opportunities (SAT_EDUC) also proved significant in the model. Of the spouses analyzed in the model, those who perceived their education opportunities better in military life than the civilian world were 9.8% more likely to desire their significant other remain on active duty.

Satisfaction with healthcare benefits (SAT_HEALTH) traditionally plays a role in retention desires of servicemembers and spouses alike. The variable SAT_HEALTH was significant and those spouses who perceived that their healthcare benefits were better in military life than the civilian world were 19.2% more likely to desire their significant other remain on active duty.

SAT_EMPLOY and SAT_EDUC were also jointly significant. This indicates that spouses who find opportunity for employment and education superior in the military recognize that the key to gaining valuable employment lies with the ability to obtain the educational skills to support becoming marketable in the workforce.

SAT_EMPLOY, SAT_EDUC, and SAT_HEALTH were also jointly significant in explaining the retention desires of spouses. This demonstrates that the satisfaction variables in this group, which are complexly related to one another, are very influential when the spouse considers the retention of the significant other.

B. POLICY IMPLICATIONS

The retention of quality first term sailors in the Navy has been a concern since the establishment of the All Volunteer Force in 1973. A multitude of studies have been conducted in an attempt to determine what influences the servicemember to intend to re-enlist for another term of service. As a growing number of junior enlisted sailors find themselves with additional family responsibilities, it is valuable to determine how these family members influence their retention intentions and behavior. For this reason, it is imperative that senior Navy leadership further investigate the role spouses and family members play in the

retention decisions of sailors. Armed with this valuable information, they can then set into place effective family services and programs that positively affect spouses' support of their significant other continuing on active duty beyond their first enlistment.

Findings of this thesis indicate that spouses who feel their education opportunities are better in military life than in the civilian world are more likely to desire that their significant other remain on active duty. For this reason, a further review of the possibility of expanding GI Bill education benefits to spouses and family members should be investigated. Having the opportunity to transfer GI Bill benefits to the spouse or other dependent in exchange for re-enlisting for an additional enlistment term could prove beneficial in the recruiting and retention process. Also, states that offer in-state tuition to military spouses and dependents are providing a much needed benefit to junior sailors who generally live on a limited income. Several states, including Virginia (which has the largest number of active duty Navy personnel), do not offer in-state tuition unless the spouse or dependent is a resident of the state. By working with the US Department of Education to further expand the number of states that allow in-state tuition to spouses and dependents of military members, advanced education would be made more accessible and should therefore positively influence spouses' desire that their significant other remain on active duty.

Since healthcare benefits also influence the spouse's desire that the significant other remain on active duty, policies that affect the healthcare benefits of military

families should be reviewed. Programs such as Tricare Prime, Tricare Standard, and Tricare for Life should be further developed and explained to servicemembers and their families to ensure they realize the myriad of benefits they provide.

Spouses of sailors stationed onboard ship and those who have experienced more than the mean number of PCS moves (.93), indicated their preference that their significant other leave active duty. This could be due to the lack of information possessed by the spouse regarding the detailing process of sailors. An increase in detailer visits to Navy bases which highly encourage the presence of spouses could be a valuable tool in instilling support by the spouse concerning duty assignment and location. With a deeper understanding of the detailing process, spouses may further understand and support the significant other's assignment to a ship which may include a PCS move. Additionally, the concept of "Homesteading" should be further utilized to allow the sailor and his or her family the opportunity to remain in one geographical location and thus minimize the number of PCS moves they experience.

C. FUTURE RESEARCH

The results of this thesis provide the framework for additional research. Studies that further investigate the factors that influence the retention desires of spouses of US Navy junior enlisted personnel have many potential benefits.

This study indicates that it would be particularly useful to conduct further analysis of the groups of jointly significant variables SAT_EMPLOY, SAT_EDUC and SAT_EMPLOY, SAT_EDUC, SAT_HEALTH. These factors are obviously

influential in the retention desires of spouses of junior sailors. Further development and analysis of these factors could prove beneficial in providing a more accurate picture of the interrelationship of satisfaction with these important features of military life.

Establishing a link between spouse's desire that the significant other remain on active duty and actual retention behavior of the military member would also be useful. Gathering and analyzing this matched data could assist in determining if a relationship exists between the spouse's retention desire and the servicemember's actual behavior.

Lastly, continuing the process of surveying spouses over time would allow for the building of a data warehouse to increase the number of spouses available for analysis. A larger sample size should provide better results when performing a predictive study of retention desires of spouses. Also having data collected over time would be helpful in determining whether spousal attitudes are changing over time, and if so, to what extent and why.

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